LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

AECOM
1001 Bishop Street Suite 1600
Honolulu, HI 96813
ATTN: Ms. Margie Pascua
Margie.Pascua@aecom.com

March 18, 2021

SUBJECT: Red Hill Bulk Storage Facility, CTO 18F0126, Data Validation

Dear Ms. Pascua,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on January 27, 2021. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #50353:

SDG #	Fraction
94464/0L18070	Volatiles, Semivolatiles, Lead, Dissolved Organic Carbon, Total Petroleum Hydrocarbons as Extractables

The data validation was performed under Level C validation guidelines. The analyses were validated using the following documents and variances, as applicable to each method:

- Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i; Revision 02, January 2017
- Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i; Revision 01, April 2017
- Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i; Revision 00, September 2017
- Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i; Revision 00, June 2018
- Project Procedures Manual U.S. Naval Facilities Engineering Command Environmental Restoration Program, NAVFAC Pacific; DON 2015
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.1; 2017

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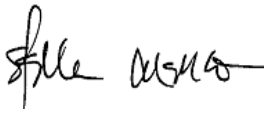
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,



Stella Cuenco
scuenco@lab-data.com
Operations Manager/Senior Chemist

48 pages-DL R3 (B removed) Attachment 1

90/10 2B/4 EDD

LDC #50353 (AECOM-Honolulu, HI / Red Hill Bulk Storage Facility, CTO 18F0126)

LDC	SDG#	DATE REC'D	(2) DATE DUE	VOA (524.2)		SVOA (525.2)		Pb (200.8)		TPH-E (8015B)		DOC (9060A)																					
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	94464/0L18070	01/27/21	02/10/21	2	0	2	0	2	0	2	0	2	0																				
Total	J/T/SC			2	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B validation). These sample counts do not include MS/MSD, and DUPs

L:\AECOM\Red Hill\50353ST-18F0126.wpd

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **200.8**													
ERH1208	BA23243	1	LEAD	12/16/2020 8:04:00 AM	1/21/2021 9:19:00 PM	C		UG_L	J	0.2	0.13	U	b
ERH1209	BA23244	1	LEAD	12/16/2020 9:05:00 AM	1/21/2021 9:26:00 PM	C		UG_L		0.2	0.65	U	b
METHOD: **524.2**													
ERH1208	BA23243	1	1,1,1,2-TETRACHLORO ETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	1,1,1-TRICHLOROETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1208	BA23243	1	1,1,2,2-TETRACHLOROETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1208	BA23243	1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.04	UG_L	U	0.5	0.04	U	
ERH1208	BA23243	1	1,1,2-TRICHLOROETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.32	UG_L	U	0.5	0.32	U	
ERH1208	BA23243	1	1,1-DICHLOROETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.08	UG_L	U	0.5	0.08	U	
ERH1208	BA23243	1	1,1-DICHLOROETHENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1208	BA23243	1	1,1-DICHLOROPROPENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1208	BA23243	1	1,2,3-TRICHLOROBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1208	BA23243	1	1,2,3-TRICHLOROPROPANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.36	UG_L	U	0.5	0.36	U	
ERH1208	BA23243	1	1,2,4-TRICHLOROBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.20	UG_L	U	0.5	0.20	U	
ERH1208	BA23243	1	1,2,4-TRIMETHYLBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.45	UG_L	U	0.5	0.45	U	
ERH1208	BA23243	1	1,2-DIBROMO-3-CHLOROPROPANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.92	UG_L	U	1.0	0.92	U	
ERH1208	BA23243	1	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.20	UG_L	U	0.5	0.20	U	
ERH1208	BA23243	1	1,2-DICHLOROBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	1,2-DICHLOROETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1208	BA23243	1	1,2-DICHLOROPROPANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1208	BA23243	1	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.08	UG_L	U	0.5	0.08	U	
ERH1208	BA23243	1	1,3-DICHLOROBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	1,3-DICHLOROPROPANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1208	BA23243	1	1,4-DICHLOROBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	2,2-DICHLOROPROPANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **524.2**													
ERH1208	BA23243	1	2-CHLOROTOLUENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	4-CHLOROTOLUENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.08	UG_L	U	0.5	0.08	U	
ERH1208	BA23243	1	BENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	BROMOBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1208	BA23243	1	BROMOCHLOROMETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	BROMODICHLOROMETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.08	UG_L	U	0.5	0.08	U	
ERH1208	BA23243	1	BROMOFORM	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.20	UG_L	U	0.5	0.20	U	
ERH1208	BA23243	1	BROMOMETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.40	UG_L	U	0.5	0.40	U	
ERH1208	BA23243	1	CARBON TETRACHLORIDE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.18	UG_L	U	0.2	0.18	U	
ERH1208	BA23243	1	CHLOROBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.20	UG_L	U	0.5	0.20	U	
ERH1208	BA23243	1	CHLOROETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.40	UG_L	U	0.5	0.40	U	
ERH1208	BA23243	1	CHLOROFORM	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1208	BA23243	1	CHLOROMETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.45	UG_L	J	0.5	0.20	J	
ERH1208	BA23243	1	CIS-1,2-DICHLOROETHYLENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.08	UG_L	U	0.5	0.08	U	
ERH1208	BA23243	1	CIS-1,3-DICHLOROPROPENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	CYMENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	DIBROMOCHLOROMETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	DIBROMOMETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.32	UG_L	U	0.5	0.32	U	
ERH1208	BA23243	1	DICHLORODIFLUOROMETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.36	UG_L	U	0.5	0.36	U	
ERH1208	BA23243	1	ETHYLBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	HEXACHLOROBUTADIENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.20	UG_L	U	0.5	0.20	U	
ERH1208	BA23243	1	ISOPROPYLBENZENE (CUMENE)	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1208	BA23243	1	METHYLENE CHLORIDE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.45	UG_L	U	0.5	0.45	U	
ERH1208	BA23243	1	NAPHTHALENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1208	BA23243	1	N-BUTYLBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1208	BA23243	1	N-PROPYLBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1208	BA23243	1	SEC-BUTYLBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **524.2**													
ERH1208	BA23243	1	STYRENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1208	BA23243	1	T-BUTYLBENZENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.04	UG_L	U	0.5	0.04	U	
ERH1208	BA23243	1	TERT-BUTYL METHYL ETHER	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.47	UG_L	U	0.5	0.47	U	
ERH1208	BA23243	1	TETRACHLOROETHYLENE(PCE)	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.20	UG_L	U	0.2	0.20	U	
ERH1208	BA23243	1	TOLUENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.40	UG_L	U	0.5	0.40	U	
ERH1208	BA23243	1	TRANS-1,2-DICHLOROETHENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1208	BA23243	1	TRANS-1,3-DICHLOROPROPENE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1208	BA23243	1	TRICHLOROETHYLENE (TCE)	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.12	UG_L	U	0.2	0.12	U	
ERH1208	BA23243	1	TRICHLOROFLUOROMETHANE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.20	UG_L	U	0.5	0.20	U	
ERH1208	BA23243	1	VINYL CHLORIDE	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1208	BA23243	1	Xylenes	12/16/2020 8:04:00 AM	12/19/2020 7:05:00 AM	C	0.44	UG_L	U	0.5	0.44	U	
ERH1209	BA23244	1	1,1,1,2-TETRACHLORO ETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	1,1,1-TRICHLOROETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1209	BA23244	1	1,1,2,2-TETRACHLOROETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1209	BA23244	1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.04	UG_L	U	0.5	0.04	U	
ERH1209	BA23244	1	1,1,2-TRICHLOROETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.32	UG_L	U	0.5	0.32	U	
ERH1209	BA23244	1	1,1-DICHLOROETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.08	UG_L	U	0.5	0.08	U	
ERH1209	BA23244	1	1,1-DICHLOROETHENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1209	BA23244	1	1,1-DICHLOROPROPENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1209	BA23244	1	1,2,3-TRICHLOROBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1209	BA23244	1	1,2,3-TRICHLOROPROPANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.36	UG_L	U	0.5	0.36	U	
ERH1209	BA23244	1	1,2,4-TRICHLOROBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.20	UG_L	U	0.5	0.20	U	
ERH1209	BA23244	1	1,2,4-TRIMETHYLBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.45	UG_L	U	0.5	0.45	U	
ERH1209	BA23244	1	1,2-DIBROMO-3-CHLOROPROPANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.92	UG_L	U	1.0	0.92	U	
ERH1209	BA23244	1	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.20	UG_L	U	0.5	0.20	U	
ERH1209	BA23244	1	1,2-DICHLOROBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	1,2-DICHLOROETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **524.2**													
ERH1209	BA23244	1	1,2-DICHLOROPROPANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1209	BA23244	1	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.08	UG_L	U	0.5	0.08	U	
ERH1209	BA23244	1	1,3-DICHLOROBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	1,3-DICHLOROPROPANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1209	BA23244	1	1,4-DICHLOROBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	2,2-DICHLOROPROPANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1209	BA23244	1	2-CHLOROTOLUENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	4-CHLOROTOLUENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.08	UG_L	U	0.5	0.08	U	
ERH1209	BA23244	1	BENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	BROMOBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1209	BA23244	1	BROMOCHLOROMETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	BROMODICHLOROMETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.08	UG_L	U	0.5	0.08	U	
ERH1209	BA23244	1	BROMOFORM	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	2.9	UG_L		0.5	0.20		
ERH1209	BA23244	1	BROMOMETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.40	UG_L	U	0.5	0.40	U	
ERH1209	BA23244	1	CARBON TETRACHLORIDE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.18	UG_L	U	0.2	0.18	U	
ERH1209	BA23244	1	CHLOROBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.20	UG_L	U	0.5	0.20	U	
ERH1209	BA23244	1	CHLOROETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.40	UG_L	U	0.5	0.40	U	
ERH1209	BA23244	1	CHLOROFORM	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1209	BA23244	1	CHLOROMETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.20	UG_L	U	0.5	0.20	U	
ERH1209	BA23244	1	CIS-1,2-DICHLOROETHYLENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.08	UG_L	U	0.5	0.08	U	
ERH1209	BA23244	1	CIS-1,3-DICHLOROPROPENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	CYMENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	DIBROMOCHLOROMETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	DIBROMOMETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.32	UG_L	U	0.5	0.32	U	
ERH1209	BA23244	1	DICHLORODIFLUOROMETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.36	UG_L	U	0.5	0.36	U	
ERH1209	BA23244	1	ETHYLBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	HEXACHLOROBUTADIENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.20	UG_L	U	0.5	0.20	U	

