Methods for Chemical Analysis of Water and Wastes, EPA Manual 600/4-79-020 (EPA, 1983 with additions)

Physical/Chemical Methods, SW-846 3rd edition (EPA, 1986a), and Updates I, II, IIA, and III

US EPA Contract Laboratory Program National Functional Guidelines For Organic Data Review (EPA-540/R-94/012, February 1994)

National Functional Guidelines For Inorganic Data Review (EPA-540/R-94-013, February 1994).

Table 5.1-1. Data Gaps 3 Investigation: Samples and Analyses Performed

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EPA Method	Sample ID	Matrix	Sampling Date	Lab Code	SDG
FGS070.1	WET-3/0	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-3/1	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-3/3	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-4/0	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-4/1	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-4/3	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-4/5	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-4A/0	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-5/0	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-5/1	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-5/3	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-5/5	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-5A/0	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-6/0	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-6/1	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-6/3	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-7/0	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-7/1	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-7/3	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-7/5	Sediment (Assoc. with WS)	10-Aug-00	FGI	399010205
FGS070.1	WET-K	Water QC Matrix	10-Aug-00	FGI	399010205
M8015DB	MW-1	Groundwater	11-Aug-00	STLS	G0H120149
M8015DB	MW-10	Groundwater	10-Aug-00	STLS	G0H120149
M8015DB	MW-11	Groundwater	11-Aug-00	STLS	G0H120149
M8015DB	MW-12	Groundwater	14-Aug-00	STLS	G0H160300
M8015DB	MW-14	Groundwater	03-Aug-00	STLS	G0H040281
M8015DB	MW-2	Groundwater	07-Aug-00	STLS	G0H080263
M8015DB	MW-2/A	Groundwater	07-Aug-00	STLS	G0H080263
M8015DB	MW-3	Groundwater	09-Aug-00	STLS	G0H100308
M8015DB	MW-3B	Groundwater	08-Aug-00	STLS	G0H080263
M8015DB	MW-3B/A	Groundwater	08-Aug-00	STLS	G0H100308
M8015DB	MW-4	Groundwater	08-Aug-00	STLS	G0H100308
M8015DB	MW-4A	Groundwater	04-Aug-00	STLS	G0H050132
M8015DB	MW-4A/A	Groundwater	04-Aug-00	STLS	G0H050132
M8015DB	MW-6	Groundwater	14-Aug-00	STLS	G0H160300
M8015DB	MW-8	Groundwater	11-Aug-00	STLS	G0H120149
M8015DB	MW-9	Groundwater	14-Aug-00	STLS	G0H160300
M8015DB	MW-1/K	Water QC Matrix	10-Aug-00	STLS	G0H120149
M8015DB	MW-2/K	Water QC Matrix	03-Aug-00	STLS	G0H050132
M8015DB	SRC-4	Water QC Matrix	04-Aug-00	STLS	G0H050132

