



Westinghouse Electric Company
Nuclear Fuel
Columbia Fuel Fabrication Facility
5801 Bluff Road
Hopkins, South Carolina 29061

SCDHEC, BLWM
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Your ref:
Our ref: LTR-RAC-19-88

November 4, 2019

Subject: October 2019 CA Progress Report

Ms. Kuhn:

In accordance with Item 19 of Consent Agreement (CA) 19-02-HW, this progress report is being submitted to you, including the following requested information:

- (a) a brief description of the actions which Westinghouse has taken toward achieving compliance with the Consent Agreement during the previous month;
- (b) results of sampling and tests, in tabular summary format received by Westinghouse during the reporting period;
- (c) brief description of all actions which are scheduled for the next month to achieve compliance with the Consent Agreement, and other information relating to the progress of the work as deemed necessary or requested by the Department; and
- (d) information regarding the percentage of work completed and any delays encountered or anticipated that may affect the approved schedule for implementation of the terms of the Consent Agreement, and a description of efforts made to mitigate delays or avoid anticipated delays.

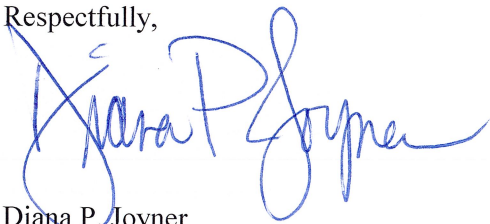
In response to the above requirements, the following is being reported to the Department since the last progress report on **October 2, 2019**:

- (a) Actions during the previous month:
Westinghouse began implementation of the Remedial Investigation (RI) Work Plan on 6/10/19. To comply with **Item 4** of the CA, the following actions were completed this month.
 - Completed well development of W-71
 - Completed groundwater sampling of the monitoring well network

- Completed locational surveys for environmental data collected in support of the RI Work Plan and Conceptual Site Model (CSM) development (new groundwater well installations and lithologic boring locations)
 - Conducted a “snapshot” depth to groundwater survey and staff gauge level survey on October 14, 2019
 - Continued emptying intermodal containers in the Southern Storage Area (SSA) Operable Unit (OU) per Work Plan Addendum 1
 - Intermodal container C-31 was safely emptied of the other half of its contents on 10/08/19. Radiological contamination was found in two small, 2 foot by 2 foot areas on the floor in the middle of the container. Some additional contamination was found on the wall of the intermodal container near one of these locations. Confirmatory bias samples will be collected from the soil underneath the small areas of interest once the intermodal is removed from its current location the week of November 4.
 - Conducted Phase 1 sampling identified in Addendum 2 to the RI Work Plan, entitled “Wastewater Treatment Area Operable Unit East Lagoon Sludge Characterization, Revision 1”. DHEC representatives were present for all of the sampling. Deviations from the sampling plan were approved in the field by DHEC and will be documented in the follow-up report for Addendum 2 to the RI Work Plan.
 - Contacted neighboring property owners to the east, west and south of the plant as part of the private water supply well survey
 - Conducted a “windshield” survey of properties to the north of the site to validate SCDNR and SCDHEC location information regarding private wells. Based on preliminary information gathered during the windshield survey, Richland County GIS information was used to compile a list of properties where additional information will be gathered to assess the presence (or lack) of private water supply well(s) on each property.
 - Submitted Sediment Sampling Transect Work Plan for Upper Sunset Lake, Lower Sunset Lake, and Mill Creek (LTR-RAC-19-85, October 25)
 - Submitted SSA Operable Unit Intermodal Container Work Plan (LTR_RAC-19-87, October 30)
- (b) Results of sampling and tests:
- Surface water and sediment samples were collected in July with laboratory results received by the facility in mid to late August. Per the RI Work Plan, the data was validated and quality control reviewed in September and October by AECOM personnel. The tabulated data and associated validation reports are included in Appendix A and B of this document, respectively. The data will be used to update the risk assessment that will be submitted with the Remedial Investigation Report.
- (c) Brief description of all actions which are scheduled for the next month:
- In accordance with **Item 4** of the CA, Westinghouse will continue to implement the Work Plan to include the following actions:
 - Remove several intermodal containers for recycle and off-site disposal the week of November 4

- 6 containers (C-18, C-26, C-29, C-30, C-35, and C-46) will be sent off-site as recyclable metal. Any small sections of contamination that may have existed were removed.
 - 4 containers (C-28, C-31, C-44, and C-65) will be sent off-site for disposal as low-level radioactive waste
 - Conduct soil sampling under removed intermodal containers per Department's pending approval of SSA Operable Unit Intermodal Container Work Plan
 - Continue emptying intermodal containers in the SSAOU
 - Discuss results of private water supply well surveys (within 1 mile radius of the property boundary) with SCDHEC and determine next steps
 - Pending the Department's approval of the work plan, initiate sediment transect sampling
- (d) Percentage of work completed and any delays encountered or anticipated:
- 29/29 (100%) of new CA wells installed have been developed
 - 90/90 (100%) of site-wide wells have been sampled
 - Note that on Oct 14, 18, 22, and 23, the conditions of well W-91 were evaluated. Each day the well had less than one foot of water. On Oct 22, low flow sampling was attempted but was not successful, as the sampler yielded highly turbid water unsuitable for analysis. The conditions of the well were re-examined on Oct 23 and remained the same.
 - 6/6 (100%) of neighboring properties were contacted as part of the private water supply well survey

Respectfully,



Diana P. Joyner
Principal Environmental Engineer
Westinghouse Electric Company, CFFF
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Cc: N. Parr, Environmental Manager
E. Wills, EH&S Manager
J. Grant, AECOM Project Manager
ENOVIA Records

Attachment A

July 2019 Sediment and Surface Water Sampling Results

Table 1
 Summary of Sediment Analytical Results
 Westinghouse Columbia Fuel Fabrication Facility
 Hopkins, South Carolina