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **524.2**													
ERH1209	BA23244	1	ISOPROPYLBENZENE (CUMENE)	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1209	BA23244	1	METHYLENE CHLORIDE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.45	UG_L	U	0.5	0.45	U	
ERH1209	BA23244	1	NAPHTHALENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1209	BA23244	1	N-BUTYLBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1209	BA23244	1	N-PROPYLBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1209	BA23244	1	SEC-BUTYLBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1209	BA23244	1	STYRENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.24	UG_L	U	0.5	0.24	U	
ERH1209	BA23244	1	T-BUTYLBENZENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.04	UG_L	U	0.5	0.04	U	
ERH1209	BA23244	1	TERT-BUTYL METHYL ETHER	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.47	UG_L	U	0.5	0.47	U	
ERH1209	BA23244	1	TETRACHLOROETHYLENE(PCE)	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.20	UG_L	U	0.2	0.20	U	
ERH1209	BA23244	1	TOLUENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.40	UG_L	U	0.5	0.40	U	
ERH1209	BA23244	1	TRANS-1,2-DICHLOROETHENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1209	BA23244	1	TRANS-1,3-DICHLOROPROPENE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.5	0.12	U	
ERH1209	BA23244	1	TRICHLOROETHYLENE (TCE)	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.12	UG_L	U	0.2	0.12	U	
ERH1209	BA23244	1	TRICHLOROFLUOROMETHANE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.20	UG_L	U	0.5	0.20	U	
ERH1209	BA23244	1	VINYL CHLORIDE	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.16	UG_L	U	0.5	0.16	U	
ERH1209	BA23244	1	Xylenes	12/16/2020 9:05:00 AM	12/19/2020 7:28:00 AM	C	0.44	UG_L	U	0.5	0.44	U	
METHOD: **525.2**													
ERH1208	BA23243	1	2,4-DINITROTOLUENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	2.0	2.0	UJ	h,c
ERH1208	BA23243	1	2,6-DINITROTOLUENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	2.0	2.0	UJ	h,c
ERH1208	BA23243	1	ACENAPHTHENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	ACENAPHTHYLENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	ACETOCHLOR	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	ALACHLOR	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	ALDRIN	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1208	BA23243	1	ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXAN	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1208	BA23243	1	ALPHA ENDOSULFAN	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	1.0	1.0	UJ	h,v

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **525.2**													
ERH1208	BA23243	1	ALPHA-CHLORDANE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1208	BA23243	1	ANTHRACENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	ATRAZINE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	BENZO(A)ANTHRACENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	BENZO(A)PYRENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	BENZO(B)FLUORANTHENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	BENZO(G,H,I)PERYLENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	BENZO(K)FLUORANTHENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	BENZYL BUTYL PHTHALATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	2.0	2.0	UJ	h
ERH1208	BA23243	1	BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1208	BA23243	1	BETA ENDOSULFAN	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1208	BA23243	1	BIS(2-ETHYLHEXYL) PHTHALATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	3.0	3.0	UJ	h
ERH1208	BA23243	1	BROMACIL	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	BUTACHLOR	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	CAFFEINE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	CAPTAN	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	1.0	1.0	UJ	h
ERH1208	BA23243	1	CARBOPHENOTHION (TRITHION)	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	Chlordane; Gamma-	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1208	BA23243	1	CHRYSENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	CYANAZINE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1208	BA23243	1	DIAZINON	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,c
ERH1208	BA23243	1	DIBENZ(A,H)ANTHRACENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h,c
ERH1208	BA23243	1	DIELDRIN	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1208	BA23243	1	DIETHYL PHTHALATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	2.0	2.0	UJ	h
ERH1208	BA23243	1	DIMETHOATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.20	0.20	UJ	h,l
ERH1208	BA23243	1	DIMETHYL PHTHALATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	2.0	2.0	UJ	h

