This document is approved for public release per review by:
Art McBride (signature on file) 2/10/2009
 BJC ETPP Classification & Date
 Information Control Office

Date:	11 February 2009	Correspondence No.:	K25-09-011 Rev 1
Affected Document Number(s): DOE/OR/01-2167&D1			

NOTIFICATION OF CONCURRENCE K-25/K-27 DECONTAMINATION AND DECOMMISSIONING PROJECT EAST TENNESSEE TECHNOLOGY PARK

EPA	TDEC	DOE	BJC
Ms. Constance Jones U.S. Environmental Protection Agency, Region IV Atlanta Federal Center 61 Forsyth Street, SW Atlanta, GA 30303-3104 404-562-8551 FAX: 404-562-8518	Mr. Roger Petrie Tennessee Department of Environment and Conservation DOE Oversight Division 761 Emory Valley Road Oak Ridge, TN 37830-7072 865-481-0995 FAX: 865-482-1835	Mr. Russell J. Vranicar U.S. Department of Energy Oak Ridge Operations Office Post Office Box 2001 Oak Ridge, TN 37831 865-241-2421 FAX: 865-576-5333	Mr. Kelly Trice Bechtel Jacobs Company LLC Post Office Box 4699 Oak Ridge, TN 37831-7313 865-241-1153 FAX: 865-576-7591

SUBJECT: Change number of EMWMF waste lots in the *Waste Handling Plan for Demolition of the K-25 and K-27 Building Structures and Remaining Components Located at the East Tennessee Technology Park, Oak Ridge, Tennessee* from two to three.

ORIGINATOR: Sid Garland

DOCUMENTATION REVIEWED:

- *Waste Handling Plan for Demolition of the K-25 and K-27 Building Structures and Remaining Components Located at the East Tennessee Technology Park, Oak Ridge, Tennessee* (DOE/OR/01-2167&D1)

DISCUSSION:

Section 5.1 of the approved *Waste Handling Plan for Demolition of the K-25 and K-27 Building Structures and Remaining Components Located at the East Tennessee Technology Park, Oak Ridge, Tennessee* (WHP) includes two Environmental Management Waste Management (EMWMF) waste lots:

- Asbestos-contaminated roofing/transite
- Construction debris, such as nonasbestos roofing, structural steel/miscellaneous metal/equipment, nonradiological piping, wood, and miscellaneous small quantities of concrete

This concurrence form adds an additional EMWMF waste lot 6.47 for lavatory sink drains. Based on an analysis of the building structure characterization data, the only individual building structure with either an analytic carcinogenic or Hazard Index (HI) sum-of-fractions (SOF) greater than 1 is the lavatory sink drains (Table 1). The HI SOF for the lavatory sink drains is 1.34 (Table 2). When all media are combined with the material of construction calculations, the HI SOF is 1.22 (Table 3). However, when the lavatory sink drains are segregated from all other media, the HI SOF is only 0.256, which is well below the EMWMF waste acceptance criteria SOF limit of 1 (Table 4). Given the large volume (124, 625 cubic yards) of other building structure media with a small HI SOF of 0.256 and the small volume (one cubic yard) of lavatory sink drains with a large HI SOF of 1.34, a separate waste lot for lavatory sink drains is recommended.

Lead is the primary contributor to the large HI SOF in the lavatory sink drains. Lead in the lavatory sink drains was shown using the Wilcoxon rank-sum test statistically to have higher concentrations than all other building structure media combined. Other analytes having statistically different median concentrations in the lavatory sink drains compared to all other media are antimony, arsenic, boron, cadmium, selenium, silver, vanadium, zinc, mercury, strontium, and Uranium-233/234 (Table 5).

A separate waste lot for the lavatory sink drains minimizes the volume weighted sum-of fractions since a much smaller volume of waste will have the higher HI SOF of 1.34, while a much larger volume of waste will have a small HI SOF of 0.256.

Section 5.1 of the WHP states that if evaluation of the characterization data identifies subpopulations, then new EMWMF waste lots will be created.

This concurrence form approves a new EMWMF waste lot 6.47. A subsequent addendum to the WHP will be prepared to document this approval. This new EMWMF waste lot 6.47 will be included in the proxy EMWMF waste lot 6.999.

COMMENTS:

CONCURRENCE:

Region 4 – EPA

Christine Allison Jones 2/12/09
Signature Date

ORO – DOE

R. Wrenn 2/11/09
Signature Date

Oversight Division – TDEC

[Signature] 2/24/09
Signature Date

K-25/27 D&D Project – BJC

[Signature] 2/11/09
Signature Date

cc: Administrative Record Coordinator (Rhonda Butler)
EMMF DMC
K-25/K-27 PDCC

Table 1. Overall summary of building structure SOFs by media

Media	% Coverage with 95% Confidence	Number of Samples	SOF	
			Carc.	HI
Concrete floor	95	59	0.004	3.4E-04
Coolant pipes	85	19	0.003	3.2E-04
Coolant tanks	NA	23	7.6E-04	3.2E-04
Exterior walls	85	19	0.002	7.6E-04
Interior walls	90	31	8.2E-04	0.006
Lavatory sink drains	NA	23	0.003	1.34
Lube oil drains	NA	27	8.3E-04	1.4E-04
Recirculating coolant water	90	28	0.003	0.221
Roof	85	19	0.002	0.055
Structural steel beams	90	29	1.8E-04	1.1E-08
Ventilation ducts	90	71	0.061	0.007
Fluorine disposal headers	NA	7	0.09	0.037

Table 2. Summary statistics for K-25 West building structure lavatory sink drains