Sample	Sample Date	Radionuclides									Inorganics	
		Uranium-234 (ug/kg)	Uranium-235 (ug/kg)	Uranium-238 (ug/kg)	Total Uranium (ug/kg)	Uranium-233/234 (pCi/g)	Uranium-235/236 (pCi/g)	Uranium-238 (pCi/g)	Total Uranium (pCi/g)	Technetium-99 (pCi/g)	Nitrate (mg/kg)	Fluoride (mg/kg)
SED-11	07/17/19	<5.15	11.5 J	1,320	1,332	1.14	<0.262	0.742	1.88	<30.2	0.21	1.35 J
SED-12	07/17/19	<5.13	16.0 J	1,700	1,716	0.925	<0.307	1.17	2.10	<25.4	<0.20	2.26 J
SED-13	07/17/19	<3.08	13.8 J	1,360	1,374	1.67	<0.223	1.33	3.00	<23.3	<0.20	1.45 J
SED-14	07/17/19	<2.42	5.32 J	260	5,795	1.42	<0.266	0.389	1.81	<21.1	<0.20	<0.412
SED-15	07/16/19	<2.47	51.2	5,790	5,841	2.58	0.181	2.05	4.81	<22.6	<0.20	2.09
SED-16	07/17/19	<2.40	114	3,310	3,424	14.9	0.678	2.77	18.3	<19.6	<0.20	8.73
SED-17	07/18/19	<2.19	6.57 J	401	408	0.658	<0.250	0.302	0.960	<25.5	2.1	0.908 J
DUP-01 (SED-17)	07/18/19	<2.36	2.90 J	140	143	1.070	<0.278	0.354	1.424	<27.2	1.0	0.814 J
SED-18	07/16/19	<2.39	5.00 J	265	270	0.219	<0.185	0.298	0.517	<18.1	<0.20	<0.415
SED-19	07/17/19	4.27 J	451	16,200	16,655	32.5	2.30	8.18	43.0	<27.0	0.28	3.51
SED-20	07/16/19	12.7 J	1,310	49,700	51,023	62.5	3.12	14.9	80.5	<30.1	<0.20	15.7
SED-21	07/15/19	<6.15	27.8 J	2,840	2,868	1.86	<0.229	1.96	3.82	<17.9	<0.20	2.17 J
SED-22	07/15/19	22.0 J	2,230	80,700	82,952	117	4.98	28.0	150	<23.4	<0.20	4.64
SED-23	07/16/19	<2.88	18.3 J	2,250	2,268	1.35	<0.429	1.69	3.04	50.8	<0.20	38.1
SED-24	07/16/19	<3.17	15.9 J	1,680	1,696	1.14	<0.166	0.944	2.08	35.8	0.20	49.2
SED-25	07/18/19	225	27,100	646,000	673,325	907	41.1	149	1,097	<30.8	0.27	53.3
SED-26	07/18/19	129	14,200	487,000	501,329	222	11.0	46.9	280	<26.7	1.4	4.61
SED-27	07/18/19	38.9 J	3,970	90,900	94,909	225	11.9	37.4	274	<38.6	0.30	171
SED-28	07/18/19	57.2 J	6,770	161,000	167,827	254	12.4	44.6	311	<37.7	<0.20	39.3

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Sample	Sample Date	VOCs			SVOCs											
		Acetone (ug/kg)	2-Butanone (ug/kg)	Tetrachloroethene (ug/kg)	Anthracene (ug/kg)	Benzo(a)anthracene (ug/kg)	Benzo(a)pyrene (ug/kg)	Benzo(b)fluoranthene (ug/kg)	Benzo(g,h,i)perylene (ug/kg)	Benzo(k)fluoranthene (ug/kg)	Chrysene (ug/kg)	Bis(2-Ethylhexyl) phthalate (ug/kg)	Fluoranthene (ug/kg)	Indeno(1,2,3-c,d) pyrene (ug/kg)	Phenanthrene (ug/kg)	Pyrene (ug/kg)
SED-11	07/17/19	32	<25	<6.3	<13	<13	<13	<13	<13	<13	<13	<66	<13	<13	<13	<13
SED-12	07/17/19	110	180	<5.6	<13	<13	<13	<13	<13	<13	<13	<67	<13	<13	<13	<13
SED-13	07/17/19	30	<24	<6.1	14	170	290	630	190	200	310	<64	570	170	130	450
SED-14	07/17/19	28	<17	<4.4	<13	13	20	37	18	16	21	<64	36	15	<13	28
SED-15	07/16/19	<15	<15	<3.8	<13	<13	<13	<13	<13	<13	<13	<67	<13	<13	<13	<13
SED-16	07/17/19	<16	<16	<4.1	<13	<13	<13	<13	<13	<13	<13	<65	<13	<13	<13	<13
SED-17	07/18/19	<19	<19	5.5	<13	<13	<13	<13	<13	<13	<13	<67	<13	<13	<13	<13
DUP-01 (SED-17)	07/18/19	<19	<19	<4.8	<13	<13	<13	<13	<13	<13	<13	<64	<13	<13	<13	<13
SED-18	07/16/19	<18	<18	<4.5	<13	<13	<13	<13	<13	<13	<13	<66	<13	<13	<13	<13
SED-19	07/17/19	48	45	<5.2	<13	<13	<13	<13	<13	<13	<13	<67	<13	<13	<13	<13
SED-20	07/16/19	110	45	<6.5	<13	<13	<13	<13	<13	<13	<13	<66	<13	<13	<13	<13
SED-21	07/15/19	67	<25	<6.2	<13	<13	<13	<13	<13	<13	<13	<66	<13	<13	<13	<13
SED-22	07/15/19	88	32	<6.1	<13	<13	<13	<13	<13	<13	<13	<66	<13	<13	<13	<13
SED-23	07/16/19	91	<28	<7.1	<13	<13	<13	<13	<13	<13	<13	<65	<13	<13	<13	<13
SED-24	07/16/19	25	<17	<4.2	<13	<13	<13	<13	<13	<13	<13	<64	<13	<13	<13	<13
SED-25	07/18/19	NA	NA	NA	<13	<13	<13	<13	<13	<13	<13	<64	<13	<13	<13	<13
SED-26	07/18/19	NA	NA	NA	<64	<64	79	150	<64	<64	<64	<320	81	<64	<64	82
SED-27	07/18/19	NA	NA	NA	<13	<13	<13	<13	<13	<13	<13	91	<13	<13	<13	<13
SED-28	07/18/19	NA	NA	NA	110	3400	3000	4600	1800	1900	3200	270	7100	1600	440	5,600