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **525.2**													
ERH1208	BA23243	1	DI-N-BUTYL PHTHALATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	2.0	2.0	UJ	h
ERH1208	BA23243	1	DI-N-OCTYLPHTHALATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	DIOCTYL ADIPATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	5.0	5.0	UJ	h
ERH1208	BA23243	1	DIPHENAMID	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	DISULFOTON	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	ENDOSULFAN SULFATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1208	BA23243	1	ENDRIN	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1208	BA23243	1	ENDRIN ALDEHYDE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1208	BA23243	1	ENDRIN KETONE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1208	BA23243	1	ETHION	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,c
ERH1208	BA23243	1	FLUORANTHENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	FLUORENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	GAMMA BHC (LINDANE)	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1208	BA23243	1	HEPTACHLOR	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1208	BA23243	1	HEPTACHLOR EPOXIDE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1208	BA23243	1	HEXACHLOROBENZENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1208	BA23243	1	HEXACHLOROCYCLOPENTADIENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	1.0	1.0	UJ	h,v
ERH1208	BA23243	1	INDENO(1,2,3-C,D)PYRENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	ISOPROPYL M-CHLOROCARBANILATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,c
ERH1208	BA23243	1	METHOXYCHLOR	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.20	0.20	UJ	h,c,v
ERH1208	BA23243	1	METOLACHLOR	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	METRIBUZIN	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	MOLINATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	NAPHTHALENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	P,P'-DDD	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1208	BA23243	1	P,P'-DDE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1208	BA23243	1	P,P'-DDT	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h,c,v

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **525.2**													
ERH1208	BA23243	1	PENTACHLORONITROBENZENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	PENTACHLOROPHENOL	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	1.0	1.0	UJ	h,c
ERH1208	BA23243	1	PHENANTHRENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	PROMETON	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	PROMETRYN	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	PROPACHLOR	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.20	0.20	UJ	h,c
ERH1208	BA23243	1	PYRENE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.50	0.50	UJ	h
ERH1208	BA23243	1	S-ETHYL DI-N,N-PROPYLTHIOCARBAMATE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	SIMAZINE	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	TERBACIL	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	2.0	2.0	UJ	h
ERH1208	BA23243	1	Thiobencarb	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1208	BA23243	1	TRIFLURALIN	12/16/2020 8:04:00 AM	1/14/2021 12:41:00 PM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	2,4-DINITROTOLUENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	2.0	2.0	UJ	h,c
ERH1209	BA23244	1	2,6-DINITROTOLUENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	2.0	2.0	UJ	h,c
ERH1209	BA23244	1	ACENAPHTHENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	ACENAPHTHYLENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	ACETOCHLOR	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	ALACHLOR	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	ALDRIN	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1209	BA23244	1	ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXAN	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1209	BA23244	1	ALPHA ENDOSULFAN	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	1.0	1.0	UJ	h,v
ERH1209	BA23244	1	ALPHA-CHLORDANE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1209	BA23244	1	ANTHRACENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	ATRAZINE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	BENZO(A)ANTHRACENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	BENZO(A)PYRENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	BENZO(B)FLUORANTHENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **525.2**													
ERH1209	BA23244	1	BENZO(G,H,I)PERYLENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	BENZO(K)FLUORANTHENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	BENZYL BUTYL PHTHALATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	2.0	2.0	UJ	h
ERH1209	BA23244	1	BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1209	BA23244	1	BETA ENDOSULFAN	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1209	BA23244	1	BIS(2-ETHYLHEXYL) PHTHALATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	3.0	3.0	UJ	h
ERH1209	BA23244	1	BROMACIL	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	BUTACHLOR	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	CAFFEINE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	CAPTAN	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	1.0	1.0	UJ	h
ERH1209	BA23244	1	CARBOPHENOTHION (TRITHION)	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	Chlordane; Gamma-	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1209	BA23244	1	CHRYSENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	CYANAZINE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1209	BA23244	1	DIAZINON	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,c
ERH1209	BA23244	1	DIBENZ(A,H)ANTHRACENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h,c
ERH1209	BA23244	1	DIELDRIN	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1209	BA23244	1	DIETHYL PHTHALATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	2.0	2.0	UJ	h
ERH1209	BA23244	1	DIMETHOATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.20	0.20	UJ	h,l
ERH1209	BA23244	1	DIMETHYL PHTHALATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	2.0	2.0	UJ	h
ERH1209	BA23244	1	DI-N-BUTYL PHTHALATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	2.0	2.0	UJ	h
ERH1209	BA23244	1	DI-N-OCTYLPHTHALATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	DIOCTYL ADIPATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	5.0	5.0	UJ	h
ERH1209	BA23244	1	DIPHENAMID	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	DISULFOTON	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	ENDOSULFAN SULFATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.20	0.20	UJ	h,v

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **525.2**													
ERH1209	BA23244	1	ENDRIN	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1209	BA23244	1	ENDRIN ALDEHYDE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1209	BA23244	1	ENDRIN KETONE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1209	BA23244	1	ETHION	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,c
ERH1209	BA23244	1	FLUORANTHENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	FLUORENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	GAMMA BHC (LINDANE)	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1209	BA23244	1	HEPTACHLOR	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1209	BA23244	1	HEPTACHLOR EPOXIDE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1209	BA23244	1	HEXACHLOROBENZENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1209	BA23244	1	HEXACHLOROCYCLOPENTADIENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	1.0	1.0	UJ	h,v
ERH1209	BA23244	1	INDENO(1,2,3-C,D)PYRENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	ISOPROPYL M-CHLOROCARBANILATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,c
ERH1209	BA23244	1	METHOXYCHLOR	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.20	0.20	UJ	h,c,v
ERH1209	BA23244	1	METOLACHLOR	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	METRIBUZIN	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	MOLINATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	NAPHTHALENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	P,P'-DDD	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,v
ERH1209	BA23244	1	P,P'-DDE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.20	0.20	UJ	h,v
ERH1209	BA23244	1	P,P'-DDT	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h,c,v
ERH1209	BA23244	1	PENTACHLORONITROBENZENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	PENTACHLOROPHENOL	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	1.0	1.0	UJ	h,c
ERH1209	BA23244	1	PHENANTHRENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	PROMETON	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	PROMETRYN	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	PROPACHLOR	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.20	0.20	UJ	h,c