Constituent	Freq. of Detection	Units	Non-detect					Ln transformed														UCL 95	Analytic WAC		ASA WAC	SOF	
			Detection Limits ^a		Mean ^b	Median ^b	S.D. ^b	Detected				Detected				Dist.	E(X)	95	Carc.	HI	Carc.		HI				
			Min	Max				Min	Mean	Max	S.D.	Mean ^b	S.D. ^b	Mean	S.D.												
			Lavatory Sink Drains																								
Metals																											
Antimony	11 / 23	mg/kg	1.55	154	53.8	14.9	66.2	2.6	9.21	20.4	6.06	2.93	1.63	1.99	0.737	B	35.9	82.6	--	160	--	--	--	0.224			
Arsenic	14 / 23	mg/kg	12.35	49.7	75.7	49.2	59.9	12.9	99.0	226	66.8	4.03	0.815	4.31	0.866	LN	78.1	115	--	--	--	--	--	--			
Beryllium	0 / 23	mg/kg	0.049	0.5	0.236	0.24	0.145	--	--	--	--	-1.7	0.83	--	--	B	0.252	0.395	--	--	--	NA	NA	--			
Boron	12 / 23	mg/kg	2.5	99.5	65.5	60.1	34.0	31.7	54.5	129	29.9	3.97	0.829	3.9	0.442	B	62.0	102	--	24,000	--	--	--	0.003			
Cadmium	14 / 23	mg/kg	2.4	10	18.1	9.6	21.0	0.83	25.4	91.3	24.3	2.33	1.14	2.7	1.23	LN	19.5	36.5	--	--	--	--	--	--			
Chromium	19 / 23	mg/kg	9.6	10.0	121	93	115	15.1	144	400	114	4.16	1.29	4.56	1.05	B	130	256	--	140,000	--	--	--	9.3E-04			
Copper	21 / 23	mg/kg	29.7	29.8	616	335	666	49.5	672	2590	671	5.76	1.32	5.99	1.14	LN	759	1682	--	--	--	--	--	--			
Lead	19 / 23	mg/kg	0.6	24.75	590	209	1504	96.7	710	7380	1636	5.12	1.81	5.76	1.02	B	1369	3528	--	1500	--	--	--	0.913			
Magnesium	14 / 23	mg/kg	21.1	845	1516	1030	1897	888	2061	9910	2283	6.91	1.07	7.4	0.573	B	2342	5399	--	--	--	--	--	--			
Manganese	23 / 23	mg/kg	--	--	3083	3140	1101	350	3083	4660	1101	7.91	0.616	7.91	0.616	B	2928	4152	--	360,000	--	--	--	0.008			
Mercury	12 / 23	mg/kg	0.001	0.055	0.063	0.014	0.152	0.009	0.113	0.73	0.2	-4.7	2.3	-3.03	1.27	B	0.131	0.342	--	--	--	--	--	--			
Molybdenum	14 / 23	mg/kg	9.8	19.9	38.2	20.9	38.4	2.8	51.7	189	44.5	3.3	0.865	3.61	0.975	LN	39.3	59.5	--	3900	--	--	--	0.01			
Nickel	23 / 23	mg/kg	--	--	141	97.2	124	11.9	141	459	124	4.48	1.08	4.48	1.08	LN	159	293	--	--	--	--	--	--			
Selenium	8 / 19	mg/kg	12.05	248.5	223	245	114	179	300.5	377	71.8	5.12	0.991	5.68	0.272	B	228	333	--	1600	--	--	--	0.143			
Silver	11 / 23	mg/kg	2.45	10.0	10.8	9.8	9.37	0.8	15.0	47.4	11.9	2.06	0.882	2.39	1.0	B	14.6	29.5	--	--	--	--	--	--			
Strontium	22 / 23	mg/kg	0.25	0.25	2.44	1.8	1.61	0.87	2.54	6.8	1.57	0.677	0.711	0.771	0.564	LN	2.53	3.48	--	300,000	--	--	--	8.4E-06			
Thallium	1 / 23	mg/kg	1.25	49.7	23.5	12.5	19.2	20.5	20.5	20.5	--	2.7	1.12	3.02	--	B	16.8	32.5	--	--	--	NA	NA	--			
Tin	15 / 23	mg/kg	0.6	24.85	53.1	24.6	78.7	5.2	75.7	326	89.9	2.89	1.73	3.66	1.26	LN	80.1	271	--	2200	--	--	--	0.036			
Vanadium	19 / 23	mg/kg	0.25	4.8	34.1	33.6	30.7	5.4	40.8	125	29.7	2.94	1.43	3.46	0.775	B	43.3	83.8	--	25,000	--	--	--	0.002			
Zinc	23 / 23	mg/kg	--	--	28,841	24,900	30,602	215	28,841	147,000	30,602	9.54	1.66	9.54	1.66	B	41,136	87,867	--	--	--	--	--	--			
Radionuclides																											
Americium-241	0 / 23	pCi/g	0.108	1.08	0.453	0.385	0.298	--	--	--	--	-1.02	0.712	--	--	LN	0.465	0.945	2.0E+21	--	13,000	NA	NA	NA			
Neptunium-237	0 / 23	pCi/g	0.13	0.537	0.305	0.322	0.116	--	--	--	--	-1.26	0.409	--	--	N	0.305	0.346	320	--	10,000	NA	NA	NA			
Plutonium-238	0 / 23	pCi/g	0.147	0.58	0.344	0.278	0.131	--	--	--	--	-1.14	0.397	--	--	LN	0.346	0.42	--	--	15,000	NA	NA	NA			
Plutonium-239/240	0 / 23	pCi/g	0.08	0.669	0.326	0.26	0.185	--	--	--	--	-1.29	0.622	--	--	LN	0.334	0.457	720	--	13,000	NA	NA	NA			
Technetium-99	0 / 23	pCi/g	0.425	1.43	0.715	0.617	0.239	--	--	--	--	-0.382	0.304	--	--	LN	0.715	0.829	172	--	4.2E+07	NA	NA	1.7E-07			
Uranium-233/234	7 / 23	pCi/g	0.221	0.991	1.93	0.566	5.43	0.271	5.29	26.1	9.43	-0.445	1.1	0.522	1.55	B	4.76	12.2	1700	2.8E+07	100,000	0.003	0.003	0.07			
Uranium-235/236	1 / 23	pCi/g	0.125	0.901	0.405	0.328	0.227	0.752	0.752	0.752	--	-1.06	0.576	0.285	--	LN	0.41	0.592	1500	9500	100,000	NA	NA	3.1E-04			
Uranium-238	4 / 23	pCi/g	0.174	0.781	0.472	0.369	0.368	0.26	0.841	1.96	0.775	-0.923	0.547	0.475	0.883	LN	0.461	0.629	1200	1500	100,000	3.8E-04	3.1E-04	0.04			

Semivolatile Organics

1,2,4-Trichlorobenzene	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	5100	--	NA	NA
1,2-Dichlorobenzene	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	9400	--	NA	NA
1,3-Dichlorobenzene	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	58,000	--	NA	NA
1,4-Dichlorobenzene	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	100	24,000	--	NA	NA
2,3,4,6-Tetrachlorophenol	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	10,800	--	NA	NA
2,4,5-Trichlorophenol	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	--	--	NA	NA
2,4,6-Trichlorophenol	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	22	--	--	NA	NA
2,4-Dimethylphenol	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	2150	--	NA	NA
2,4-Dinitrotoluene	0 / 23	mg/kg	0.001	0.063	0.012	0.004	0.015	--	--	--	--	-5.09	1.17	--	--	B	0.013	0.032	1	62	--	NA	NA
2,6-Dinitrotoluene	0 / 23	mg/kg	0.001	0.063	0.012	0.004	0.015	--	--	--	--	-5.09	1.17	--	--	B	0.013	0.032	0.81	24	--	NA	NA
2-Methylnaphthalene	1 / 23	mg/kg	3.2E-04	0.013	0.002	8.2E-04	0.003	5.9E-04	04	5.9E-04	--	-6.67	1.14	-7.43	--	B	0.003	0.006	--	4000	--	NA	NA
2-Methylphenol	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	232	--	NA	NA
2-Nitrophenol	0 / 23	mg/kg	0.001	0.063	0.012	0.004	0.015	--	--	--	--	-5.09	1.17	--	--	B	0.013	0.032	--	1.8	--	NA	NA
4-Nitrobenzamine	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	8.7E+08	2.3E+09	--	NA	NA
4-Nitrophenol	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	850	--	NA	NA
Acenaphthene	1 / 23	mg/kg	0.001	0.021	0.004	0.001	0.005	0.003	0.003	0.003	--	-6.11	1.12	-5.96	--	B	0.004	0.01	--	390,000	--	NA	NA
Acenaphthylene	0 / 23	mg/kg	4.1E-04	0.019	0.004	0.001	0.004	--	--	--	--	-6.3	1.17	--	--	B	0.004	0.009	--	93,200	--	NA	NA
Acetophenone	2 / 23	mg/kg	0.001	0.023	0.05	0.004	0.156	0.247	0.488	0.728	0.34	-4.9	1.61	0.858	0.764	B	0.124	0.332	--	330	--	--	3.8E-04
Benzenemethanol	0 / 23	mg/kg	0.004	0.188	0.035	0.012	0.044	--	--	--	--	-4.0	1.17	--	--	B	0.04	0.095	--	1200	--	NA	NA
Benzoic acid	1 / 23	mg/kg	0.007	0.313	0.061	0.021	0.072	0.043	0.043	0.043	--	-3.41	1.13	-3.14	--	B	0.067	0.158	--	9810	--	NA	NA
Carbazole	4 / 23	mg/kg	4.7E-04	0.019	0.004	0.002	0.004	0.001	0.003	0.006	0.002	-6.05	1.08	-5.93	0.705	1.N	0.004	0.008	110,000	--	--	3.9E-08	--
Di-n-butyl phthalate	4 / 23	mg/kg	0.001	0.063	0.013	0.005	0.015	0.004	0.01	0.027	0.011	-4.88	1.1	-4.95	0.917	B	0.014	0.032	--	190	--	--	7.4E-05
Diethyl phthalate	1 / 23	mg/kg	0.003	0.125	0.027	0.008	0.032	0.088	0.088	0.088	--	-4.26	1.2	-2.43	--	B	0.027	0.063	--	6180	--	NA	NA
Dimethyl phthalate	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	30,700	--	NA	NA
Diphenylamine	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	--	--	NA	NA
Hexachlorobenzene	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	4.0E+06	773,000	--	NA	NA
Hexachlorobutadiene	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	--	--	NA	NA
Hexachloroethane	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	2800	500	--	NA	NA
Isophorone	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	6100	15,000	--	NA	NA
N-Nitroso-di-n-propylamine	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	0.019	--	--	NA	NA
Naphthalene	1 / 23	mg/kg	4.7E-04	0.019	0.004	0.001	0.004	0.002	0.002	0.002	--	-6.22	1.12	-6.04	--	B	0.004	0.009	--	9900	--	NA	NA
Nitrobenzene	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	1.98	--	NA	NA
Pentachlorophenol	4 / 23	mg/kg	0.003	0.125	0.034	0.021	0.044	0.021	0.075	0.187	0.076	-4.13	1.31	-2.93	0.924	B	0.045	0.102	--	--	--	--	--
Phenol	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	3200	--	NA	NA
Pyridine	0 / 23	mg/kg	0.003	0.125	0.024	0.008	0.029	--	--	--	--	-4.4	1.17	--	--	B	0.027	0.063	--	2.2	--	NA	NA