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Sample	Sample Date	Metals																						
		Aluminum (mg/kg)	Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Magnesium (mg/kg)	Manganese (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Potassium (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Thallium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
SED-11	07/17/19	10,400	<0.873	<1.32	126	0.718 J	<0.265	1,110	10.0	4.34	7.14	7,610	24.0	481	230	0.0623	4.13	300	2.38 J	<0.265	34.8 J	<1.32	25.9	38.2
SED-12	07/17/19	10,300	<0.813	<1.23	118	1.13 J	<0.246	1,020	8	2.97	5.39	4,320	28.0	279	15.0	0.0568	3.51	263	<1.23	<0.246	42.0 J	<1.23	21.6	23.0
SED-13	07/17/19	8,230	<0.496	2.14 J	131	1.02	<0.150	620	18.4	11.6	8.83	15,000	13.9	1,240	332	0.0157 J	7.33	538	<0.751	<0.150	32.50 J	<7.51	36.5	33.8
SED-14	07/17/19	502	0.511 J	<0.601	5.16	<0.120	<0.120	142	1.24	0.269 J	0.386 J	581	0.865 J	91.5	15.6	<0.00426	0.341 J	84.4	<0.601	<0.120	18.8 J	<0.601	1.74	5.64
SED-15	07/16/19	3,510	<0.400	<0.606	15.9	0.258 J	0.140 J	452	6.91	1.52	2.75	4,630	3.74	194	54.8	0.00546	2.21	200	<0.606	<0.121	41.4	<0.606	10.5	50.8
SED-16	07/17/19	682	0.447 J	<0.614	5.10	<0.123	<0.123	117	1.77	<0.184	1.00 J	1,070	1.26 J	22.3 J	3.72	<0.00501	0.568 J	139	<0.614	<0.123	12.9 J	<0.614	2.81	6.09
SED-17	07/18/19	459	0.482 J	<0.577	4.92	<0.115	<0.115	48.5	1.02 J	0.175 J	<0.346	257	0.439 J	35.7	18.0	<0.00475	0.77	87.4	<0.577	<0.115	14.1 J	<0.577	1.18	2.42
DUP-01 (SED-17)	07/18/19	340	0.512 J	<0.558	4.61	<0.112	<0.112	32.9	0.576 J	0.326 J	<0.335	217	0.420 J	14.4 J	11.9	<0.00447	0.442 J	95.4	<0.558	<0.112	17.1 J	<0.558	1.43	1.24 J
SED-18	07/16/19	401	<0.418	<0.634	4.90	<0.127	<0.127	21.7 J	0.606 J	<0.190	<0.380	217	0.476 J	15.0 J	12.3	<0.00438	0.492 J	90.7	<0.634	<0.127	13.5 J	<0.634	1.60	1.00 J
SED-19	07/17/19	3,600	<0.620	<0.939	50.2	0.361 J	<0.188	375	5.32	3.92	5.33	3,770	8.30	238	123	0.0346	8.68	205	<0.939	<0.188	19.9 J	<0.939	13.3	32.4
SED-20	07/16/19	11,000	<1.93	4.21 J	140	1.140 J	<0.584	3,550	13.6	6.31	19.5	10,200	25.5	751	246	0.1210	15.5	664	<2.92	<0.584	109 J	<2.92	41.0	63.8
SED-21	07/15/19	31,200	<0.989	6.38 J	250	2.39	<0.300	484	40.0	18.9	29.8	25,900	25.0	3,320	345	0.0758	18.7	1,890	1.51 J	<0.300	119	100	73.1	<15.0
SED-22	07/15/19	25,800	<1.030	4.62 J	209	2.02	0.374 J	872	351	16.6	33.1	32,500	37.4	2,180	389	0.113	43.3	1,410	3.29 J	<0.313	697 J	<15.6	73.7	138
SED-23	07/16/19	19,800	<0.474	3.36 J	127	2.09	0.209 J	770	29.3	11.8	18.5	29,500	14.4	2,980	268	0.0403	11.5	2,010	<0.718	<0.144	130	70.5	46.0	<7.18
SED-24	07/16/19	10,500	<0.484	<0.734	76,800	0.896	<0.1147	606	15.2	5.00	7.79	10,100	8.69	1,220	123	0.0258	5.45	846	0.885 J	<0.147	94.7	<7.34	33.5	22.8
SED-25	07/18/19	6,570	5.01 J	<4.44	103	<0.889	2.00 J	10,500	35.7	8.69	418	12,300	45.9	1,180	97.2	0.4070	86.7	798	4.72 J	323	919	<4.44	22.2	9,070
SED-26	07/18/19	5,540	1.22 J	0.795 J	56.0	0.253 J	0.610 J	3,950	49.6	2.95	116	2,840	29.3	679	23.0	0.5760	75.1	170	0.720 J	544	90.4	<0.651	7.25	229
SED-27	07/18/19	1,860	4.79 J	<2.57	723	<0.514	<0.514	253,000	78.9	2.00 J	20.9	4,310	18.5	17,200	102	0.2870	255	308	2.48 J	10.5	6,330	<2.57	5.71	523
SED-28	07/18/19	5,790	6.81 J	<3.28	1,220	<0.655	<0.655	284,000	75.3	2.91 J	36.4	29,100	91.7	16,500	149	0.5260	143	3,650	3.69 J	27.6	7,260	<3.28	5.67	403

Notes:

VOCs - Volatile Organic Compounds

SVOCs - Semi-volatile Organic Compounds

ug/kg - Micrograms per kilogram

pCi/g - Picocuries per gram

mg/kg - Milligrams per kilogram

J - Analyte detected at a concentration less than the reporting limit and greater than or equal to the method detection limit.