Table 5.1-1. Data Gaps 3 Investigation: Samples and Analyses Performed

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EPA Method	Sample ID	Matrix	Sampling Date	Lab Code	SDG
SW6010B	MW-1	Groundwater	11-Aug-00	STLS	G0H120149
SW6010B	MW-10	Groundwater	10-Aug-00	STLS	G0H120149
SW6010B	MW-11	Groundwater	11-Aug-00	STLS	G0H120149
SW6010B	MW-12	Groundwater	14-Aug-00	STLS	G0H160300
SW6010B	MW-14	Groundwater	03-Aug-00	STLS	G0H040281
SW6010B	MW-16/L	Groundwater	04-Aug-00	STLS	G0H050132
SW6010B	MW-2	Groundwater	07-Aug-00	STLS	G0H080263
SW6010B	MW-2/A	Groundwater	07-Aug-00	STLS	G0H080263
SW6010B	MW-3	Groundwater	09-Aug-00	STLS	G0H100308
SW6010B	MW-3B	Groundwater	08-Aug-00	STLS	G0H080263
SW6010B	MW-3B/A	Groundwater	08-Aug-00	STLS	G0H100308
SW6010B	MW-4	Groundwater	08-Aug-00	STLS	G0H100308
SW6010B	MW-4A	Groundwater	04-Aug-00	STLS	G0H050132
SW6010B	MW-4A/A	Groundwater	04-Aug-00	STLS	G0H050132
SW6010B	MW-6	Groundwater	14-Aug-00	STLS	G0H160300
SW6010B	MW-8	Groundwater	11-Aug-00	STLS	G0H120149
SW6010B	MW-9	Groundwater	11-Aug-00	STLS	G0H120149
SW6010B	MW-1/K	Water QC Matrix	10-Aug-00	STLS	G0H120149
SW6010B	MW-2/K	Water QC Matrix	03-Aug-00	STLS	G0H050132
SW6010B	SRC-4	Water QC Matrix	04-Aug-00	STLS	G0H050132
SW7470A	MW-1	Groundwater	11-Aug-00	STLS	G0H120149
SW7470A	MW-10	Groundwater	10-Aug-00	STLS	G0H120149
SW7470A	MW-11	Groundwater	11-Aug-00	STLS	G0H120149
SW7470A	MW-12	Groundwater	14-Aug-00	STLS	G0H160300
SW7470A	MW-14	Groundwater	03-Aug-00	STLS	G0H040281
SW7470A	MW-16/L	Groundwater	04-Aug-00	STLS	G0H050132
SW7470A	MW-2	Groundwater	07-Aug-00	STLS	G0H080263
SW7470A	MW-2/A	Groundwater	07-Aug-00	STLS	G0H080263
SW7470A	MW-3	Groundwater	09-Aug-00	STLS	G0H100308
SW7470A	MW-3B	Groundwater	08-Aug-00	STLS	G0H080263
SW7470A	MW-3B/A	Groundwater	08-Aug-00	STLS	G0H100308
SW7470A	MW-4	Groundwater	08-Aug-00	STLS	G0H100308
SW7470A	MW-4A	Groundwater	04-Aug-00	STLS	G0H050132
SW7470A	MW-4A/A	Groundwater	04-Aug-00	STLS	G0H050132
SW7470A	MW-6	Groundwater	14-Aug-00	STLS	G0H160300
SW7470A	MW-8	Groundwater	11-Aug-00	STLS	G0H120149
SW7470A	MW-9	Groundwater	11-Aug-00	STLS	G0H120149
SW7470A	MW-1/K	Water QC Matrix	10-Aug-00	STLS	G0H120149
SW7470A	MW-2/K	Water QC Matrix	03-Aug-00	STLS	G0H050132
SW7470A	SRC-4	Water QC Matrix	04-Aug-00	STLS	G0H050132
SW7470A	WET-K2	Water QC Matrix	10-Aug-00	STLS	G0H120169

Table 5.1-1. Data Gaps 3 Investigation: Samples and Analyses Performed
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EPA Method	Sample ID	Matrix	Sampling Date	Lab Code	SDG
SW7471A	WET-3/0	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-3/1	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-3/3	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-4/0	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-4/1	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-4/3	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-4/5	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-4A/0	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-5/0	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-5/1	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-5/3	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-5/5	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-5A/0	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-6/0	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-6/1	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-6/3	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-7/0	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-7/1	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-7/3	Soil	10-Aug-00	STLS	G0H120169
SW7471A	WET-7/5	Soil	10-Aug-00	STLS	G0H120169
SW8081A	MW-1	Groundwater	11-Aug-00	STLS	G0H120149
SW8081A	MW-10	Groundwater	10-Aug-00	STLS	G0H120149
SW8081A	MW-11	Groundwater	11-Aug-00	STLS	G0H120149
SW8081A	MW-12	Groundwater	14-Aug-00	STLS	G0H160300
SW8081A	MW-14	Groundwater	03-Aug-00	STLS	G0H040281
SW8081A	MW-2	Groundwater	07-Aug-00	STLS	G0H080263
SW8081A	MW-2/A	Groundwater	07-Aug-00	STLS	G0H080263
SW8081A	MW-3	Groundwater	09-Aug-00	STLS	G0H100308
SW8081A	MW-3B	Groundwater	08-Aug-00	STLS	G0H080263
SW8081A	MW-3B/A	Groundwater	08-Aug-00	STLS	G0H100308
SW8081A	MW-4	Groundwater	08-Aug-00	STLS	G0H100308
SW8081A	MW-4A	Groundwater	04-Aug-00	STLS	G0H050132
SW8081A	MW-4A/A	Groundwater	04-Aug-00	STLS	G0H050132
SW8081A	MW-6	Groundwater	14-Aug-00	STLS	G0H160300
SW8081A	MW-8	Groundwater	11-Aug-00	STLS	G0H120149
SW8081A	MW-9	Groundwater	14-Aug-00	STLS	G0H160300
SW8081A	MW-1/K	Water QC Matrix	10-Aug-00	STLS	G0H120149
SW8081A	MW-2/K	Water QC Matrix	03-Aug-00	STLS	G0H050132
SW8081A	SRC-4	Water QC Matrix	04-Aug-00	STLS	G0H050132