m+p Methylphenol	0 / 23	mg/kg	0.005	0.25	0.047	0.016	0.059	--	--	--	--	-3.71	1.17	--	--	B	0.053	0.126	--	--	--	NA	NA	
TCPLP Metals																								
Arsenic	3 / 23	mg/L	0.025	0.025	0.089	0.025	0.205	0.081	0.517	0.78	0.38	-3.34	0.988	-1.04	1.27	B	0.151	0.365	--	--	--	--	--	
Barium	23 / 23	mg/L	--	--	0.115	0.079	0.095	0.029	0.115	0.46	0.095	-2.4	0.676	-2.4	0.676	LN	0.114	0.156	--	--	--	--	--	
Cadmium	9 / 23	mg/L	0.005	0.005	0.046	0.005	0.082	0.02	0.111	0.33	0.104	-4.24	1.47	-2.6	0.972	B	0.059	0.151	--	--	--	--	--	
Chromium	3 / 23	mg/L	0.01	0.01	0.098	0.01	0.415	0.025	0.688	2	1.14	-4.27	1.13	-2.07	2.41	B	0.342	0.907	--	--	--	--	--	
Lead	13 / 23	mg/L	0.013	0.013	0.118	0.038	0.205	0.026	0.199	0.72	0.246	-3.16	1.37	-2.23	1.12	B	0.147	0.356	--	--	--	--	--	
Mercury	1 / 23	mg/L	1.5E-04	1.5E-04	1.6E-04	1.5E-04	5.2E-05	4.0E-04	04	4.0E-04	--	-8.76	0.205	-7.82	--	B	04	04	--	--	--	NA	NA	
Selenium	2 / 23	mg/L	0.025	0.125	0.039	0.025	0.041	0.063	0.132	0.2	0.097	-3.49	0.558	-2.19	0.817	B	0.054	0.104	--	--	--	--	--	
Silver	5 / 23	mg/L	0.005	0.005	0.007	0.005	0.004	0.011	0.014	0.02	0.003	-5.08	0.442	-4.28	0.228	B	0.008	0.012	--	--	--	--	--	
																					SOF =		0.003	1.34

^a The detection limits shown are the detection limits used as proxy values for non-detect radionuclides or half the detection limits for non-radionuclides.

^b This summary statistic is calculated using both detects and non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = Pert Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

LN = lognormal. UCL95 calculated using Land's statistic or Chebyshev minimum variance unbiased estimator.

N = normal. UCL95 calculated using t statistic.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

NA = Not applicable since SOF is calculated only for site related contaminants with > 5% frequency of detection.

pCi/g = picocuries per gram.

S.D. = standard deviation.

SOF = Sum of fractions > 1 are shown in bold. The ratio of E(X) to the analytic WAC is calculated for each site related contaminant (SRC).

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

Table 3. Summary statistics for K-25 West building structure all media combined with MOC calculations

Constituent	Freq. of Detection	Units	Non-detect					Ln transformed											UCL	Analytic WAC		ASA	SOF		
			Detection Limits ^a		Mean ^b	Median ^b	S.D. ^b	Detected				Detected				Dist.	E(X)	95		Carc.	HI		WAC	Carc.	HI
			Min	Max				Min	Mean	Max	S.D.	Mean ^b	S.D. ^b	Mean	S.D.										
All media combined with MOC calculations																									
Metals																									
Antimony	22 / 61	mg/kg	0.75	154	22.4	3.1	47.1	2.6	8.31	20.4	4.73	1.66	1.55	1.97	0.571	B	27.9	72.1	--	160	--	--	0.174		
Arsenic	36 / 61	mg/kg	12.35	49.7	119	28.2	192	11.6	181	684	232	3.9	1.21	4.29	1.42	B	135	331	--	--	--	--	--		
Beryllium	0 / 61	mg/kg	0.049	1	0.347	0.245	0.294	--	--	--	--	-1.45	0.952	--	--	B	0.338	0.644	--	--	--	NA	NA		
Boron	42 / 61	mg/kg	2.5	99.5	49.5	40.7	39.1	12.2	47.0	263	39.9	3.68	0.685	3.67	0.54	B	71.4	154	--	24,000	--	--	0.003		
Cadmium	28 / 61	mg/kg	0.95	10	9.21	4.9	15.0	0.43	14.4	91.3	21.1	1.4	1.29	1.42	1.77	B	18.6	45.6	--	--	--	--	--		
Chromium	58 / 62	mg/kg	9.6	10.0	171	119.5	178	0.14	182	687	179	4.09	1.95	4.22	1.96	B	194	413	--	140,000	--	--	0.001		
Copper	59 / 61	mg/kg	29.7	29.8	570	334	661	4.8	588	2590	665	5.32	1.83	5.38	1.83	B	655	1465	--	--	--	--	--		
Lead	47 / 62	mg/kg	0.6	24.75	236	24.7	944	5.1	307	7380	1078	3.72	1.67	4.14	1.66	B	1247	3351	--	1500	--	--	0.831		
Magnesium	44 / 61	mg/kg	21.1	845	3466	1330	6703	387	4654	39,700	7580	7.08	1.57	7.76	1.04	B	7507	19,167	--	--	--	--	--		
Manganese	62 / 62	mg/kg	--	--	2723	2750	1684	36.4	2723	6590	1684	7.41	1.4	7.41	1.4	N	2723	3081	--	360,000	--	--	0.008		
Mercury	48 / 61	mg/kg	0.001	0.055	5.48	0.078	24.6	0.008	6.96	181	27.6	-2.38	3.07	-1.33	2.42	LN	10.2	56.3	--	--	--	--	--		
Molybdenum	48 / 61	mg/kg	2	19.9	30.3	20.9	31.9	0.63	34.6	189	34.7	2.72	1.47	2.78	1.62	B	45.5	104	--	3900	--	--	0.012		
Nickel	61 / 61	mg/kg	--	--	132	99.5	131	3.4	132	573	131	4.17	1.45	4.17	1.45	B	162.4	344	--	--	--	--	--		
Selenium	37 / 58	mg/kg	2.95	248.5	159	161	111	1.1E-04	199	377	88.7	4.19	2.4	4.85	2.4	B	170	290	--	1600	--	--	0.106		
Silver	20 / 61	mg/kg	0.6	10.0	7.48	4.9	9.59	0.8	14.5	54.7	13.9	1.41	1.17	2.25	1.01	B	12.5	29.0	--	--	--	--	--		
Strontium	59 / 61	mg/kg	0.25	2.45	245	4.2	677	0.87	253	4540	687	2.38	2.47	2.47	2.45	B	760	2050	--	300,000	--	--	0.003		
Thallium	12 / 61	mg/kg	1.2	49.7	16.6	12.5	14.8	9	17.5	20.5	3.2	2.33	1.08	2.84	0.226	B	16.8	32.5	--	--	--	--	--		
Tin	32 / 62	mg/kg	0.6	24.85	42.6	12.2	90.2	5.2	76.5	506	116	2.4	1.66	3.5	1.27	B	92.5	240	--	2200	--	--	0.042		
Vanadium	39 / 61	mg/kg	0.25	5	20.3	5	31.4	2.2	29.8	179	36.0	2.09	1.43	2.73	1.27	B	33.2	85.4	--	25,000	--	--	0.001		
Zinc	61 / 61	mg/kg	--	--	11,308	529	23,104	19.6	11,308	147,000	23,104	6.96	2.55	6.96	2.55	B	24,856	66,771	--	--	--	--	--		
Pesticides																									
4,4'-DDD	5 / 10	mg/kg	0.001	0.014	0.1	0.014	0.236	0.014	0.195	0.765	0.319	-4.34	2.25	-2.55	1.44	LN	0.163	0.374	77,000	--	--	2.1E-06	--		
4,4'-DDE	10 / 10	mg/kg	--	--	4.99	0.196	13.7	0.022	4.99	43.7	13.7	-1.28	2.35	-1.28	2.35	LN	4.43	9.61	130,000	--	--	3.4E-05	--		
4,4'-DDT	10 / 10	mg/kg	--	--	0.929	0.274	1.66	0.018	0.929	5.51	1.66	-1.19	1.64	-1.19	1.64	LN	1.16	3.08	--	--	--	--	--		
Aldrin	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	6600	44,000	--	NA	NA		
Chlordane*	4 / 10	mg/kg	5.0E-04	0.077	0.052	0.011	0.072	0.015	0.109	0.2	0.083	-4.57	2.29	-2.59	1.15	LN	0.144	0.323	92,000	210,000	--	1.6E-06	6.9E-07		
Dieldrin	0 / 10	mg/kg	0.001	0.153	0.019	0.003	0.047	--	--	--	--	-5.56	1.52	--	--	B	0.027	0.071	7.1	60	--	NA	NA		
Endosulfan I	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	--	330,000	--	NA	NA		
Endosulfan II	0 / 10	mg/kg	0.001	0.153	0.019	0.003	0.047	--	--	--	--	-5.56	1.52	--	--	B	0.027	0.071	--	--	--	NA	NA		
Endrin	0 / 10	mg/kg	0.001	0.153	0.019	0.003	0.047	--	--	--	--	-5.56	1.52	--	--	B	0.027	0.071	--	30,000	--	NA	NA		