NA -VOCs not analyzed per the Remedial Investigation Work Plan

Table 2
 Summary of Surface Water Analytical Results
 Westinghouse Columbia Fuel Fabrication Facility
 Hopkins, South Carolina

Sample	Sample Date	Radionuclides								Inorganics			VOCs	
		Uranium-233/234 (pCi/L)	Uranium-235/236 (pCi/L)	Uranium-238 (pCi/L)	Uranium-234 (ug/L)	Uranium-235 (ug/L)	Uranium-238 (ug/L)	Total Uranium (ug/L)	Technetium-99 (pCi/L)	Nitrate (mg/L)	Fluoride (mg/L)	NH3(N) (mg/L)	Tetrachloroethene (ug/L)	Trichloroethene (ug/L)
SW-11	07/17/19	0.296	<0.193	<0.223	<0.010	<0.010	0.365	0.365	<45.4	<0.020	0.146	0.546	<1.0	<1.0
SW-12	07/17/19	<0.277	<0.204	<0.228	<0.010	<0.010	<0.067	<0.067	<44.6	<0.20	0.296	0.228	<1.0	<1.0
SW-13	07/17/19	<0.275	<0.117	<0.240	<0.010	<0.010	0.134 J	0.134	<42.8	<0.020	0.226	0.249	<1.0	<1.0
SW-14	07/17/19	0.575	<0.203	<0.236	<0.010	<0.010	0.297	0.297	<41.9	0.63	0.234	0.233	<1.0	<1.0
SW-15	07/17/19	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
SW-16	07/17/19	3.34	0.145	0.710	<0.010	0.0682 J	1.71	1.78	<42.0	0.48	1.69	4.35	<1.0	<1.0
SW-17	07/18/19	<0.362	<0.255	<0.250	<0.010	<0.010	0.246	0.246	<44.7	3.8	0.460	0.290	16	1.0
DUP-01 (SW-17)	07/18/19	<0.310	<0.134	<0.275	<0.010	<0.010	0.229	0.229	<44.6	3.8	0.471	0.290	16	1.0
SW-18	07/16/19	<0.380	<0.150	<0.283	<0.010	<0.010	0.304	0.304	<48.4	5.7	0.309	0.208	14	<1.0
SW-19	07/17/19	0.587	<0.159	<0.168	<0.010	0.0174 J	0.507	0.524	<43.0	<0.020	0.154	0.376	<1.0	<1.0
SW-20	07/16/19	2.35	0.123	0.626	<0.010	0.0274 J	1.11	1.14	<46.2	<0.20	0.494	0.640	<1.0	<1.0
SW-21	07/15/19	<0.404	<0.260	<0.248	<0.010	<0.010	0.160 J	0.160	<43.3	<0.20	0.433	0.244	<1.0	<1.0
SW-22	07/15/19	<0.281	<0.113	<0.0917	<0.010	<0.010	0.199 J	0.199	<48.1	<0.020	0.432	0.187	<1.0	<1.0
SW-23	07/16/19	<0.300	<0.295	<0.196	<0.010	<0.010	0.0673 J	0.067	<36.7	7.3	4.94	0.459	<1.0	<1.0

Table 2
 Summary of Surface Water Analytical Results
 Westinghouse Columbia Fuel Fabrication Facility
 Hopkins, South Carolina

Sample	Sample Date	Metals														
		Aluminum (ug/L)	Barium (ug/L)	Calcium (ug/L)	Chromium (ug/L)	Cobalt (ug/L)	Copper (ug/L)	Iron (ug/L)	Magnesium (ug/L)	Manganese (ug/L)	Mercury (ug/L)	Nickel (ug/L)	Potassium (ug/L)	Sodium (ug/L)	Vanadium (ug/L)	Zinc (ug/L)
SW-11	07/17/19	634	113	3,380	1.47 J	3.96 J	3.37J	2,410	1,030	944	0.081 J	1.82 J	1,920	1,980	4.62 J	15.2 J
SW-12	07/17/19	118 J	52.2	6,540	<1.00	1.01 J	<3.00	1,110	1,340	1,320	<0.067	<1.50	1,690	4,860	<1.00	5.55 J
SW-13	07/17/19	212	101	7,900	1.25 J	2.35 J	<3.00	3,820	1,490	1,860	<0.067	<1.50	1,850	3,780	1.79 J	11.4 J
SW-14	07/17/19	91.3J	66.0	6,570	<1.00	<1.00	<3.00	1,180	1,240	275	<0.067	<1.50	1,620	4,530	<1.00	13.0 J
SW-15	07/17/19	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
SW-16	07/17/19	155 J	12.3	4,690	2.64 J	<1.00	<3.00	614	326	26.8	<0.067	3.50 J	816	1,090	<1.00	44.6
SW-17	07/18/19	144J	85.3	10,000	<1.00	<1.00	<3.00	715	2,280	86.5	<0.067	33.4	2,710	11,300	<1.00	15.6
DUP-01 (SW-17)	07/18/19	141 J	81.8	9,770	<1.00	<1.00	<3.00	682	2,130	82.9	<0.067	31.4	2,640	11,200	<1.00	14.7 J
SW-18	07/16/19	721	91.8	8,150	1.19 J	<1.00	<3.00	1,260	2,140	41.0	<0.067	14.8	2,280	9,550	1.84 J	15.3 J
SW-19	07/17/19	337	67.1	4,010	<1.00	5.38	<3.00	3,890	1,270	528	<0.067	3.17 J	3,010	918	2.25 J	8.82 J
SW-20	07/16/19	234	66.3	7,450	<1.00	2.24 J	<3.00	4,710	1,720	642	<0.067	1.70 J	3,780	4,200	1.57 J	7.65 J
SW-21	07/15/19	116 J	28.3	3,480	<1.00	<1.00	<3.00	612	1,020	107	<0.067	1.86 J	1,310	3,590	<1.00	5.61 J
SW-22	07/15/19	102 J	34.5	3,760	<1.00	<1.00	<3.00	844	1,110	189	<0.067	1.83 J	1,420	3,810	<1.00	6.12 J
SW-23	07/16/19	203	84.4	16,400	<1.00	<1.00	<3.00	69.7 J	4,800	73.3	<0.067	1.68 J	6,320	48,900	1.03 J	4.54 J

Notes:

VOCs - Volatile Organic Compounds

SVOCs - Semi-volatile Organic Compounds

ug/L - Micrograms per liter

pCi/L - Picocuries per liter

J - Analyte detected at a concentration less than the reporting limit and greater than or equal to the method detection limit.