Table 5.1-1. Data Gaps 3 Investigation: Samples and Analyses Performed
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EPA Method	Sample ID	Matrix	Sampling Date	Lab Code	SDG
SW8260B	MW-1	Groundwater	11-Aug-00	STLS	G0H120149
SW8260B	MW-10	Groundwater	10-Aug-00	STLS	G0H120149
SW8260B	MW-11	Groundwater	11-Aug-00	STLS	G0H120149
SW8260B	MW-12	Groundwater	14-Aug-00	STLS	G0H160300
SW8260B	MW-14	Groundwater	03-Aug-00	STLS	G0H040281
SW8260B	MW-2	Groundwater	07-Aug-00	STLS	G0H080263
SW8260B	MW-2/A	Groundwater	07-Aug-00	STLS	G0H080263
SW8260B	MW-3	Groundwater	09-Aug-00	STLS	G0H100308
SW8260B	MW-3B	Groundwater	08-Aug-00	STLS	G0H080263
SW8260B	MW-3B/A	Groundwater	08-Aug-00	STLS	G0H100308
SW8260B	MW-4	Groundwater	08-Aug-00	STLS	G0H100308
SW8260B	MW-4A	Groundwater	04-Aug-00	STLS	G0H050132
SW8260B	MW-4A/A	Groundwater	04-Aug-00	STLS	G0H050132
SW8260B	MW-6	Groundwater	14-Aug-00	STLS	G0H160300
SW8260B	MW-8	Groundwater	11-Aug-00	STLS	G0H120149
SW8260B	MW-9	Groundwater	11-Aug-00	STLS	G0H120149
SW8260B	MW-1/K	Water QC Matrix	10-Aug-00	STLS	G0H120149
SW8260B	MW-2/K	Water QC Matrix	03-Aug-00	STLS	G0H050132
SW8260B	SRC-4	Water QC Matrix	04-Aug-00	STLS	G0H050132
SW8260B	TB 8-10-00 (1)	Water QC Matrix	10-Aug-00	STLS	G0H120149
SW8260B	TB 8-10-00 (2)	Water QC Matrix	10-Aug-00	STLS	G0H120149
SW8260B	TB 8-10-00 (3)	Water QC Matrix	11-Aug-00	STLS	G0H120149
SW8260B	TB 8-11-00	Water QC Matrix	11-Aug-00	STLS	G0H120149
SW8260B	TB 8-14-00 (1)	Water QC Matrix	14-Aug-00	STLS	G0H160300
SW8260B	TB 8-14-00 (2)	Water QC Matrix	14-Aug-00	STLS	G0H160300
SW8260B	TB 8-14-00 (3)	Water QC Matrix	14-Aug-00	STLS	G0H160300
SW8260B	TB 8-3-00 (1)	Water QC Matrix	03-Aug-00	STLS	G0H040281
SW8260B	TB 8-3-00 (2)	Water QC Matrix	03-Aug-00	STLS	G0H050132
SW8260B	TB 8-4-00 (1)	Water QC Matrix	04-Aug-00	STLS	G0H050132
SW8260B	TB 8-4-00 (2)	Water QC Matrix	04-Aug-00	STLS	G0H050132
SW8260B	TB 8-7-00 (1)	Water QC Matrix	07-Aug-00	STLS	G0H080263
SW8260B	TB 8-7-00 (2)	Water QC Matrix	07-Aug-00	STLS	G0H080263
SW8260B	TB 8-8-00 (1)	Water QC Matrix	08-Aug-00	STLS	G0H080263
SW8260B	TB 8-8-00 (2)	Water QC Matrix	08-Aug-00	STLS	G0H100308
SW8260B	TB 8-8-00 (3)	Water QC Matrix	08-Aug-00	STLS	G0H100308
SW8260B	TB 8-9-00 (1)	Water QC Matrix	09-Aug-00	STLS	G0H100308
SW8260B	TB 8-9-00 (2)	Water QC Matrix	09-Aug-00	STLS	G0H120149