EPA_NO	LAB_ID	DF	ANALYTE	COLL_DATE	ANAL_DATE	QCLev	RESULT	UNITS	LAB_Q	LOQ	LOD	REV	Q_C
METHOD: **525.2**													
ERH1209	BA23244	1	PYRENE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.50	0.50	UJ	h
ERH1209	BA23244	1	S-ETHYL DI-N,N-PROPYLTHIOCARBAMATE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	SIMAZINE	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	TERBACIL	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	2.0	2.0	UJ	h
ERH1209	BA23244	1	Thiobencarb	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
ERH1209	BA23244	1	TRIFLURALIN	12/16/2020 9:05:00 AM	1/14/2021 1:08:00 AM	C		UG_L	U	0.10	0.10	UJ	h
METHOD: **5310B**													
ERH1208	BA23243	1	DISSOLVED ORGANIC CARBON	12/16/2020 8:04:00 AM	12/19/2020 9:37:00 AM	C	0.43	MG_L	J	0.5	0.35	J	
ERH1209	BA23244	1	DISSOLVED ORGANIC CARBON	12/16/2020 9:05:00 AM	12/19/2020 10:13:00 AM	C	0.45	MG_L	J	0.5	0.35	J	
METHOD: **8015B**													
ERH1208	BA23243	1	C10-C25 DIESEL RANGE ORGANICS	12/16/2020 8:04:00 AM	12/23/2020 4:44:00 PM	C	300.0	UG_L	U	320	300.0	U	
ERH1208	BA23243	1	C8-C18 PETROLEUM HYDROCARBONS	12/16/2020 8:04:00 AM	12/23/2020 4:44:00 PM	C	300.0	UG_L	U	320	300.0	U	
ERH1209	BA23244	1	C10-C25 DIESEL RANGE ORGANICS	12/16/2020 9:05:00 AM	12/23/2020 5:12:00 PM	C	300.0	UG_L	U	320	300.0	U	
ERH1209	BA23244	1	C8-C18 PETROLEUM HYDROCARBONS	12/16/2020 9:05:00 AM	12/23/2020 5:12:00 PM	C	300.0	UG_L	U	320	300.0	U	

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: February 9, 2021

Parameters: Volatiles

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 94464

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH1208	BA23243	Water	12/16/20
ERH1209	BA23244	Water	12/16/20

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) Method 524.2

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Data Qualification Summary - SDG 94464

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Laboratory Blank Data Qualification Summary - SDG 94464

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Volatiles - Field Blank Data Qualification Summary - SDG 94464

No Sample Data Qualified in this SDG

LDC #: 50353A1a
SDG #: 94464
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 2/8/21
Page: 1 of 1
Reviewer: LT
2nd Reviewer: AC

METHOD: GC/MS Volatiles (EPA Method 524.2)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A, A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	%RSD ≤ 20%. r ICV ≤ 30.
IV.	Continuing calibration/ending	A	CCV ≤ 20/50%.
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	A	LCSD
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH1208	BA23243	Water	12/16/20
2	ERH1209	BA23244	Water	12/16/20
3				
4				
5				
6				
7				
8				
9				

Notes:

1	20128A22BUC						

LDC Report# 50353A2a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: March 18, 2021

Parameters: Semivolatiles

Validation Level: Level C

Laboratory: APPL, Inc./Weck Laboratories, Inc.

Sample Delivery Group (SDG): 94464/0L18070

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH1208	BA23243/0L18070-01	Water	12/16/20
ERH1209	BA23244/0L18070-02	Water	12/16/20

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Semivolatile Organic Compounds (SVOCs) by Environmental Protection Agency (EPA) Method 525.2

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
ERH1208 ERH1209	All compounds	13	7	UJ (all non-detects)	P

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, percent relative standard deviations (%RSD) were less than or equal to 30.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
02/03/21	2,6-Dinitrotoluene 2,4-Dinitrotoluene	62.75 49.55	All samples in SDG 94464/0L18070	UJ (all non-detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
01/13/21 (GCMS16_01132103)	Pentachlorophenol	56.34	All samples in SDG 94464/0L18070	UJ (all non-detects)	A
01/13/21 (GCMS16_01132104)	Chlorpropham Diazinon Ethion Dibenzo(a,h)anthracene	37.59 31.26 30.72 36.36	All samples in SDG 94464/0L18070	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A
01/13/21 (GCMS16_01132106)	Propachlor	60.65	All samples in SDG 94464/0L18070	UJ (all non-detects)	A
01/13/21 (GCMS16_01132107)	4,4'-DDT Methoxychlor	30.40 33.07	All samples in SDG 94464/0L18070	UJ (all non-detects) UJ (all non-detects)	A

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample ERH1210 was identified as a field blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method with the following exceptions:

LCS ID	Compound	Finding	Associated Samples	Flag	A or P
W0L1430-BS1/BSD1	4,4'-DDD	The laboratory indicated that these compounds were not spiked in the LCS mix analyzed for this SDG.	All samples in SDG 94464/0L18070	UJ (all non-detects)	P
	4,4'-DDE			UJ (all non-detects)	
	4,4'-DDT			UJ (all non-detects)	
	Aldrin			UJ (all non-detects)	
	alpha-BHC			UJ (all non-detects)	
	alpha-Chlordane			UJ (all non-detects)	
	beta-BHC			UJ (all non-detects)	
	delta-BHC			UJ (all non-detects)	
	Dieldrin			UJ (all non-detects)	
	Endosulfan I			UJ (all non-detects)	
	Endosulfan II			UJ (all non-detects)	
	Endosulfan sulfate			UJ (all non-detects)	
	Endrin			UJ (all non-detects)	
	Endrin aldehyde			UJ (all non-detects)	
	Endrin ketone			UJ (all non-detects)	
	gamma-BHC			UJ (all non-detects)	
	gamma-Chlordane			UJ (all non-detects)	
	Heptachlor			UJ (all non-detects)	
	Heptachlor epoxide			UJ (all non-detects)	
	Hexachlorobenzene			UJ (all non-detects)	
	Hexachlorocyclopentadiene			UJ (all non-detects)	
	Methoxychlor			UJ (all non-detects)	

Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	Flag	A or P
W0L1430-BS1/BSD1 (All samples in SDG 94464/0L18070)	Alachlor	137 (70-130)	139 (70-130)	NA	-
	Chlorpropham	143 (70-130)	143 (70-130)		
	Disulfoton	137 (50-120)	131 (50-120)		
	Pentachlorophenol	166 (50-120)	178 (50-120)		
	Terbacil	133 (70-130)	-		
	Butachlor	-	131 (70-130)		
	Ethion	-	131 (70-130)		
W0L1430-BS1/BSD1 (All samples in SDG 94464/0L18070)	Dimethoate	42 (50-120)	39 (50-120)	UJ (all non-detects)	P

Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level C validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XIV. System Performance

Raw data were not reviewed for Level C validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

Due to technical holding time, ICV %D, continuing calibration %D, LCS not spiked, and LCS/LCSD %R, data were qualified as estimated in two samples.