Attachment B

July 2019 Sediment and Surface Water Sampling
Data Validation Reports

DATA ASSESSMENT REPORT

Data assessment is a systematic process for reviewing a body of data against a predefined set of criteria to provide assurance that the data meet project Data Quality Objective (DQO) requirements. The purpose of the data assessment process is to determine if and how the usability of the analytical data is affected by the overall analytical processes and sample collection and handling procedures. If specific DQOs are not met, the data are qualified (i.e., data flags are assigned to sample results) in accordance with guidelines established by the United States Environmental Protection Agency (USEPA). Data assessment allows the data user to adequately determine if the data can be used for its intended purpose. The data acceptance criteria are established according to Standard Operating Procedures (SOPs) and Statements of Work (SOWs) provided to the contracted analytical laboratory. The assessment of data quality and usability involves five components, as described below.

- 1) **Field Sampling Check** is a process to ensure that all samples were collected and the laboratory analyses were performed as stipulated in the applicable site-specific Work Plan or Field Sampling Plan (FSP). Inspection of sample preservation procedures, sample handling, analysis requested, sample description and identification (ID), cooler receipt forms, holding time evaluation, and Chain of Custody procedures are all evaluated to ensure that the evidentiary nature of the samples and the resulting analytical data have not been compromised.
- 2) **Data Verification** is a process for determining the completeness, correctness, consistency, and compliance of a data package in accordance with requirements contained in the applicable SOW and/or contract-specific requirements. This is a review of the data package, electronic data deliverable (EDD), and invoice received from the contract laboratory to ensure that the contract required information is present and complete prior to data validation.
- 3) **Data Review** is a process of reviewing the primary quality control (QC) data provided by the laboratory and the results of any internal quality assurance (QA)/QC samples, such as field blanks, trip blanks, equipment blanks or ambient blanks, field split samples, and duplicate samples, to ascertain any effect the laboratory's procedures or the sample collection process has on the data.
- 4) **Data Evaluation** is a process to determine if the data meet project-specific DQOs and contract requirements. This evaluation may involve a review of field sampling and sample management procedures, laboratory audits, Performance Evaluation (PE) sample results, and any other data quality indicators that are available.
- 5) **Data Validation** is a process to determine the accuracy and precision of analytical data generated and to identify any anomalies encountered. The validation process is performed in accordance with USEPA regional or national functional guidelines, project-specific guidelines, and

compliance with the requirements of each analytical method. Two major components of data validation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance for each analytical method to determine if the samples were analyzed within the prescribed acceptance criteria of the method. Evaluation of matrix interferences involves the analysis of surrogate spike recoveries, matrix spike recoveries, and duplicate sample results. Data not meeting project-specific DQOs or the requirements of the analytical method are qualified with data flags according to referenced guidelines.

Data Assessment Procedures

AECOM performed independent QC checks of field and laboratory procedures that were used in collecting and analyzing the data. The QC checks verify that the data collected are of appropriate quality for the intended data use and that the DQOs were met. The steps and guidelines followed during the data validation process were modeled on the *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA, January 2017). In addition, method-specific criteria set forth in the compendium of analytical methods found in the *Test Methods for Evaluation Solid Waste (SW-846), Update IV* (USEPA, February 2007) are also evaluated during the validation process. This validation process has been adapted to meet the DQO requirements for generation of definitive critical data.

Data Validation Results

The analytical data associated with analytical data package 485262 (SW-22, SED-22, SW-21, SED-21, SED-15, SW-18, SED-18, SW-20, SED-20, SW-23, SED-23, SED-24, SW-19, SED-19, SW-16, SED-16, SW-14, SED-14, SW-13, SED-13, SW-11, SED-11, SW-22, SW-21, SW-12, SED-12, EB-01-071819, EB-02-071819, SED-25, SED-26, SED-27, SED-28, SW-17, SED-17, DUP-01-071819, and DUP-01-071819) were collected on July 15-18, 2019 for Westinghouse located in Hopkins, South Carolina. The analytical data were validated according to the procedures outlined above. Where data flags have been applied to this data set, they are separated by a slash “/” and presented in the following format:

Laboratory Flag / Result Flags / Analysis Flags

- **Laboratory Flag:** This flag precedes the first slash and is added by the laboratory as a result of QC excursions from the analytical method. These flags are laboratory-specific and are described in the associated laboratory report.
- **Result Flags:** These are presented after the first slash and are added by AECOM based on data validation procedures and guidelines. They tell how and if the data should be used.
- **Analysis Flags:** These flags are presented after the second slash and are added by AECOM to inform the data user of any specific QA/QC problems that were encountered.

Any data requiring qualification as a result of the validation process were assigned data flags, as discussed below. The validation flags indicate how any QC excursions may have impacted the usability of the data.

Ammonia by Method 350.1

Detections of ammonia associated with preparatory batch QC1204339195 and less than 9.55 mg/kg were qualified “/B/K” due to the presence of the analyte in the associated method blank sample.

Detections of ammonia associated with preparatory batch QC1204339689 and less than 0.178 mg/kg were qualified “/B/K” due to the presence of the analyte in the associated method blank sample.

Fluoride by Method 9056A

Results fluoride in samples SED-22 and SED-12 were qualified “/M/m” due to recovery in the associated matrix spike samples below the established criteria of 65-165% (37.6 and 23.9%, respectively). These qualifiers indicate the results should be considered biased low.

Mercury by Method 7470/7471

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Metals by Method 6010D

Results of calcium and manganese in sample SED-17 were qualified “/J/A” due to the relative percent difference between the primary and field duplicate samples exceeding the established criteria of 35% (38.3 and 40.8%, respectively). These qualifiers indicate imprecision with field sampling techniques, laboratory methodology, or instrumentation, and the results should be considered estimated.

Detections of antimony associated with preparatory batch QC1201337822 and less than 1,595 µg/kg were qualified “/B/K” due to the presence of the analyte in the associated method blank sample.

Detections of chromium associated with preparatory batch QC1201337822 and less than 800 µg/kg were qualified “/B/K” due to the presence of the analyte in the associated method blank sample.

Uranium by Method 6020B

Results of Uranium-238 in sample SED-17 were qualified “/J/A” due to the relative percent difference between the primary and field duplicate samples exceeding the established criteria of 35% (96.5%). These qualifiers indicate imprecision with field sampling techniques, laboratory methodology, or instrumentation, and the results should be considered estimated.

Data Summary and Usability

The QC excursions encountered during the validation of this data did not result in the rejection of any data. Therefore, the data associated with this laboratory batch should be considered compliant and adequate for its intended use.

References

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*. Publication #EPA-540-R-2017-001.