Table 5.1-1. Data Gaps 3 Investigation: Samples and Analyses Performed
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EPA Method	Sample ID	Matrix	Sampling Date	Lab Code	SDG
SW8310	MW-1	Groundwater	11-Aug-00	STLS	G0H120149
SW8310	MW-10	Groundwater	10-Aug-00	STLS	G0H120149
SW8310	MW-11	Groundwater	11-Aug-00	STLS	G0H120149
SW8310	MW-12	Groundwater	14-Aug-00	STLS	G0H160300
SW8310	MW-14	Groundwater	03-Aug-00	STLS	G0H040281
SW8310	MW-2	Groundwater	07-Aug-00	STLS	G0H080263
SW8310	MW-2/A	Groundwater	07-Aug-00	STLS	G0H080263
SW8310	MW-3	Groundwater	09-Aug-00	STLS	G0H100308
SW8310	MW-3B	Groundwater	08-Aug-00	STLS	G0H080263
SW8310	MW-3B/A	Groundwater	08-Aug-00	STLS	G0H100308
SW8310	MW-4	Groundwater	08-Aug-00	STLS	G0H100308
SW8310	MW-4A	Groundwater	04-Aug-00	STLS	G0H050132
SW8310	MW-4A/A	Groundwater	04-Aug-00	STLS	G0H050132
SW8310	MW-6	Groundwater	14-Aug-00	STLS	G0H160300
SW8310	MW-8	Groundwater	11-Aug-00	STLS	G0H120149
SW8310	MW-9	Groundwater	14-Aug-00	STLS	G0H160300
SW8310	MW-1/K	Water QC Matrix	10-Aug-00	STLS	G0H120149
SW8310	MW-2/K	Water QC Matrix	03-Aug-00	STLS	G0H050132
SW8310	SRC-4	Water QC Matrix	04-Aug-00	STLS	G0H050132
SW8330	TNT-R21/0	Soil	31-Aug-00	STLS	G0I020132
SW8330	TNT-R21/1	Soil	31-Aug-00	STLS	G0I020132
SW8330	TNT-R22/0	Soil	31-Aug-00	STLS	G0I020132
SW8330	TNT-R22/1	Soil	31-Aug-00	STLS	G0I020132
SW8330	TNT-R23/0	Soil	31-Aug-00	STLS	G0I020132
SW8330	TNT-R23/1	Soil	31-Aug-00	STLS	G0I020132
SW8330	TNT-R24/0	Soil	31-Aug-00	STLS	G0I020132
SW8330	TNT-R24/1	Soil	31-Aug-00	STLS	G0I020132
SW8330	TNT-R25/0	Soil	01-Sep-00	STLS	G0I020132
SW8330	TNT-R25/1	Soil	01-Sep-00	STLS	G0I020132
SW8330	TNT-R26/0	Soil	01-Sep-00	STLS	G0I020132
SW8330	TNT-R26/1	Soil	01-Sep-00	STLS	G0I020132
SW8330	TNT-R27/0	Soil	01-Sep-00	STLS	G0I020132
SW8330	TNT-R27/1	Soil	01-Sep-00	STLS	G0I020132
SW8330	TNT-R28/0	Soil	01-Sep-00	STLS	G0I020132
SW8330	TNT-R28/1	Soil	01-Sep-00	STLS	G0I020132
SW8330	TNT-R29/0	Soil	01-Sep-00	STLS	G0I020132
SW8330	TNT-R29/1	Soil	01-Sep-00	STLS	G0I020132