No results were rejected in this SDG.

Red Hill Bulk Storage Facility, CTO 18F0126
Semivolatiles - Data Qualification Summary - SDG 94464/0L18070

Sample	Compound	Flag	A or P	Reason
ERH1208 ERH1209	All compounds	UJ (all non-detects)	P	Technical holding times (H)
ERH1208 ERH1209	2,6-Dinitrotoluene 2,4-Dinitrotoluene	UJ (all non-detects) UJ (all non-detects)	A	Initial calibration verification (%D) (C)
ERH1208 ERH1209	Pentachlorophenol Chlorpropham Diazinon Ethion Dibenzo(a,h)anthracene Propachlor 4,4'-DDT Methoxychlor	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D) (C)
ERH1208 ERH1209	4,4'-DDD 4,4'-DDE 4,4'-DDT Aldrin alpha-BHC alpha-Chlordane beta-BHC delta-BHC Dieldrin Endosulfan I Endosulfan II Endosulfan sulfate Endrin Endrin aldehyde Endrin ketone gamma-BHC gamma-Chlordane Heptachlor Heptachlor epoxide Hexachlorobenzene Hexachlorocyclopentadiene Methoxychlor	UJ (all non-detects) UJ (all non-detects)	P	Laboratory control samples (not spiked) (V)
ERH1208 ERH1209	Dimethoate	UJ (all non-detects)	P	Laboratory control samples (%R) (L)

Red Hill Bulk Storage Facility, CTO 18F0126
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 94464/0L18070

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Semivolatiles - Field Blank Data Qualification Summary - SDG 94464/0L18070

Red Hill Bulk Storage Facility, CTO 18F0126
Semivolatiles - Field Blank Data Qualification Summary - SDG 94464/0L18070

No Sample Data Qualified in this SDG

LDC #: 50353A2a

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 03/07/21

SDG #: 94464/0L18070

Page: 1 of 1

Laboratory: APPL, Inc./Weck Laboratories, Inc.

Reviewer: VT

2nd Reviewer: MC

METHOD: GC/MS Semivolatiles (EPA Method 525.2)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/SW	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/SW	RSD≤30. r² ICV≤30%
IV.	Continuing calibration	SW	CCV≤30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	FB=3
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	SW	LCSID
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Sub lab ID	Lab ID	Matrix	Date
1	ERH1208	0L18070-01	BA23243	Water	12/16/20
2	ERH1209	↓-02	BA23244	Water	12/16/20
3	~~ERH1210~~	↓03	↓5	↓	↓
4					
5					
6					
7					
8					
9					

Notes:

1	WOL1430-BLK1						

VALIDATION FINDINGS WORKSHEET

METHOD: Pesticides

A. alpha-BHC	K. Endrin	U. Toxaphene	EE. 2,4'-DDT	OO. oxy-Chlordane
B. beta-BHC	L. Endosulfan II	V. Aroclor-1016	FF. Hexachlorobenzene	PP. cis-Nonachlor
C. delta-BHC	M. 4,4'-DDD	W. Aroclor-1221	GG. Chlordane	QQ. trans-Nonachlor
D. gamma-BHC	N. Endosulfan sulfate	X. Aroclor-1232	HH. Chlordane (Technical)	RR. cis-Chlordane
E. Heptachlor	O. 4,4'-DDT	Y. Aroclor-1242	II. p,p'-DDE	SS. trans-Chlordane
F. Aldrin	P. Methoxychlor	Z. Aroclor-1248	JJ. p,p'-DDD	TT. alpha-Endosulphan
G. Heptachlor epoxide	Q. Endrin ketone	AA. Aroclor-1254	KK. p,p'-DDT	UU. beta-Endosulphan
H. Endosulfan I	R. Endrin aldehyde	BB. Aroclor-1260	LL. o,p'-DDT	VV. Endosulphan Sulphate
I. Dieldrin	S. alpha-Chlordane	CC. 2,4'-DDD	MM. o,p'-DDE	WW. Mirex
J. 4,4'-DDE	T. gamma-Chlordane	DD. 2,4'-DDE	NN. o,p'-DDD	