United States Environmental Protection Agency (USEPA), February 2007. *Test Methods for Evaluating Solid Waste (SW-846)*, Update IV.

DATA ASSESSMENT REPORT

Data assessment is a systematic process for reviewing a body of data against a predefined set of criteria to provide assurance that the data meet project Data Quality Objective (DQO) requirements. The purpose of the data assessment process is to determine if and how the usability of the analytical data is affected by the overall analytical processes and sample collection and handling procedures. If specific DQOs are not met, the data are qualified (i.e., data flags are assigned to sample results) in accordance with guidelines established by the United States Environmental Protection Agency (USEPA). Data assessment allows the data user to adequately determine if the data can be used for its intended purpose. The data acceptance criteria are established according to Standard Operating Procedures (SOPs) and Statements of Work (SOWs) provided to the contracted analytical laboratory. The assessment of data quality and usability involves five components, as described below.

- 1) **Field Sampling Check** is a process to ensure that all samples were collected and the laboratory analyses were performed as stipulated in the applicable site-specific Work Plan or Field Sampling Plan (FSP). Inspection of sample preservation procedures, sample handling, analysis requested, sample description and identification (ID), cooler receipt forms, holding time evaluation, and Chain of Custody procedures are all evaluated to ensure that the evidentiary nature of the samples and the resulting analytical data have not been compromised.
- 2) **Data Verification** is a process for determining the completeness, correctness, consistency, and compliance of a data package in accordance with requirements contained in the applicable SOW and/or contract-specific requirements. This is a review of the data package, electronic data deliverable (EDD), and invoice received from the contract laboratory to ensure that the contract required information is present and complete prior to data validation.
- 3) **Data Review** is a process of reviewing the primary quality control (QC) data provided by the laboratory and the results of any internal quality assurance (QA)/QC samples, such as field blanks, trip blanks, equipment blanks or ambient blanks, field split samples, and duplicate samples, to ascertain any effect the laboratory's procedures or the sample collection process has on the data.
- 4) **Data Evaluation** is a process to determine if the data meet project-specific DQOs and contract requirements. This evaluation may involve a review of field sampling and sample management procedures, laboratory audits, Performance Evaluation (PE) sample results, and any other data quality indicators that are available.
- 5) **Data Validation** is a process to determine the accuracy and precision of analytical data generated and to identify any anomalies encountered. The validation process is performed in accordance with USEPA regional or national functional guidelines, project-specific guidelines, and

compliance with the requirements of each analytical method. Two major components of data validation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance for each analytical method to determine if the samples were analyzed within the prescribed acceptance criteria of the method. Evaluation of matrix interferences involves the analysis of surrogate spike recoveries, matrix spike recoveries, and duplicate sample results. Data not meeting project-specific DQOs or the requirements of the analytical method are qualified with data flags according to referenced guidelines.

Data Assessment Procedures

AECOM performed independent QC checks of field and laboratory procedures that were used in collecting and analyzing the data. The QC checks verify that the data collected are of appropriate quality for the intended data use and that the DQOs were met. The steps and guidelines followed during the data validation process were modeled on the *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA, January 2017) and *USEPA National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, January 2017). In addition, method-specific criteria set forth in the compendium of analytical methods found in the *Test Methods for Evaluation Solid Waste (SW-846), Update IV* (USEPA, February 2007) are also evaluated during the validation process. This validation process has been adapted to meet the DQO requirements for generation of definitive critical data.

Data Validation Results

The analytical data associated with analytical data package UG15055 (SW-22, SED-22, SW-21 and SED-21) were collected on July 15, 2019 for Westinghouse located in Hopkins, South Carolina. The analytical data were validated according to the procedures outlined above. Where data flags have been applied to this data set, they are separated by a slash “/” and presented in the following format:

Laboratory Flag / Result Flags / Analysis Flags

- **Laboratory Flag:** This flag precedes the first slash and is added by the laboratory as a result of QC excursions from the analytical method. These flags are laboratory-specific and are described in the associated laboratory report.
- **Result Flags:** These are presented after the first slash and are added by AECOM based on data validation procedures and guidelines. They tell how and if the data should be used.
- **Analysis Flags:** These flags are presented after the second slash and are added by AECOM to inform the data user of any specific QA/QC problems that were encountered.

Any data requiring qualification as a result of the validation process were assigned data flags, as discussed below. The validation flags indicate how any QC excursions may have impacted the usability of the data.

Volatile Organic Compounds by Method 8260B

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Semivolatile Organic Compounds by Method 8270D

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Nitrate by Methods 353.2/9056A

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Data Summary and Usability

No QC excursions were encountered during the validation of this data set. Therefore, the data associated with this laboratory batch should be considered compliant and adequate for its intended use.

References

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*. Publication #EPA-540-R-2017-001.

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*. Publication #EPA-540-R-2017-002.

United States Environmental Protection Agency (USEPA), February 2007. *Test Methods for Evaluating Solid Waste (SW-846)*, Update IV.

DATA ASSESSMENT REPORT

Data assessment is a systematic process for reviewing a body of data against a predefined set of criteria to provide assurance that the data meet project Data Quality Objective (DQO) requirements. The purpose of the data assessment process is to determine if and how the usability of the analytical data is affected by the overall analytical processes and sample collection and handling procedures. If specific DQOs are not met, the data are qualified (i.e., data flags are assigned to sample results) in accordance with guidelines established by the United States Environmental Protection Agency (USEPA). Data assessment allows the data user to adequately determine if the data can be used for its intended purpose. The data acceptance criteria are established according to Standard Operating Procedures (SOPs) and Statements of Work (SOWs) provided to the contracted analytical laboratory. The assessment of data quality and usability involves five components, as described below.