Table 5.1-1. Data Gaps 3 Investigation: Samples and Analyses Performed
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EPA Method	Sample ID	Matrix	Sampling Date	Lab Code	SDG
SW8330	MW-1	Groundwater	11-Aug-00	STLS	G0H120149
SW8330	MW-10	Groundwater	10-Aug-00	STLS	G0H120149
SW8330	MW-11	Groundwater	11-Aug-00	STLS	G0H120149
SW8330	MW-12	Groundwater	14-Aug-00	STLS	G0H160300
SW8330	MW-14	Groundwater	03-Aug-00	STLS	G0H040281
SW8330	MW-2	Groundwater	07-Aug-00	STLS	G0H080263
SW8330	MW-2/A	Groundwater	07-Aug-00	STLS	G0H080263
SW8330	MW-3	Groundwater	09-Aug-00	STLS	G0H100308
SW8330	MW-3B	Groundwater	08-Aug-00	STLS	G0H080263
SW8330	MW-3B/A	Groundwater	08-Aug-00	STLS	G0H100308
SW8330	MW-4	Groundwater	08-Aug-00	STLS	G0H100308
SW8330	MW-4A	Groundwater	04-Aug-00	STLS	G0H050132
SW8330	MW-4A/A	Groundwater	04-Aug-00	STLS	G0H050132
SW8330	MW-6	Groundwater	14-Aug-00	STLS	G0H160300
SW8330	MW-8	Groundwater	11-Aug-00	STLS	G0H120149
SW8330	MW-9	Groundwater	14-Aug-00	STLS	G0H160300
SW8330	MW-2/K	Water QC Matrix	03-Aug-00	STLS	G0H050132
SW8330	MW-1/K	Water QC Matrix	10-Aug-00	STLS	G0H120149
SW8330	SRC-4	Water QC Matrix	04-Aug-00	STLS	G0H050132
SW8330M	TNT-R21/0	Soil	31-Aug-00	STLS	G0I020132
SW8330M	TNT-R21/1	Soil	31-Aug-00	STLS	G0I020132
SW8330M	TNT-R22/0	Soil	31-Aug-00	STLS	G0I020132
SW8330M	TNT-R22/1	Soil	31-Aug-00	STLS	G0I020132
SW8330M	TNT-R23/0	Soil	31-Aug-00	STLS	G0I020132
SW8330M	TNT-R23/1	Soil	31-Aug-00	STLS	G0I020132
SW8330M	TNT-R24/0	Soil	31-Aug-00	STLS	G0I020132
SW8330M	TNT-R24/1	Soil	31-Aug-00	STLS	G0I020132
SW8330M	TNT-R25/0	Soil	01-Sep-00	STLS	G0I020132
SW8330M	TNT-R25/1	Soil	01-Sep-00	STLS	G0I020132
SW8330M	TNT-R26/0	Soil	01-Sep-00	STLS	G0I020132
SW8330M	TNT-R26/1	Soil	01-Sep-00	STLS	G0I020132
SW8330M	TNT-R27/0	Soil	01-Sep-00	STLS	G0I020132
SW8330M	TNT-R27/1	Soil	01-Sep-00	STLS	G0I020132
SW8330M	TNT-R28/0	Soil	01-Sep-00	STLS	G0I020132
SW8330M	TNT-R28/1	Soil	01-Sep-00	STLS	G0I020132
SW8330M	TNT-R29/0	Soil	01-Sep-00	STLS	G0I020132
SW8330M	TNT-R29/1	Soil	01-Sep-00	STLS	G0I020132

Table 5.3-1C.
Field Sampling Plan Samples Collected and Analyzed
(Page 1 of 1)

Result Sample ID	Matrix	LAB	QES	
			Explosives SW8330	Explosives SW8330M
TNT-R21/0	Soil	QES	1	1
TNT-R21/1	Soil	QES	1	1
TNT-R22/0	Soil	QES	1	1
TNT-R22/1	Soil	QES	1	1
TNT-R23/0	Soil	QES	1	1
TNT-R23/1	Soil	QES	1	1
TNT-R24/0	Soil	QES	1	1
TNT-R24/1	Soil	QES	1	1
TNT-R25/0	Soil	QES	1	1
TNT-R25/1	Soil	QES	1	1
TNT-R26/0	Soil	QES	1	1
TNT-R26/1	Soil	QES	1	1
TNT-R27/0	Soil	QES	1	1
TNT-R27/1	Soil	QES	1	1
TNT-R28/0	Soil	QES	1	1
TNT-R28/1	Soil	QES	1	1
TNT-R29/0	Soil	QES	1	1
TNT-R29/1	Soil	QES	1	1

TOTAL NORMAL ANALYSES*	18	18
TOTAL DUPLICATES	0	0
% OF TOTAL ANALYSES	0%	0%

QES = Quanterra Environmental Services, West Sacramento Facility, acquired by Severn Trent Laboratories (STL) in February, 2000.