Notes:_____

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	CC. Dimethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	GGGG. C30-Hopane	I1. Methyl methanesulfonate
B. Bis (2-chloroethyl) ether	DD. Acenaphthylene	FFF. Di-n-octylphthalate	HHHH. 1-Methylphenanthrene	J1. Ethyl methanesulfonate
C. 2-Chlorophenol	EE. 2,6-Dinitrotoluene	GGG. Benzo(b)fluoranthene	IIII. 1,4-Dioxane	K1. o,o',o''-Triethylphosphorothioate
D. 1,3-Dichlorobenzene	FF. 3-Nitroaniline	HHH. Benzo(k)fluoranthene	JJJJ. Acetophenone	L1. n-Phenylene diamine
E. 1,4-Dichlorobenzene	GG. Acenaphthene	III. Benzo(a)pyrene	KKKK. Atrazine	M1. 1,4-Naphthoquinone
F. 1,2-Dichlorobenzene	HH. 2,4-Dinitrophenol	JJJ. Indeno(1,2,3-cd)pyrene	LLLL. Benzaldehyde	N1. N-Nitro-o-toluidine
G. 2-Methylphenol	II. 4-Nitrophenol	KKK. Dibenz(a,h)anthracene	MMMM. Caprolactam	O1. 1,3,5-Trinitrobenzene
H. 2,2'-Oxybis(1-chloropropane)	JJ. Dibenzofuran	LLL. Benzo(g,h,i)perylene	NNNN. 2,6-Dichlorophenol	P1. Pentachlorobenzene
I. 4-Methylphenol	KK. 2,4-Dinitrotoluene	MMM. Bis(2-Chloroisopropyl)ether	OOOO. 1,2-Diphenylhydrazine	Q1. 4-Aminobiphenyl
J. N-Nitroso-di-n-propylamine	LL. Diethylphthalate	NNN. Aniline	PPPP. 3-Methylphenol	R1. 2-Naphthylamine
K. Hexachloroethane	MM. 4-Chlorophenyl-phenyl ether	OOO. N-Nitrosodimethylamine	QQQQ. 3&4-Methylphenol	S1. Triphenylene
L. Nitrobenzene	NN. Fluorene	PPP. Benzoic Acid	RRRR. 4-Dimethyldibenzothiophene (4MDT)	T1. Octachlorostyrene
M. Isophorone	OO. 4-Nitroaniline	QQQ. Benzyl alcohol	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	U1. Famphur
N. 2-Nitrophenol	PP. 4,6-Dinitro-2-methylphenol	RRR. Pyridine	TTTT. 1-Methyldibenzothiophene (1MDT)	V1. 1,4-phenylenediamine
O. 2,4-Dimethylphenol	QQ. N-Nitrosodiphenylamine	SSS. Benzidine	UUUU.. 2,3,4,6-Tetrachlorophenol	W1. Methapyrilene
P. Bis(2-chloroethoxy)methane	RR. 4-Bromophenyl-phenylether	TTT. 1-Methylnaphthalene	VVVV. 1,2,4,5-Tetrachlorobenzene	X1. Pentachloroethane
Q. 2,4-Dichlorophenol	SS. Hexachlorobenzene	UUU.Benzo(b)thiophene	WWWW.. 2-Picoline	Y1. 3,3'-Dimethylbenzidine
R. 1,2,4-Trichlorobenzene	TT. Pentachlorophenol	VVV.Benzonaphthothiophene	XXXX. 3-Methylcholanthrene	Z1. o-Toluidine
S. Naphthalene	UU. Phenanthrene	WWW.Benzo(e)pyrene	YYYY. a,a-Dimethylphenethylamine	A2. 1-Naphthylamine
T. 4-Chloroaniline	VV. Anthracene	XXX. 2,6-Dimethylnaphthalene	ZZZZ. Hexachloropropene	B2. 4-Aminobiphenyl
U. Hexachlorobutadiene	WW. Carbazole	YYY. 2,3,5-Trimethylnaphthalene	A1. N-Nitrosodiethylamine	C2. 4-Nitroquinoline-1-oxide
V. 4-Chloro-3-methylphenol	XX. Di-n-butylphthalate	ZZZ. Perylene	B1. N-Nitrosodi-n-butylamine	D2. Hexachloropene
W. 2-Methylnaphthalene	YY. Fluoranthene	AAAA. Dibenzothiophene	C1. N-Nitrosomethylethylamine	E2. Bis (2-chloro-1-methylethyl) ether
X. Hexachlorocyclopentadiene	ZZ. Pyrene	BBBB. Benzo(a)fluoranthene	D1. N-Nitrosomorpholine	F2. Bifenthrin
Y. 2,4,6-Trichlorophenol	AAA. Butylbenzylphthalate	CCCC. Benzo(b)fluorene	E1. N-Nitrosopyrrolidine	G2. Cyfluthrin
Z. 2,4,5-Trichlorophenol	BBB. 3,3'-Dichlorobenzidine	DDDD. cis/trans-Decalin	F1. Phenacetin	H2. Cypermethrin
AA. 2-Chloronaphthalene	CCC. Benzo(a)anthracene	EEEE. 1,1'-Biphenyl	G1. 2-Acetylaminofluorene	I2. Permethrin (cis/trans)
BB. 2-Nitroaniline	DDD. Chrysene	FFFF. Retene	H1. Pronamide	J2. 5-Nitro-o-toluidine

LDC #: 50353A2a

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: LT

All circled dates have exceeded the technical holding times.
YES Were all cooler temperatures within validation criteria?

METHOD : GC/MS SVOA (EPA Method 525.2)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
1,2,3 (ND)	W	N	12/16/20	12/29/20	01/14/21	13	J/UJ/P (H)

TECHNICAL HOLDING TIME CRITERIA

Water: Extracted within 7 days, analyzed within 30 days.

LDC #: 50353A2a

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

Reviewer: LT

METHOD: GC/MS SVOA (EPA Method 525.2)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
YES Was an initial calibration verification standard analyzed after each ICAL for each instrument?
NO Were all %D within the validation criteria of ≤30 %D ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	02/03/21	GCMS16_02032103	EE*	62.75	1~~-3~~,2 (ND)	J/UJ/A (C)
			KK*	49.55	↓	↓
			*Use SVOC codes			

LDC #: 50353A2a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

METHOD: GC/MS SVOA (EPA Method 525.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

YES Was a continuing calibration standard analyzed at least once every 12 hours of sample analysis for each instrument?

NO Were all percent differences (%D) ≤30.0/50.0% ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0/50.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	01/13/21	GCMS16_01132103	TT*	56.34		1-3 (ND)	J/UJ/A (C)
	01/13/21	GCMS16_01132104	Chlorpropham	37.59		1-3 (ND)	J/UJ/A (C)
			Diazinon	31.26		↓	↓
			Ethion	30.72		↓	↓
			KKK*	36.36		↓	↓
	01/13/21	GCMS16_01132106	Propachlor	60.65		1-3 (ND)	J/UJ/A (C)
	01/13/21	GCMS16_01132107	O**	30.40		1-3 (ND)	J/UJ/A (C)
			P**	33.07		↓	↓
	01/14/21	GCMS16_01132121	TT*	74.23		NONE	NQ per SOP IIC
			FFF*	46.26		↓	↓
			JJJ*	36.86		↓	↓
	01/14/21	GCMS16_01132122	Ethion	47.88		↓	↓
			Trithion	36.46		↓	↓
			KKK*	49.31		↓	↓
	01/14/21	GCMS16_011321223	Propachlor	70.12		↓	↓
			Trifuralin	64.11		↓	↓
	01/14/21	GCMS16_011321224	P**	30.78		↓	↓
		*Use SVOC codes					
		**Use Pesticides codes					

LDC #: 50353A2a

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

METHOD: GC/MS SVOA (EPA Method 525.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

YES Was a LCS analyzed for this SDG?

YES Was a LCS analyzed every 20 samples?

NO Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	Date	Lab ID/Reference	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		W0L1430-BS1/BSD1	Alachlor	137 (70 - 130)	139 (70 - 130)		1,3,8 (ND)	J/P DETS
			Chlorpropham	143 (70 - 130)	143 (70 - 130)		↓	↓
			Dimethoate	42 (50 - 120)	39 (50 - 120)		↓	J/UJ/P
			Disulfoton	137 (50 - 120)	131 (50 - 120)		↓	J/P DETS
			TT*	166 (50 - 120)	178 (50 - 120)		↓	↓
			Terbacil	133 (70 - 130)			↓	↓
			Butachlor		131 (70 - 130)		↓	↓
			Ethion		131 (70 - 130)		↓	↓
			See attached	Not spiked			1,3,8 (ND)	J/UJ/P
			* Use SVOC codes					

APPL, Inc.
908 N. Temperance Avenue
Clovis, CA 93611

Project Number: 94464

Project Manager: Libby Cheeseborough

Reported: 01/19/2021 11:42

Quality Control Results (Continued)