- 1) **Field Sampling Check** is a process to ensure that all samples were collected and the laboratory analyses were performed as stipulated in the applicable site-specific Work Plan or Field Sampling Plan (FSP). Inspection of sample preservation procedures, sample handling, analysis requested, sample description and identification (ID), cooler receipt forms, holding time evaluation, and Chain of Custody procedures are all evaluated to ensure that the evidentiary nature of the samples and the resulting analytical data have not been compromised.
- 2) **Data Verification** is a process for determining the completeness, correctness, consistency, and compliance of a data package in accordance with requirements contained in the applicable SOW and/or contract-specific requirements. This is a review of the data package, electronic data deliverable (EDD), and invoice received from the contract laboratory to ensure that the contract required information is present and complete prior to data validation.
- 3) **Data Review** is a process of reviewing the primary quality control (QC) data provided by the laboratory and the results of any internal quality assurance (QA)/QC samples, such as field blanks, trip blanks, equipment blanks or ambient blanks, field split samples, and duplicate samples, to ascertain any effect the laboratory's procedures or the sample collection process has on the data.
- 4) **Data Evaluation** is a process to determine if the data meet project-specific DQOs and contract requirements. This evaluation may involve a review of field sampling and sample management procedures, laboratory audits, Performance Evaluation (PE) sample results, and any other data quality indicators that are available.
- 5) **Data Validation** is a process to determine the accuracy and precision of analytical data generated and to identify any anomalies encountered. The validation process is performed in accordance with USEPA regional or national functional guidelines, project-specific guidelines, and

compliance with the requirements of each analytical method. Two major components of data validation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance for each analytical method to determine if the samples were analyzed within the prescribed acceptance criteria of the method. Evaluation of matrix interferences involves the analysis of surrogate spike recoveries, matrix spike recoveries, and duplicate sample results. Data not meeting project-specific DQOs or the requirements of the analytical method are qualified with data flags according to referenced guidelines.

Data Assessment Procedures

AECOM performed independent QC checks of field and laboratory procedures that were used in collecting and analyzing the data. The QC checks verify that the data collected are of appropriate quality for the intended data use and that the DQOs were met. The steps and guidelines followed during the data validation process were modeled on the *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA, January 2017) and *USEPA National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, January 2017). In addition, method-specific criteria set forth in the compendium of analytical methods found in the *Test Methods for Evaluation Solid Waste (SW-846), Update IV* (USEPA, February 2007) are also evaluated during the validation process. This validation process has been adapted to meet the DQO requirements for generation of definitive critical data.

Data Validation Results

The analytical data associated with analytical data package UG16058 (SED-15, SED-18, SW-18, SED-20, SW-20, SED-23, SW-23, and SED-24) were collected on July 16, 2019 for Westinghouse located in Hopkins, South Carolina. The analytical data were validated according to the procedures outlined above. Where data flags have been applied to this data set, they are separated by a slash “/” and presented in the following format:

Laboratory Flag / Result Flags / Analysis Flags

- **Laboratory Flag:** This flag precedes the first slash and is added by the laboratory as a result of QC excursions from the analytical method. These flags are laboratory-specific and are described in the associated laboratory report.
- **Result Flags:** These are presented after the first slash and are added by AECOM based on data validation procedures and guidelines. They tell how and if the data should be used.
- **Analysis Flags:** These flags are presented after the second slash and are added by AECOM to inform the data user of any specific QA/QC problems that were encountered.

Any data requiring qualification as a result of the validation process were assigned data flags, as discussed below. The validation flags indicate how any QC excursions may have impacted the usability of the data.

Volatile Organic Compounds by Method 8260B

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Semivolatile Organic Compounds by Method 8270D

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Nitrate by Methods 353.2/9056A

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Data Summary and Usability

No QC excursions were encountered during the validation of this data set. Therefore, the data associated with this laboratory batch should be considered compliant and adequate for its intended use.

References

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*. Publication #EPA-540-R-2017-001.

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*. Publication #EPA-540-R-2017-002.

United States Environmental Protection Agency (USEPA), February 2007. *Test Methods for Evaluating Solid Waste (SW-846)*, Update IV.

DATA ASSESSMENT REPORT

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- 1) **Field Sampling Check** is a process to ensure that all samples were collected and the laboratory analyses were performed as stipulated in the applicable site-specific Work Plan or Field Sampling Plan (FSP). Inspection of sample preservation procedures, sample handling, analysis requested, sample description and identification (ID), cooler receipt forms, holding time evaluation, and Chain of Custody procedures are all evaluated to ensure that the evidentiary nature of the samples and the resulting analytical data have not been compromised.
- 2) **Data Verification** is a process for determining the completeness, correctness, consistency, and compliance of a data package in accordance with requirements contained in the applicable SOW and/or contract-specific requirements. This is a review of the data package, electronic data deliverable (EDD), and invoice received from the contract laboratory to ensure that the contract required information is present and complete prior to data validation.
- 3) **Data Review** is a process of reviewing the primary quality control (QC) data provided by the laboratory and the results of any internal quality assurance (QA)/QC samples, such as field blanks, trip blanks, equipment blanks or ambient blanks, field split samples, and duplicate samples, to ascertain any effect the laboratory's procedures or the sample collection process has on the data.
- 4) **Data Evaluation** is a process to determine if the data meet project-specific DQOs and contract requirements. This evaluation may involve a review of field sampling and sample management procedures, laboratory audits, Performance Evaluation (PE) sample results, and any other data quality indicators that are available.
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compliance with the requirements of each analytical method. Two major components of data validation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance for each analytical method to determine if the samples were analyzed within the prescribed acceptance criteria of the method. Evaluation of matrix interferences involves the analysis of surrogate spike recoveries, matrix spike recoveries, and duplicate sample results. Data not meeting project-specific DQOs or the requirements of the analytical method are qualified with data flags according to referenced guidelines.

Data Assessment Procedures

AECOM performed independent QC checks of field and laboratory procedures that were used in collecting and analyzing the data. The QC checks verify that the data collected are of appropriate quality for the intended data use and that the DQOs were met. The steps and guidelines followed during the data validation process were modeled on the *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA, January 2017) and *USEPA National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, January 2017). In addition, method-specific criteria set forth in the compendium of analytical methods found in the *Test Methods for Evaluation Solid Waste (SW-846), Update IV* (USEPA, February 2007) are also evaluated during the validation process. This validation process has been adapted to meet the DQO requirements for generation of definitive critical data.

Data Validation Results

The analytical data associated with analytical data package UG17072 (SW-19, SED-19, SW-16, SED-16, SW-14, SED-14, SW-13, SED-13, SW-11, SED-11, SW-12, SED-12, and TB-01-071719) were collected on July 17, 2019 for Westinghouse located in Hopkins, South Carolina. The analytical data were validated according to the procedures outlined above. Where data flags have been applied to this data set, they are separated by a slash "/" and presented in the following format:

Laboratory Flag / Result Flags / Analysis Flags

- **Laboratory Flag:** This flag precedes the first slash and is added by the laboratory as a result of QC excursions from the analytical method. These flags are laboratory-specific and are described in the associated laboratory report.
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- **Analysis Flags:** These flags are presented after the second slash and are added by AECOM to inform the data user of any specific QA/QC problems that were encountered.