Endrin aldehyde	1 / 10	mg/kg	0.001	0.153	0.019	0.004	0.047	0.005	0.005	0.005	--	-5.38	1.43	-5.27	--	B	0.028	0.072	--	30,000	--	--	9.4E-07
Endrin ketone	0 / 10	mg/kg	0.001	0.153	0.019	0.003	0.047	--	--	--	--	-5.56	1.52	--	--	B	0.027	0.071	--	30,000	--	NA	NA
Heptachlor	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	2400	69,000	--	NA	NA
Heptachlor epoxide	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	1000	1500	--	NA	NA
Lindane	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	180	940	--	NA	NA
alpha-BHC	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	39	--	--	NA	NA
alpha-Chlordane	4 / 10	mg/kg	5.0E-04	0.077	0.03	0.006	0.043	0.005	0.052	0.124	0.053	-4.94	2.02	-3.53	1.42	LN	0.055	0.138	--	--	--	--	--
beta-BHC	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	140	--	--	NA	NA
delta-BHC	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	140	--	--	NA	NA
gamma-Chlordane	4 / 10	mg/kg	5.0E-04	0.077	0.031	0.009	0.038	0.011	0.056	0.095	0.037	-4.79	2.06	-3.14	0.971	LN	0.069	0.172	--	--	--	--	--
<i>Radionuclides</i>																							
Americium-241	0 / 348	pCi/g	0.062	1.52	0.501	0.386	0.361	--	--	--	--	-0.958	0.755	--	--	B	0.521	0.991	2.0E+21	--	13,000	NA	NA
Neptunium-237	0 / 348	pCi/g	0.062	0.835	0.254	0.229	0.123	--	--	--	--	-1.49	0.491	--	--	B	0.302	0.551	320	--	10,000	NA	NA
Plutonium-238	0 / 348	pCi/g	0.03	0.747	0.328	0.31	0.176	--	--	--	--	-1.29	0.629	--	--	B	0.336	0.567	--	--	15,000	NA	NA
Plutonium-239/240	1 / 348	pCi/g	0.034	0.739	0.298	0.269	0.169	0.763	0.763	0.763	--	-1.4	0.656	-0.27	--	B	0.312	0.549	720	--	13,000	NA	NA
Technetium-99	12 / 348	pCi/g	0.335	1.43	0.834	0.752	0.516	0.979	2.89	5.34	1.55	-0.265	0.353	0.919	0.575	B	1.45	2.98	172	--	4.2E+07	NA	NA
Uranium-233/234	268 / 355	pCi/g	0.098	1.39	6.41	0.755	30.2	0.087	8.33	405	34.5	0.036	1.42	0.344	1.47	B	68.0	183	1700	2.8E+07	100,000	0.04	2.4E-06
Uranium-235/236	47 / 355	pCi/g	0.038	42.4	0.771	0.311	2.95	0.054	2.55	26.2	4.96	-1.07	0.919	0.193	1.51	B	7.28	19.4	1500	9500	100,000	0.005	7.7E-04
Uranium-238	142 / 355	pCi/g	0.058	1.38	2.15	0.385	9.56	0.072	4.83	137	14.7	-0.752	1.25	0.014	1.5	B	23.1	62.1	1200	1500	100,000	0.019	0.015
<i>Semivolatile Organics</i>																							
1,2,4-Trichlorobenzene	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	5100	--	NA	NA
1,2-Dichlorobenzene	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	9400	--	NA	NA
1,3-Dichlorobenzene	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	58,000	--	NA	NA
1,4-Dichlorobenzene	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	100	24,000	--	NA	NA
2,3,4,6-Tetrachlorophenol	2 / 44	mg/kg	0.003	2.67	0.39	0.038	0.718	0.21	0.339	0.467	0.182	-2.88	2.14	-1.16	0.565	B	0.47	1.24	--	10,800	--	NA	NA
2,4,5-Trichlorophenol	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	--	--	NA	NA
2,4,6-Trichlorophenol	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	22	--	--	NA	NA
2,4-Dimethylphenol	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	2150	--	NA	NA
2,4-Dinitrotoluene	0 / 44	mg/kg	0.001	1.34	0.188	0.019	0.36	--	--	--	--	-3.67	2.11	--	--	B	0.235	0.62	1	62	--	NA	NA
2,6-Dinitrotoluene	0 / 44	mg/kg	0.001	1.34	0.188	0.019	0.36	--	--	--	--	-3.67	2.11	--	--	B	0.235	0.62	0.81	24	--	NA	NA
2-Methylnaphthalene	10 / 44	mg/kg	3.2E-04	0.208	5.17	0.004	29.5	5.9E-04	22.7	196	61.0	-4.54	3.39	0.516	3.24	B	32.7	88.3	--	4000	--	--	0.008
2-Methylphenol	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	232	--	NA	NA
2-Nitrophenol	0 / 44	mg/kg	0.001	1.34	0.188	0.019	0.36	--	--	--	--	-3.67	2.11	--	--	B	0.235	0.62	--	1.8	--	NA	NA
4-Nitrobenzenamine	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	8.7E+08	2.3E+09	--	NA	NA
4-Nitrophenol	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	850	--	NA	NA
Acenaphthene	10 / 44	mg/kg	0.001	0.348	10.3	0.006	53.6	0.003	45.4	355	109	-3.86	3.62	1.77	3.04	B	59.2	160	--	390,000	--	--	1.5E-04
Acenaphthylene	1 / 44	mg/kg	4.1E-04	0.4	0.133	0.006	0.549	3.63	3.63	3.63	--	-4.81	2.24	1.29	--	B	0.609	1.64	--	93,200	--	NA	NA