Semivolatile Organic Compounds by GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W0L1430 - EPA 525.2 (Continued)										
Blank (W0L1430-BLK1)				**Prepared: 12/29/20 Analyzed: 01/13/21**						
Surrogate(s)										
Triphenyl phosphate	*5.93*		*ug/l*	*5.00*		*119*	*70-130*			
LCS (W0L1430-BS1)				**Prepared: 12/29/20 Analyzed: 01/13/21**						
4,4'-DDD	ND	0.10	ug/l				70-130			
4,4'-DDE	ND	0.20	ug/l				70-130			
4,4'-DDT	ND	0.10	ug/l				70-130			
Acenaphthene	4.59	0.50	ug/l	5.00		92	70-130			
Acenaphthylene	5.59	0.50	ug/l	5.00		112	70-130			
Acetochlor	6.20	0.10	ug/l	5.00		124	70-130			
Alachlor	6.87	0.10	ug/l	5.00		137	70-130			Q-08
Aldrin	ND	0.10	ug/l				70-130			
alpha-BHC	ND	0.10	ug/l				70-130			
alpha-Chlordane	ND	0.10	ug/l				70-130			
Anthracene	3.67	0.50	ug/l	5.00		73	70-130			
Atrazine	5.93	0.10	ug/l	5.00		119	70-130			
Benzo (a) anthracene	5.80	0.50	ug/l	5.00		116	70-130			
Benzo (a) pyrene	5.55	0.10	ug/l	5.00		111	60-130			
Benzo (b) fluoranthene	5.78	0.50	ug/l	5.00		116	70-130			AN-IP
Benzo (g,h,i) perylene	5.77	0.50	ug/l	5.00		115	40-160			
Benzo (k) fluoranthene	5.89	0.50	ug/l	5.00		118	70-130			AN-IP
beta-BHC	ND	0.20	ug/l				70-130			
Bis(2-ethylhexyl)adipate	6.00	5.0	ug/l	5.00		120	70-130			
Bis(2-ethylhexyl)phthalate	6.16	3.0	ug/l	5.00		123	70-130			
Bromacil	5.77	0.50	ug/l	5.00		115	70-130			
Butachlor	6.45	0.10	ug/l	5.00		129	70-130			
Butyl benzyl phthalate	5.86	2.0	ug/l	5.00		117	70-130			
Caffeine	3.17	0.10	ug/l	5.00		63	50-120			
Captan	5.58	1.0	ug/l	5.00		112	70-130			
Chlorpropham	7.16	0.10	ug/l	5.00		143	70-130			Q-08
Chrysene	5.44	0.50	ug/l	5.00		109	70-130			
Cyanazine	5.93	0.10	ug/l	5.00		119	70-130			
delta-BHC	ND	0.10	ug/l				70-130			
Diazinon	5.37	0.10	ug/l	5.00		107	50-120			
Dibenzo (a,h) anthracene	5.72	0.50	ug/l	5.00		114	50-150			
Dieldrin	ND	0.20	ug/l				70-130			
Diethyl phthalate	6.44	2.0	ug/l	5.00		129	70-130			
Dimethoate	2.11	0.20	ug/l	5.00		42	50-120			Q-ME
Dimethyl phthalate	5.73	2.0	ug/l	5.00		115	70-130			
Di-n-butyl phthalate	5.47	2.0	ug/l	5.00		109	70-130			

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APPL, Inc.
908 N. Temperance Avenue
Clovis, CA 93611

Project Number: 94464

Project Manager: Libby Cheeseborough

Reported: 01/19/2021 11:42

Quality Control Results

(Continued)

Semivolatile Organic Compounds by GC/MS (Continued)

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W0L1430 - EPA 525.2 (Continued)										
LCS (W0L1430-BS1)				**Prepared: 12/29/20 Analyzed: 01/13/21**						
Di-n-octyl phthalate	6.27	0.50	ug/l	5.00		125	70-130			
Diphenamid	5.84	0.10	ug/l	5.00		117	70-130			
Disulfoton	6.87	0.10	ug/l	5.00		137	50-120			Q-08
Endosulfan I	ND	1.0	ug/l				70-130			
Endosulfan II	ND	0.20	ug/l				70-130			
Endosulfan sulfate	ND	0.20	ug/l				70-130			
Endrin	ND	0.20	ug/l				70-130			
Endrin aldehyde	ND	0.20	ug/l				70-130			
Endrin ketone	ND	0.10	ug/l				70-130			
EPTC	5.52	0.10	ug/l	5.00		110	70-130			
Ethion	6.34	0.10	ug/l	5.00		127	70-130			
Fluoranthene	5.48	0.50	ug/l	5.00		110	70-130			
Fluorene	5.70	0.50	ug/l	5.00		114	70-130			
gamma-BHC (Lindane)	ND	0.10	ug/l				70-130			
gamma-Chlordane	ND	0.10	ug/l				70-130			
Heptachlor	ND	0.10	ug/l				70-130			
Heptachlor epoxide	ND	0.10	ug/l				70-130			
Hexachlorobenzene	ND	0.10	ug/l				70-130			
Hexachlorocyclopentadiene	ND	1.0	ug/l				33-106			
Indeno (1,2,3-cd) pyrene	5.63	0.50	ug/l	5.00		113	50-150			
Methoxychlor	ND	0.20	ug/l				70-130			
Metolachlor	5.89	0.10	ug/l	5.00		118	60-130			
Metribuzin	4.48	0.10	ug/l	5.00		90	50-120			
Molinate	6.15	0.10	ug/l	5.00		123	70-130			
Naphthalene	4.21	0.50	ug/l	5.00		84	70-130			
Pentachloronitrobenzene (PCNB)	6.03	0.10	ug/l	5.00		121	70-130			
Pentachlorophenol	8.28	1.0	ug/l	5.00		166	50-120			Q-08
Phenanthrene	4.47	0.50	ug/l	5.00		89	70-130			
Prometon	2.77	0.10	ug/l	5.00		55	15-120			
Prometryn	3.32	0.10	ug/l	5.00		66	30-120			
Propachlor	ND	0.20	ug/l				70-130			
Pyrene	5.35	0.50	ug/l	5.00		107	70-130			
Simazine	5.95	0.10	ug/l	5.00		119	60-130			
Terbacil	6.63	2.0	ug/l	5.00		133	70-130			Q-08
Thiobencarb	5.79	0.10	ug/l	5.00		116	70-130			
Trifluralin	ND	0.10	ug/l				70-130			
Trithion	6.26	0.10	ug/l	5.00		125	70-130			
Surrogates)										
1,3-Dimethyl-2-nitrobenzene	*4.55*		*ug/l*	*5.00*		*91*	*70-130*			

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LDC Report# 50353A4a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 0053

LDC Report Date: February 9, 2021

Parameters: Lead

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 94464

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH1208	BA23243	Water	12/16/20
ERH1209	BA23244	Water	12/16/20
ERH1209MS	BA23244MS	Water	12/16/20

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Lead by Environmental Protection Agency (EPA) Method 200.8

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S The sequence or number of standards used for the calibration was incorrect.

C Correlation coefficient is <0.995.

R %R for calibration is not within control limits.

B Presumed contamination from preparation (method) blank or calibration blank.