Table 5.4-1. Technical Holding Time Tables
Summary of QC Outliers (Page 1 of 3)

Table 5.4-1A. Technical Holding Times for SW8015B - TEPH

Sample	TEPH: EPA Method SW8015B Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
MW-14 RE *(NOT USED)* LDC Report# 5341A8	TPH as extractables	22	7	R (all non-detects)	A
MW-2/K RE *(NOT USED)* MW-4A/A RE *(NOT USED)* MW-4A RE *(NOT USED)* SRC-4RE *(NOT USED)* LDC Report# 5341B8	TPH as extractables	22	7	J- (all detects) R (all non-detects)	A
MW-3B/A RE *(NOT USED)* MW-3RE *(NOT USED)* **MW-4 RE** ***(NOT USED except Unknown Extract. Hydrocarbon)*** LDC Report# 5341C8	TPH as extractables	17	7	**J- (all detects)**	A
MW-12 RE *(NOT USED)* MW-6 RE *(NOT USED)* MW-9 RE *(NOT USED)* LDC Report# 5355A8	TPH as extractables	16	7	J- (all detects) R (all non-detects)	A
MW-10 RE *(NOT USED)* MW-1/K RE *(NOT USED)* MW-11 RE *(NOT USED)* MW-8 RE *(NOT USED)* MW-1 RE *(NOT USED)* LDC Report# 5369A8	TPH as extractables TPH as extractables	20 19	7 7	J- (all detects) R (all non-detects) J- (all detects) R (all non-detects)	A A
MW-2 RE *(NOT USED)* MW-2/A RE *(NOT USED)* MW-3B RE *(NOT USED)* LDC Report# 5383A8	TPH as extractables TPH as extractables	18 17	7 7	J- (all detects) R (all non-detects) J- (all detects) R (all non-detects)	A A

Note:
Bold highlight indicates that associated sample results were qualified for this analyte.

Table 5.4-1B. Technical Holding Times for SW8081 - Pesticides

Sample	Pesticides: EPA Method SW8081 Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
MW14 RE *(NOT USED)* LDC Report# 5341A3	All TCL compounds	22	7	J- (all detects) R (all non-detects)	A
MW-2/K RE *(NOT USED)* MW-4A/A RE *(NOT USED)* MW-4A RE *(NOT USED)* SRC-4 RE *(NOT USED)* LDC Report# 5341B3	All TCL compounds	22	7	J- (all detects) R (all non-detects)	A
MW-12/(TW-12)RE MW-6 RE *(NOT USED)* MW-9 RE *(NOT USED)* LDC Report# 5355A3	All TCL compounds	17	7	*NA* (J- all detects) ***No samples qualified, all ND***	A

Note: No reported data were qualified.

Table 5.4-1. Technical Holding Time Tables
Summary of QC Outliers (Page 3 of 3)

Table 3.4-1C. Technical Holding Times for SW8310 - PAHs

Sample	PAHs: EPA Method SW8310 Compound	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag	A or P
MW-14 RE *(NOT USED* LDC Report# 5341A9	All TCL compounds	18	7	J- (all detects) R (all non-detects)	A
MW-3B/A RE *(NOT USED)* MW-3 RE *(NOT USED)* MW-4 RE *(NOT USED)* LDC Report# 5341C9	All TCL compounds	22	7	J- (all detects) R (all non-detects)	A
MW-10 RE *(NOT USED)* MW-1/K RE *(NOT USED)*	All TCL compounds	20	7	J- (all detects) R (all non-detects)	A
MW-11RE *(NOT USED)* MW-8 RE *(NOT USED)* MW-1 RE *(NOT USED)* LDC Report# 5369A9	All TCL compounds	19	7	J- (all detects) R (all non-detects)	A

Note: No reported data were qualified.