Acetophenone	2 / 44	mg/kg	0.001	1.34	0.208	0.019	0.368	0.247	0.488	0.728	0.34	-3.57	2.19	0.858	0.764	B	0.235	0.62	--	330	--	NA	NA
Benzenemethanol	0 / 44	mg/kg	0.004	4	0.564	0.057	1.08	--	--	--	--	-2.57	2.11	--	--	B	0.705	1.86	--	1200	--	NA	NA
Benzoic acid	10 / 44	mg/kg	0.007	6.65	1.1	0.246	1.76	0.043	0.812	1.89	0.526	-1.58	2.19	0.509	1.03	B	1.27	3.23	--	9810	--	--	1.3E-04
Carbazole	19 / 44	mg/kg	4.7E-04	0.312	12.7	0.007	64.7	0.001	29.3	429	97.5	-3.48	3.67	0.753	3.87	B	71.5	193	110,000	--	--	6.5E-04	--
Di-n-butyl phthalate	14 / 44	mg/kg	0.001	1.34	0.435	0.049	1.02	0.004	0.804	6.52	1.69	-2.89	2.39	-1.97	2.33	B	1.12	2.99	--	190	--	--	0.006
Diethyl phthalate	4 / 44	mg/kg	0.003	2.67	0.384	0.039	0.717	0.085	0.118	0.19	0.049	-2.82	2.07	-2.19	0.372	B	0.471	1.24	--	6180	--	--	7.6E-05
Dimethyl phthalate	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	30,700	--	NA	NA
Diphenylamine	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	--	--	NA	NA
Hexachlorobenzene	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	4.0E+06	773,000	--	NA	NA
Hexachlorobutadiene	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	--	--	NA	NA
Hexachloroethane	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	2800	500	--	NA	NA
Isophorone	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	6100	15,000	--	NA	NA
N-Nitroso-di-n-propylamine	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	0.019	--	--	NA	NA
Naphthalene	10 / 44	mg/kg	4.7E-04	0.312	17.0	0.006	102	0.002	74.9	678	212	-4.02	3.56	1.44	3.17	B	113	306	--	9900	--	--	0.011
Nitrobenzene	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	1.98	--	NA	NA
Pentachlorophenol	14 / 44	mg/kg	0.003	2.67	0.567	0.156	0.842	0.021	0.641	3.3	0.893	-2.24	2.28	-1.23	1.41	B	0.654	1.63	--	--	--	--	--
Phenol	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	3200	--	NA	NA
Pyridine	0 / 44	mg/kg	0.003	2.67	0.376	0.038	0.721	--	--	--	--	-2.97	2.11	--	--	B	0.47	1.24	--	2.2	--	NA	NA
m+p Methylphenol	0 / 44	mg/kg	0.005	5.4	0.752	0.076	1.44	--	--	--	--	-2.28	2.11	--	--	B	0.943	2.48	--	--	--	NA	NA
<i>TCCLP Metals</i>																							
Arsenic	20 / 61	mg/L	0.025	0.025	0.198	0.025	0.32	0.081	0.552	1.5	0.357	-2.74	1.42	0.797	0.684	B	0.271	0.69	--	--	--	--	--
Barium	61 / 61	mg/L	--	--	0.117	0.082	0.107	0.019	0.117	0.51	0.107	-2.44	0.762	-2.44	0.762	LN	0.116	0.142	--	--	--	--	--
Cadmium	10 / 61	mg/L	0.005	0.005	0.024	0.005	0.059	0.02	0.122	0.33	0.104	-4.84	1.12	-2.49	0.978	B	0.059	0.151	--	--	--	--	--
Chromium	20 / 61	mg/L	0.01	0.01	0.058	0.01	0.256	0.022	0.157	2	0.438	-4.06	1.0	-2.95	1.11	B	0.342	0.907	--	--	--	--	--
Lead	17 / 61	mg/L	0.013	0.013	0.055	0.013	0.134	0.026	0.167	0.72	0.222	-3.82	1.05	-2.37	1.01	B	0.13	0.331	--	--	--	--	--
Mercury	1 / 61	mg/L	1.5E-04	1.5E-04	1.5E-04	1.5E-04	3.2E-05	4.0E-04	4.0E-04	4.0E-04	--	-8.79	0.126	-7.82	--	B	0.04	0.04	--	--	--	NA	NA
Selenium	14 / 61	mg/L	0.025	0.125	0.08	0.025	0.111	0.063	0.242	0.45	0.133	-3.13	0.963	-1.58	0.617	B	0.096	0.217	--	--	--	--	--
Silver	12 / 61	mg/L	0.005	0.005	0.007	0.005	0.004	0.011	0.014	0.02	0.003	-5.1	0.421	-4.27	0.193	B	0.008	0.012	--	--	--	--	--
<i>TCCLP Volatile Organics</i>																							
Trichloroethene	2 / 3	mg/L	0.001	0.001	0.003	0.004	0.002	0.004	0.004	0.004	1.2E-04	-5.88	0.699	-5.47	0.029	B	0.004	0.004	--	--	--	--	--
<i>Trichloroethene</i>																							
Trichloroethene	2 / 3	mg/kg	1.3E-04	1.3E-04	0.001	0.001	9.8E-04	0.001	0.002	0.002	5.9E-04	-7.28	1.49	-6.43	0.36	B	0.001	0.002	780	--	--	1.5E-06	--
																					SOF =		
																					0.065 1.22		

^a The detection limits shown are the detection limits used as proxy values for non-detect radionuclides or half the detection limits for non-radionuclides.

^b This summary statistic is calculated using both detects and non-detects.

ASA = Auditable Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = Pert Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

LN = lognormal. UCL95 calculated using Land's statistic or Chebyshev minimum variance unbiased estimator.

N = normal. UCL95 calculated using t statistic.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

MOC = Materials of construction.

NA = Not applicable since SOF is calculated only for site related contaminants with > 5% frequency of detection.

pCi/g = picocuries per gram.

S.D. = standard deviation.

SOF = Sum of fractions > 1 are shown in bold. The ratio of E(X) to the analytic WAC is calculated for each site related contaminant (SRC).

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* Chlordane is the calculated sum of alpha-Chlordane and gamma-Chlordane for the purpose of comparing total chlordane to the EMWMF WAC limits.

Table 4. Summary statistics for K-25 West building structure all media combined except lavatory sink drains with MOC calculations