Any data requiring qualification as a result of the validation process were assigned data flags, as discussed below. The validation flags indicate how any QC excursions may have impacted the usability of the data.

Volatile Organic Compounds by Method 8260B

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Semivolatile Organic Compounds by Method 8270D

Non-detections of benzaldehyde associated with preparatory batch 23488 were qualified “/R/c” due to recovery in the associated laboratory control sample below the established limits of 20-155% (18%). These qualifiers indicate the non-detections are biased low and should be rejected.

Nitrate by Methods 353.2/9056A

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Data Summary and Usability

With the exception of non-detections of benzaldehyde associated with preparatory batch 23488, the QC excursions encountered during the validation of this data did not result in the rejection of any data. Therefore, the remaining data associated with this laboratory batch should be considered compliant and adequate for its intended use.

References

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*. Publication #EPA-540-R-2017-001.

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*. Publication #EPA-540-R-2017-002.

United States Environmental Protection Agency (USEPA), February 2007. *Test Methods for Evaluating Solid Waste (SW-846)*, Update IV.

DATA ASSESSMENT REPORT

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- 2) **Data Verification** is a process for determining the completeness, correctness, consistency, and compliance of a data package in accordance with requirements contained in the applicable SOW and/or contract-specific requirements. This is a review of the data package, electronic data deliverable (EDD), and invoice received from the contract laboratory to ensure that the contract required information is present and complete prior to data validation.
- 3) **Data Review** is a process of reviewing the primary quality control (QC) data provided by the laboratory and the results of any internal quality assurance (QA)/QC samples, such as field blanks, trip blanks, equipment blanks or ambient blanks, field split samples, and duplicate samples, to ascertain any effect the laboratory's procedures or the sample collection process has on the data.
- 4) **Data Evaluation** is a process to determine if the data meet project-specific DQOs and contract requirements. This evaluation may involve a review of field sampling and sample management procedures, laboratory audits, Performance Evaluation (PE) sample results, and any other data quality indicators that are available.
- 5) **Data Validation** is a process to determine the accuracy and precision of analytical data generated and to identify any anomalies encountered. The validation process is performed in accordance with USEPA regional or national functional guidelines, project-specific guidelines, and

compliance with the requirements of each analytical method. Two major components of data validation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance for each analytical method to determine if the samples were analyzed within the prescribed acceptance criteria of the method. Evaluation of matrix interferences involves the analysis of surrogate spike recoveries, matrix spike recoveries, and duplicate sample results. Data not meeting project-specific DQOs or the requirements of the analytical method are qualified with data flags according to referenced guidelines.

Data Assessment Procedures

AECOM performed independent QC checks of field and laboratory procedures that were used in collecting and analyzing the data. The QC checks verify that the data collected are of appropriate quality for the intended data use and that the DQOs were met. The steps and guidelines followed during the data validation process were modeled on the *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA, January 2017) and *USEPA National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, January 2017). In addition, method-specific criteria set forth in the compendium of analytical methods found in the *Test Methods for Evaluation Solid Waste (SW-846), Update IV* (USEPA, February 2007) are also evaluated during the validation process. This validation process has been adapted to meet the DQO requirements for generation of definitive critical data.

Data Validation Results

The analytical data associated with analytical data package UG18083 [EB-01-071819, EB-02-071819, SED-25, SED-26, SED-27, SED-28, SED-17, SW-17, Dup-01-071819 (SED), and Dup-01-071819 (SW)] were collected on July 18, 2019 for Westinghouse located in Hopkins, South Carolina. The analytical data were validated according to the procedures outlined above. Where data flags have been applied to this data set, they are separated by a slash “/” and presented in the following format:

Laboratory Flag / Result Flags / Analysis Flags

- **Laboratory Flag:** This flag precedes the first slash and is added by the laboratory as a result of QC excursions from the analytical method. These flags are laboratory-specific and are described in the associated laboratory report.
- **Result Flags:** These are presented after the first slash and are added by AECOM based on data validation procedures and guidelines. They tell how and if the data should be used.
- **Analysis Flags:** These flags are presented after the second slash and are added by AECOM to inform the data user of any specific QA/QC problems that were encountered.

Any data requiring qualification as a result of the validation process were assigned data flags, as discussed below. The validation flags indicate how any QC excursions may have impacted the usability of the data.

Volatile Organic Compounds by Method 8260B

Results of the validation process indicate that the data analyzed for this method are acceptable for their intended use and no data flags are required.

Semivolatile Organic Compounds by Method 8270D

Non-detections of benzaldehyde associated with preparatory batch 23488 were qualified “/R/c” due to recovery in the associated laboratory control sample below the established limits of 20-155% (18%). These qualifiers indicate the non-detections are biased low and should be rejected.

Results of 3,3'-dichlorobenzidine and 2,4-dinitrophenol in sample SED-17 were qualified “/M/D” due to the relative percent difference between the matrix spike and matrix spike duplicate samples exceeding the established criteria of 40% (43 and 41%, respectively). These qualifiers indicate imprecision with laboratory methodology, instrumentation, or matrix interference.

Nitrate by Methods 353.2/9056A

Results of nitrate in sample SED-17 were qualified “/J/A” due to the relative percent difference between the primary and field duplicate samples exceeding the established criteria of 35% (75.4%). These qualifiers indicate imprecision with field sampling techniques, laboratory methodology, or instrumentation, and the results should be considered estimated.

Data Summary and Usability

With the exception of non-detections of benzaldehyde associated with preparatory batch 23488, the QC excursions encountered during the validation of this data did not result in the rejection of any data. Therefore, the remaining data associated with this laboratory batch should be considered compliant and adequate for its intended use.

References

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review*. Publication #EPA-540-R-2017-001.

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*. Publication #EPA-540-R-2017-002.

United States Environmental Protection Agency (USEPA), February 2007. *Test Methods for Evaluating Solid Waste (SW-846)*, Update IV.