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD or difference was high.

I ICP ICS results were unsatisfactory.

A ICP Serial Dilution %D were not within control limits.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Post Digestion Spike recovery was not within control limits.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the method.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

IV. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Limit of Quantitation	Associated Samples
PB (prep blank)	Lead	0.11 ug/L	0.2 ug/L	All samples in SDG 94464
ICB/CCB	Lead	0.13 ug/L	0.2 ug/L	All samples in SDG 94464

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
ERH1208	Lead	0.13 ug/L	0.13U ug/L

Sample	Analyte	Reported Concentration	Modified Final Concentration
ERH1209	Lead	0.65 ug/L	0.65U ug/L

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits.

VIII. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

IX. Serial Dilution

Serial dilution was not performed for this SDG.

X. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

XI. Field Duplicates

No field duplicates were identified in this SDG.

XII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits.

XIII. Sample Result Verification

Raw data were not reviewed for Level C validation.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to laboratory blank contamination, data were qualified as not detected in two samples.

Red Hill Bulk Storage Facility, CTO 0053
Lead - Data Qualification Summary - SDG 94464

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 0053
Lead - Laboratory Blank Data Qualification Summary - SDG 94464

Sample	Analyte	Modified Final Concentration	A or P	Code
ERH1208	Lead	0.13U ug/L	A	B
ERH1209	Lead	0.65U ug/L	A	B

Red Hill Bulk Storage Facility, CTO 0053
Lead - Field Blank Data Qualification Summary - SDG 94464

No Sample Data Qualified in this SDG

LDC #: 50353A4a
SDG #: 94464
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 2/1/21
Page: 1 of 1
Reviewer: ATV
2nd Reviewer: AC

METHOD: Lead (EPA Method 200.8)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	N	
VII.	Matrix Spike/Matrix Spike Duplicates	A	3
VIII.	Duplicate sample analysis	N	
IX.	Serial Dilution	N	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	A	
XIII.	Sample Result Verification	N	
XIV.	Overall Assessment of Data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH1208	BA23243	Water	12/16/20
2	ERH1209	BA23244	Water	12/16/20
3	ERH1209MS	BA23244MS	Water	12/16/20
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				

Notes:

LDC #: 50353A4a

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: NA
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All Code: B

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	LOQ	1	2						
Pb		0.11		0.55	0.2	0.13							
Pb			0.13	0.65	0.2	see above	0.65						

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: February 9, 2021

Parameters: Dissolved Organic Carbon

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 94464

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH1208	BA23243	Water	12/16/20
ERH1209	BA23244	Water	12/16/20
ERH1209DUP	BA23244DUP	Water	12/16/20

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Dissolved Organic Carbon by Environmental Protection Agency (EPA) SW 846 Method 9060A

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S The sequence or number of standards used for the calibration was incorrect.

C Correlation coefficient is <0.995.

R %R for calibration is not within control limits.

B Presumed contamination from preparation (method) blank or calibration blank.

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD or difference was high.

I ICP ICS results were unsatisfactory.

A ICP Serial Dilution %D were not within control limits.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Post Digestion Spike recovery was not within control limits.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

All criteria for the initial calibration were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

Raw data were not reviewed for Level C validation.

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Red Hill Bulk Storage Facility, CTO 18F0126
Dissolved Organic Carbon - Data Qualification Summary - SDG 94464

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Dissolved Organic Carbon - Laboratory Blank Data Qualification Summary - SDG 94464

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Dissolved Organic Carbon - Field Blank Data Qualification Summary - SDG 94464

No Sample Data Qualified in this SDG

LDC #: 50353A6
SDG #: 94464
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 2/1/21
Page: 1 of 1
Reviewer: ATV
2nd Reviewer: A

METHOD: (Analyte) DOC (EPA SW846 Method 9060A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	A	3
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH1208	BA23243	Water	12/16/20
2	ERH1209	BA23244	Water	12/16/20
3	↓ DUP	↓ DUP	↓	↓
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Red Hill Bulk Storage Facility, CTO 18F0126

LDC Report Date: February 9, 2021

Parameters: Total Petroleum Hydrocarbons as Extractables

Validation Level: Level C

Laboratory: APPL, Inc.

Sample Delivery Group (SDG): 94464

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
ERH1208	BA23243	Water	12/16/20
ERH1209	BA23244	Water	12/16/20

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Work Plan/Scope of Work, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 02, January 2017), the Sampling and Analysis Plan, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 01, April 2017), the Sampling and Analysis Plan, Addendum 01, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, September 2017), the Sampling and Analysis Plan, Addendum 03, Investigation and Remediation of Releases and Groundwater Protection and Evaluation, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i (Revision 00, June 2018), the Project Procedures Manual, U.S. Naval Facilities Engineering Command (NAVFAC) Environmental Restoration (ER) Program, NAVFAC Pacific (DON 2015), and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Total Petroleum Hydrocarbons (TPH) as Extractables by Environmental Protection Agency (EPA) SW 846 Method 8015B

All sample results were subjected to Level C data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Qualification Code Reference

H Holding times were exceeded.

S Surrogate recovery was outside QC limits.

C Calibration %RSD, r, r^2 or %D were noncompliant.

R Calibration RRF was <0.05.

B Presumed contamination from preparation (method blank).

L Laboratory Control Sample/Laboratory Control Sample Duplicate %R or RPD was not within control limits.

Q MS/MSD recovery was poor.

E MS/MSD or Duplicate RPD was high.

I Internal standard performance was unsatisfactory.

M Instrument Performance Check (BFB or DFTPP) was noncompliant.

T Presumed contamination from trip blank.

F Presumed contamination from FB or ER.

D The analysis with this flag should not be used because another more technically sound analysis is available.

P Instrument performance for pesticides was poor.

V Unusual problems found with the data not defined elsewhere. Description of the problem can be found in the validation report.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

III. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Compound Quantitation

Raw data were not reviewed for Level C validation.

XI. Target Compound Identifications

Raw data were not reviewed for Level C validation.

XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG 94464

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG 94464

No Sample Data Qualified in this SDG

Red Hill Bulk Storage Facility, CTO 18F0126
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG 94464

No Sample Data Qualified in this SDG

LDC #: 50353A8
SDG #: 94464
Laboratory: APPL, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level C

Date: 02/8/21
Page: 1 of 1
Reviewer: ST
2nd Reviewer: M

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A, A	
II.	Initial calibration/ICV	A, A	RSD ≤ 20%. ICV ≥ 20%.
III.	Continuing calibration	A	CCV ≥ 20%.
IV.	Laboratory Blanks	A	
V.	Field blanks	N	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCSID
IX.	Field duplicates	N	
X.	Compound quantitation RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	ERH1208	BA23243	Water	12/16/20
2	ERH1209	BA23244	Water	12/16/20
3				
4				
5				
6				
7				
8				
9				
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11				
12				
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Notes:

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