Constituent	Freq. of Detection	Units	Non-detect Detection Limits ^a					Detected				Ln transformed				Dist.	E(X)	UCL 95	Analytic WAC		ASA	SOF		
			Min	Max	Mean ^b	Median ^b	S.D. ^b	Min	Mean	Max	S.D.	Mean ^b	S.D. ^b	Detected					Carc.	HI	WAC	Carc.	HI	
														Mean	S.D.									
All media combined except Lavatory Sink Drains with MOC calculations																								
Metals																								
Antimony	11 / 38	mg/kg	0.75	3.1	3.45	2.63	3.07	4.2	7.41	13.6	2.92	0.896	0.844	1.94	0.374	B	4.14	8.2	--	160	--	--	--	0.026
Arsenic	22 / 38	mg/kg	23.8	24.95	145	24.5	237	11.6	233	684	282	3.83	1.4	4.28	1.7	B	132	327	--	--	--	--	--	--
Beryllium	0 / 38	mg/kg	0.06	1	0.414	0.248	0.34	--	--	--	--	-1.29	1.0	--	--	B	0.342	0.644	--	--	--	NA	NA	--
Boron	30 / 38	mg/kg	24.1	24.95	39.8	30.4	39.2	12.2	43.9	263	43.3	3.51	0.519	3.59	0.557	B	66.1	142	--	24,000	--	--	--	0.003
Cadmium	14 / 38	mg/kg	0.95	5	3.83	4.78	5.16	0.43	3.4	32.4	8.41	0.84	1.04	0.127	1.19	B	8.66	18.7	--	--	--	--	--	--
Chromium	39 / 39	mg/kg	--	--	201	187	202	0.14	201	687	202	4.05	2.27	4.05	2.27	B	239	462	--	140,000	--	--	--	0.002
Copper	38 / 38	mg/kg	--	--	542	294.5	666	4.8	542	2400	666	5.05	2.05	5.05	2.05	B	597	1345	--	--	--	--	--	--
Lead	28 / 39	mg/kg	11.9	12.5	26.7	12.4	28.0	5.1	32.4	107	31.4	2.89	0.838	3.04	0.951	B	26.9	57.8	--	1500	--	--	--	0.018
Magnesium	30 / 38	mg/kg	42.35	84.5	4646	1365	8180	387	5864	39,700	8837	7.18	1.81	7.93	1.16	B	7534	19,192	--	--	--	--	--	--
Manganese	39 / 39	mg/kg	--	--	2511	2580	1930	36.4	2511	6590	1930	7.11	1.63	7.11	1.63	B	2824.4	4934	--	360,000	--	--	--	0.008
Mercury	36 / 38	mg/kg	0.001	0.041	8.75	0.175	30.8	0.008	9.24	181	31.6	-0.982	2.6	0.758	2.45	LN	11.1	76.0	--	--	--	--	--	--
Molybdenum	34 / 38	mg/kg	2	10.0	25.4	21.2	26.7	0.63	27.5	111	27.5	2.38	1.65	2.43	1.72	B	32.7	68.1	--	3900	--	--	--	0.008
Nickel	38 / 38	mg/kg	--	--	126	103	135	3.4	126	573	135	3.97	1.62	3.97	1.62	B	164.9	347	--	--	--	--	--	--
Selenium	29 / 39	mg/kg	2.95	3.95	128	149	95.9	0.4	171	376	71.0	3.74	2.75	4.62	2.67	B	162	283	--	1600	--	--	--	0.101
Silver	9 / 38	mg/kg	0.6	5	5.47	4.78	9.28	2.6	13.8	54.7	16.8	1.01	1.15	2.08	1.07	B	12.4	28.9	--	--	--	--	--	--
Strontium	37 / 38	mg/kg	2.45	2.45	391	14	828	0.96	402	4540	837	3.41	2.58	3.48	2.59	B	766	2060	--	300,000	--	--	--	0.003
Thallium	11 / 38	mg/kg	1.2	24.9	12.4	11.8	9.21	9	17.3	20.1	3.2	2.11	1.01	2.83	0.23	B	12.2	19.7	--	--	--	--	--	--
Tin	17 / 39	mg/kg	1.25	12.5	36.4	11.7	96.9	8.1	77.1	506	138	2.1	1.57	3.36	1.3	B	92.3	239	--	2200	--	--	--	0.042
Vanadium	20 / 38	mg/kg	0.95	5	11.9	4.88	29.2	2.2	19.4	179	39.1	1.58	1.17	2.04	1.27	B	33.2	85.0	--	25,000	--	--	--	0.001
Zinc	38 / 38	mg/kg	--	--	696	238.5	1418	19.6	696	7840	1418	5.4	1.5	5.4	1.5	LN	686	1436	--	--	--	--	--	--
Pesticides																								
4,4'-DDD	5 / 10	mg/kg	0.001	0.014	0.1	0.014	0.236	0.014	0.195	0.765	0.319	-4.34	2.25	-2.55	1.44	LN	0.163	0.374	77,000	--	--	--	2.1E-06	--
4,4'-DDE	10 / 10	mg/kg	--	--	4.99	0.196	13.7	0.022	4.99	43.7	13.7	-1.28	2.35	-1.28	2.35	LN	4.43	9.61	130,000	--	--	--	3.4E-05	--
4,4'-DDT	10 / 10	mg/kg	--	--	0.929	0.274	1.66	0.018	0.929	5.51	1.66	-1.19	1.64	-1.19	1.64	LN	1.16	3.08	--	--	--	--	--	--
Aldrin	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	6600	44,000	--	NA	NA	--
Chlordane*	4 / 10	mg/kg	5.0E-04	0.077	0.052	0.011	0.072	0.015	0.109	0.2	0.083	-4.57	2.29	-2.59	1.15	LN	0.144	0.323	92,000	210,000	--	06	07	--
Dieldrin	0 / 10	mg/kg	0.001	0.153	0.019	0.003	0.047	--	--	--	--	-5.56	1.52	--	--	B	0.027	0.071	7.1	60	--	NA	NA	--
Endosulfan I	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	--	330,000	--	NA	NA	--

Endosulfan II	0 / 10	mg/kg	0.001	0.153	0.019	0.003	0.047	--	--	--	--	-5.56	1.52	--	--	B	0.027	0.071	--	--	--	NA	NA
Endrin	0 / 10	mg/kg	0.001	0.153	0.019	0.003	0.047	--	--	--	--	-5.56	1.52	--	--	B	0.027	0.071	--	30,000	--	NA	NA
Endrin aldehyde	1 / 10	mg/kg	0.001	0.153	0.019	0.004	0.047	0.005	0.005	0.005	--	-5.38	1.43	-5.27	--	B	0.028	0.072	--	30,000	--	--	07
Endrin ketone	0 / 10	mg/kg	0.001	0.153	0.019	0.003	0.047	--	--	--	--	-5.56	1.52	--	--	B	0.027	0.071	--	30,000	--	NA	NA
Heptachlor	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	2400	69,000	--	NA	NA
Heptachlor epoxide	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	1000	1500	--	NA	NA
Lindane	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	180	940	--	NA	NA
alpha-BHC	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	39	--	--	NA	NA
alpha-Chlordane	4 / 10	mg/kg	5.0E-04	0.077	0.03	0.006	0.043	0.005	0.052	0.124	0.053	-4.94	2.02	-3.53	1.42	LN	0.055	0.138	--	--	--	--	--
beta-BHC	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	140	--	--	NA	NA
delta-BHC	0 / 10	mg/kg	4.5E-04	0.077	0.009	0.001	0.024	--	--	--	--	-6.25	1.52	--	--	B	0.014	0.036	140	--	--	NA	NA
gamma-Chlordane	4 / 10	mg/kg	5.0E-04	0.077	0.031	0.009	0.038	0.011	0.056	0.095	0.037	-4.79	2.06	-3.14	0.971	LN	0.069	0.172	--	--	--	--	--
<i>Radionuclides</i>																							
Americium-241	0 / 325	pCi/g	0.062	1.52	0.505	0.386	0.365	--	--	--	--	-0.954	0.759	--	--	B	0.521	0.992	2.0E+21	--	13,000	NA	NA
Neptunium-237	0 / 325	pCi/g	0.062	0.835	0.251	0.224	0.123	--	--	--	--	-1.5	0.493	--	--	B	0.299	0.548	320	--	10,000	NA	NA
Plutonium-238	0 / 325	pCi/g	0.03	0.747	0.327	0.31	0.179	--	--	--	--	-1.3	0.641	--	--	B	0.336	0.567	--	--	15,000	NA	NA
Plutonium-239/240	1 / 325	pCi/g	0.034	0.739	0.296	0.269	0.168	0.763	0.763	0.763	--	-1.4	0.659	-0.27	--	B	0.312	0.549	720	--	13,000	NA	NA
Technetium-99	12 / 325	pCi/g	0.335	1.4	0.843	0.753	0.529	0.979	2.89	5.34	1.55	-0.256	0.355	0.919	0.575	B	1.45	2.98	172	--	4.2E+07	NA	NA
Uranium-233/234	261 / 332	pCi/g	0.098	1.39	6.72	0.767	31.1	0.087	8.41	405	34.9	0.07	1.43	0.34	1.47	B	68.0	183	1700	2.8E+07	100,000	0.04	2.4E-06
Uranium-235/236	46 / 332	pCi/g	0.038	42.4	0.796	0.309	3.05	0.054	2.59	26.2	5.01	-1.07	0.938	0.191	1.53	B	7.28	19.4	1500	9500	100,000	0.005	04
Uranium-238	138 / 332	pCi/g	0.058	1.38	2.26	0.387	9.87	0.072	4.94	137	14.9	-0.741	1.29	0.028	1.51	B	23.1	62.1	1200	1500	100,000	0.019	0.015
<i>Semivolatile Organics</i>																							
1,2,4-Trichlorobenzene	0 / 21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	5100	--	NA	NA
1,2-Dichlorobenzene	0 / 21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	9400	--	NA	NA
1,3-Dichlorobenzene	0 / 21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	58,000	--	NA	NA
1,4-Dichlorobenzene	0 / 21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	100	24,000	--	NA	NA
2,3,4,6-Tetrachlorophenol	2 / 21	mg/kg	0.036	2.67	0.79	0.467	0.885	0.21	0.339	0.467	0.182	-1.21	1.67	-1.16	0.565	B	0.761	1.6	--	10,800	--	--	05
2,4,5-Trichlorophenol	0 / 21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	--	--	NA	NA
2,4,6-Trichlorophenol	0 / 21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	22	--	--	NA	NA
2,4-Dimethylphenol	0 / 21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	2150	--	NA	NA
2,4-Dinitrotoluene	0 / 21	mg/kg	0.018	1.34	0.381	0.206	0.452	--	--	--	--	-2.1	1.78	--	--	B	0.362	0.778	1	62	--	NA	NA
2,6-Dinitrotoluene	0 / 21	mg/kg	0.018	1.34	0.381	0.206	0.452	--	--	--	--	-2.1	1.78	--	--	B	0.362	0.778	0.81	24	--	NA	NA
2-Methylnaphthalene	9 / 21	mg/kg	0.004	0.208	10.8	0.041	42.5	0.449	25.2	196	64.1	-2.22	3.53	1.4	1.75	B	32.7	88.4	--	4000	--	--	0.008
2-Methylphenol	0 / 21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	232	--	NA	NA
2-Nitrophenol	0 / 21	mg/kg	0.018	1.34	0.381	0.206	0.452	--	--	--	--	-2.1	1.78	--	--	B	0.362	0.778	--	1.8	--	NA	NA
4-Nitrobenzenamine	0 / 21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	8.7E+08	2.3E+09	--	NA	NA
4-Nitrophenol	0 / 21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	850	--	NA	NA

Acenaphthene	9/21	mg/kg	0.006	0.348	21.6	0.069	76.9	2.36	50.5	355	115	-1.4	3.81	2.63	1.44	B	59.2	160	--	390,000	--	--	1.5E-04
Acenaphthylene	1/21	mg/kg	0.005	0.4	0.275	0.062	0.78	3.63	3.63	3.63	--	-3.18	2.0	1.29	--	B	0.647	1.69	--	93,200	--	NA	NA
Acetophenone	0/21	mg/kg	0.018	1.34	0.381	0.206	0.452	--	--	--	--	-2.1	1.78	--	--	B	0.362	0.778	--	330	--	NA	NA
Benzenemethanol	0/21	mg/kg	0.054	4	1.14	0.615	1.36	--	--	--	--	-1.01	1.78	--	--	B	1.09	2.33	--	1200	--	NA	NA
Benzoic acid	9/21	mg/kg	0.362	6.65	2.25	1.24	2.01	0.458	0.897	1.89	0.479	0.42	0.919	0.217	0.476	LN	2.32	5.02	--	9810	--	--	2.4E-04
Carbazole	15/21	mg/kg	0.005	0.312	26.6	0.199	92.9	0.017	37.1	429	109	-0.663	3.42	0.627	3.08	LN	179	256	110,000	--	--	0.002	--
Di-n-butyl phthalate	10/21	mg/kg	0.073	1.34	0.897	0.695	1.35	0.064	1.12	6.52	1.93	-0.705	1.15	0.785	1.44	B	1.56	3.55	--	190	--	--	0.008
Diethyl phthalate	3/21	mg/kg	0.036	2.67	0.775	0.412	0.894	0.085	0.128	0.19	0.055	-1.25	1.64	-2.11	0.413	B	0.724	1.55	--	6180	--	--	1.2E-04
Dimethyl phthalate	0/21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	30,700	--	NA	NA
Diphenylamine	0/21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	--	--	NA	NA
Hexachlorobenzene	0/21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	4.0E+06	773,000	--	NA	NA
Hexachlorobutadiene	0/21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	--	--	NA	NA
Hexachloroethane	0/21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	2800	500	--	NA	NA
Isophorone	0/21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	6100	15,000	--	NA	NA
N-Nitroso-di-n-propylamine	0/21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	0.019	--	--	NA	NA
Naphthalene	9/21	mg/kg	0.005	0.312	35.7	0.062	147	1.05	83.3	678	223	-1.61	3.77	2.27	1.88	B	113	306	--	9900	--	--	0.011
Nitrobenzene	0/21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	1.98	--	NA	NA
Pentachlorophenol	10/21	mg/kg	0.412	2.67	1.15	0.725	0.915	0.229	0.867	3.3	0.975	-0.179	0.843	0.547	0.879	LN	1.19	2.38	--	--	--	--	--
Phenol	0/21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	3200	--	NA	NA
Pyridine	0/21	mg/kg	0.036	2.67	0.762	0.412	0.904	--	--	--	--	-1.41	1.78	--	--	B	0.724	1.55	--	2.2	--	NA	NA
m+p Methylphenol	0/21	mg/kg	0.072	5.4	1.52	0.825	1.81	--	--	--	--	-0.718	1.78	--	--	B	1.45	3.12	--	--	--	NA	NA
<i>TCCLP Metals</i>																							
Arsenic	17/38	mg/L	0.025	0.025	0.264	0.025	0.36	0.23	0.558	1.5	0.365	-2.38	1.53	0.754	0.582	B	0.271	0.69	--	--	--	--	--
Barium	38/38	mg/L	--	--	0.118	0.091	0.115	0.019	0.118	0.51	0.115	-2.47	0.818	-2.47	0.818	LN	0.118	0.158	--	--	--	--	--
Cadmium	1/38	mg/L	0.005	0.005	0.011	0.005	0.035	0.22	0.22	0.22	--	-5.2	0.614	-1.51	--	B	0.041	0.102	--	--	--	NA	NA
Chromium	17/38	mg/L	0.01	0.01	0.034	0.01	0.052	0.022	0.063	0.28	0.069	-3.93	0.906	-3.1	0.756	B	0.055	0.132	--	--	--	--	--
Lead	4/38	mg/L	0.013	0.013	0.018	0.013	0.016	0.043	0.061	0.078	0.016	-4.22	0.488	-2.83	0.276	B	0.023	0.042	--	--	--	--	--
Mercury	0/38	mg/L	1.5E-04	1.5E-04	1.5E-04	1.5E-04	0	--	--	--	--	-8.8	0	--	--	B	0.04	0.04	--	--	--	NA	NA
Selenium	12/38	mg/L	0.025	0.125	0.105	0.025	0.131	0.1	0.261	0.45	0.132	-2.91	1.09	-1.48	0.557	B	0.096	0.217	--	--	--	--	--
Silver	7/38	mg/L	0.005	0.005	0.007	0.005	0.004	0.011	0.014	0.017	0.002	-5.11	0.414	-4.26	0.183	B	0.007	0.01	--	--	--	--	--
<i>TCCLP Volatile Organics</i>																							
Trichloroethene	2/3	mg/L	0.001	0.001	0.003	0.004	0.002	0.004	0.004	0.004	1.2E-04	-5.88	0.699	-5.47	0.029	B	0.004	0.004	--	--	--	--	--
Volatile Organics																							
Trichloroethene	2/3	mg/kg	1.3E-04	1.3E-04	0.001	0.001	9.8E-04	0.001	0.002	0.002	5.9E-04	-7.28	1.49	-6.43	0.36	B	0.001	0.002	780	--	--	1.5E-	--

^a The detection limits shown are the detection limits used as proxy values for non-detect radionuclides or half the detection limits for non-radionuclides.

^b This summary statistic is calculated using both detects and non-detects.

ASA = Auditible Safety Analysis.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = Pert Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

LN = lognormal. UCL95 calculated using Land's statistic or Chebyshev minimum variance unbiased estimator.

N = normal. UCL95 calculated using t statistic.

E(X) = Expected value for the constituent for the probability density function.

HI = Hazard index.

mg/kg = milligrams per kilogram.

mg/L = milligrams per liter.

MOC = Materials of construction.

NA = Not applicable since SOF is calculated only for site related contaminants with > 5% frequency of detection.

pCi/g = picocuries per gram.

S.D. = standard deviation.

UCL95 = upper confidence limit on the mean concentration with 95% confidence.

WAC = Waste acceptance criteria from Tables A.1 and A.2 in Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee (DOE/OR/01-1909&D3).

-- = Not applicable, not available or insufficient data to calculate the statistic.

* Chlordane is the calculated sum of alpha-Chlordane and gamma-Chlordane for the purpose of comparing total chlordane to the EMWMF WAC limits.

Table 5. Summary statistics for K-25 West building structure comparing lavatory sink drains with all other media with MOC calculations

Constituent	Units	Data Aggregate	Freq. of	Detected		Mean ^a	Median ^a	S.D. ^a	Dist.	Analytic WAC		WRS	Different
			Detection	Min	Max					Carc.	HI	p-value	Medians?
Metals													
Antimony	mg/kg	All other media	11 / 38	4.2	13.6	3.5	2.6	3.1	B	--	160	<	Yes
	mg/kg	Lavatory Sink Drain	11 / 23	2.6	20.4	53.8	14.9	66.2	B	--	160	0.0001	
Arsenic	mg/kg	All other media	22 / 38	11.6	684	145	24.5	237	B	--	--	0.0315	Yes
	mg/kg	Lavatory Sink Drain	14 / 23	12.9	226	75.7	49.2	59.9	LN	--	--	0.0013	
Boron	mg/kg	All other media	30 / 38	12.2	263	39.8	30.4	39.2	B	--	24,000	<	Yes
	mg/kg	Lavatory Sink Drain	12 / 23	31.7	129	65.5	60.1	34.0	B	--	24,000	0.0001	
Cadmium	mg/kg	All other media	14 / 38	0.43	32.4	3.8	4.8	5.2	B	--	--	<	Yes
	mg/kg	Lavatory Sink Drain	14 / 23	0.83	91.3	18.1	9.6	21.0	LN	--	--	0.0001	
Chromium	mg/kg	All other media	39 / 39	0.14	687	201	187	202	B	--	140,000	0.4558	No
	mg/kg	Lavatory Sink Drain	19 / 23	15.1	400	121	93.0	115	B	--	140,000	0.3373	
Copper	mg/kg	All other media	38 / 38	4.8	2400	542	295	666	B	--	--	<	No
	mg/kg	Lavatory Sink Drain	21 / 23	49.5	2590	616	335	666	LN	--	--	0.0001	
Lead	mg/kg	All other media	28 / 39	5.1	107	26.7	12.4	28.0	B	--	1500	<	Yes
	mg/kg	Lavatory Sink Drain	19 / 23	96.7	7380	590	209	1504	B	--	1500	0.0001	
Magnesium	mg/kg	All other media	30 / 38	387	39,700	4646	1365	8180	B	--	--	0.2533	No
	mg/kg	Lavatory Sink Drain	14 / 23	888	9910	1516	1030	1897	B	--	--	0.0933	
Manganese	mg/kg	All other media	39 / 39	36.4	6590	2511	2580	1930	B	--	360,000	<	No
	mg/kg	Lavatory Sink Drain	23 / 23	350	4660	3083	3140	1101	B	--	360,000	0.0001	
Mercury	mg/kg	All other media	36 / 38	0.008	181	8.8	0.18	30.8	LN	--	--	<	Yes
	mg/kg	Lavatory Sink Drain	12 / 23	0.009	0.73	0.06	0.01	0.15	B	--	--	0.1269	
Molybdenum	mg/kg	All other media	34 / 38	0.63	111	25.4	21.2	26.7	B	--	3900	<	No
	mg/kg	Lavatory Sink Drain	14 / 23	2.8	189	38.2	20.9	38.4	LN	--	3900	0.3599	
Nickel	mg/kg	All other media	38 / 38	3.4	573	126	103	135	B	--	--	<	No
	mg/kg	Lavatory Sink Drain	23 / 23	11.9	459	141	97.2	124	LN	--	--	0.0011	
Selenium	mg/kg	All other media	29 / 39	1.1E-04	376	128	149	95.9	B	--	1600	<	Yes
	mg/kg	Lavatory Sink Drain	8 / 19	179	377	223	245	114	B	--	1600	0.0008	
Silver	mg/kg	All other media	9 / 38	2.6	54.7	5.5	4.8	9.3	B	--	--	<	Yes
	mg/kg	Lavatory Sink Drain	11 / 23	0.8	47.4	10.8	9.8	9.4	B	--	--	<	
Strontium	mg/kg	All other media	37 / 38	0.96	4540	391	14.0	828	B	--	300,000	<	Yes

												0.0001	
Thallium	mg/kg	Lavatory Sink Drain	22 / 23	0.87	6.8	2.4	1.8	1.6	LN	--	300,000		
	mg/kg	All other media	11 / 38	9	20.1	12.4	11.8	9.2	B	--	--	0.1162	No
	mg/kg	Lavatory Sink Drain	1 / 23	20.5	20.5	23.5	12.5	19.2	B	--	--		
Tin	mg/kg	All other media	17 / 39	8.1	506	36.4	11.7	96.9	B	--	2200	0.0669	No
	mg/kg	Lavatory Sink Drain	15 / 23	5.2	326	53.1	24.6	78.7	LN	--	2200		
Vanadium	mg/kg	All other media	20 / 38	2.2	179	11.9	4.9	29.2	B	--	25,000	0.0002	Yes
	mg/kg	Lavatory Sink Drain	19 / 23	5.4	125	34.1	33.6	30.7	B	--	25,000		
Zinc	mg/kg	All other media	38 / 38	19.6	7840	696	239	1418	LN	--	--	<	
	mg/kg	Lavatory Sink Drain	23 / 23	215	147,000	28,841	24,900	30,602	B	--	--	0.0001	Yes
<i>Radionuclides</i>													
Uranium-233/234	pCi/g	All other media	261 / 332	0.087	405	6.7	0.77	31.1	B	1700	2.8E+07	0.0222	Yes
	pCi/g	Lavatory Sink Drain	7 / 23	0.271	26.1	1.9	0.57	5.4	B	1700	2.8E+07		
Uranium-235/236	pCi/g	All other media	46 / 332	0.054	26.2	0.80	0.31	3.1	B	1500	9500	0.4518	No
	pCi/g	Lavatory Sink Drain	1 / 23	0.752	0.752	0.40	0.33	0.23	LN	1500	9500		
Uranium-238	pCi/g	All other media	138 / 332	0.072	137	2.3	0.39	9.9	B	1200	1500	0.9941	No
	pCi/g	Lavatory Sink Drain	4 / 23	0.26	1.96	0.47	0.37	0.37	LN	1200	1500		

^a This summary statistic is calculated using both detects and non-detects.

Carc. = Carcinogenic.

Dist. = distribution. Distribution flags are defined as:

B = Pert Beta. Data are neither normal nor lognormal based on Shapiro-Wilk ($n \leq 50$) or Lilliefors ($n > 50$) test using 0.10 significance level.

LN = lognormal.

N = normal.

HI = Hazard index.

mg/kg = milligrams per kilogram.

MOC = Materials of construction.

pCi/g = picocuries per gram.

S.D. = standard deviation.

WAC = Waste acceptance criteria from Table A.1 in *Attainment Plan for Risk/Toxicity-Based Waste Acceptance Criteria at the Oak Ridge Reservation, Oak Ridge, Tennessee* (DOE/OR/01-1909&D3).

WRS = Nonparametric Wilcoxon Rank Sum tests whether the medians are statistically equal at the 0.05 significance level.

-- = Not available.