These tables were reproduced from the tables in the Laboratory Data Consultants (LDC) data validation reports (DVRs) to present the findings of the third party data validation. Only QC outliers were included. Notes and highlights were added were added by Earth Tech. Any changes to the LDC DVR tables determined by the Earth Tech project chemist were highlighted in italics. Bold highlight specifies sample results qualified due to validation. The "A" and "P" designations are LDC DVR designations that indicate the LDC validator determined that the finding was based upon technical validation criteria (A) or that the validation finding was related to a protocol/contractual deviation (P).

Table 5.4-2. Calibration Tables
Summary of QC Outliers (Page 1 of 6)

Table 5.4-2A Continuing Calibration for SW8081A - Pesticides

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
8/29/00	INDA 4x	DB 608	alpha-BHC	16	MW-12 MW-6 MW-9 LDC Report# 5355A3	*NA* (J+ all detects) ***No samples qualified, all ND***	A
9/6/00 (20:32)	INDA 4x	DB 1701	4,4'-DDT	-16	MW-12RE *(NOT USED)* MW-6RE *(NOT USED)* MW-9RE *(NOT USED)* LDC Report# 5355A3	J- (all detects) UJ (all non-detects)	A
9/6/00 (21:09)	INDB 4x	DB 1701	Endosulfan II	-17	MW-12RE *(NOT USED)* MW-6 RE *(NOT USED)* MW-9 RE *(NOT USED)* LDC Report# 5355A3	J- (all detects) UJ (all non-detects)	A

Note:
No reported data were qualified.

Table 5.4-2B Initial Calibration for SW8260B - VOCs

Date	Compound	%RSD or r^2	Associated Samples	Flag	A or P
6/14/00	**Acetone** **Vinyl acetate**	44.048 38.827	All samples in SDG G0H040281: **MW-14** **TB 8-3-00** LDC Report# 5341A1 and All samples in SDG G0H050132: **MW-2/K** **MW-4A/A** **MW-4A** **SRC-4** **TB 8-3-00** **TB 8-4-00 (1)** **TB 8-4-00 (2)** LDC Report# 5341B1 and	**UJ (all non-detects)** **UJ (all non-detects)**	A

Table 5.4-2. Calibration Tables
Summary of QC Outliers (Page 2 of 6)

Table 5.4-2B Initial Calibration for SW8260B - VOCs

Date	Compound	%RSD or r^2	Associated Samples	Flag	A or P
6/14/00	**Acetone**	44.048	All samples in SDG G0H100308:	**UJ (all non-detects)**	A
	Vinyl acetate	38.827	**MW-3** **MW-3B/A** **MW-4/8-00** **TB 8-8-00 (1)** **TB 8-8-00 (2)** **TB 8-9-00** LDC Report# 5341C1 and All samples in SDG G0H160300: **MW-6** **MW-12** **TB 8-14-00 (1)** **TB 8-14-00 (2)** **TB 8-14-00 (3)** LDC Report# 5355A1 and All samples in SDG G0H160300: **MW-6** **MW-12** **TB 8-14-00 (1)** **TB 8-14-00 (2)** **TB 8-14-00 (3)** LDC Report# 5355A1 and All samples in SDG G0H120149: **MW-1** **MW-8** **MW-9** **MW-10** **MW-11** **MW-1/K** **TB 8-9-00** **TB 8-10-00 (1)** **TB 8-10-00 (2)** **TB 8-10-00 (3)** **TB 8-11-00** LDC Report# 5369A1 and All samples in SDG G0H080263: **MW-2** **MW-2/A** **MW-3B** **TB 8-7-00 (1)** **TB 8-7-00 (2)** **TB 8-8-00** LDC Report# 5383A1	**UJ (all non-detects)**	

Note: Bold highlight indicates that associated sample results were qualified for this compound.

Table 5.4-2. Calibration Tables
Summary of QC Outliers (Page 3 of 6)

Table 5.4-2C Initial Calibration RRFs for SW8260B - VOCs

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
6/14/00	**Acetone** **2-Butanone** **2-Chloroethylvinyl ether**	0.03044 (≥0.05) 0.02739 (≥0.05) 0.02544 (≥0.05)	All samples in SDG G0H040281: **MW-14** **TB 8-3-00** LDC Report# 5341A1 and All samples in SDG G0H050132: **MW-2/K** **MW-4A/A** **MW-4A** **SRC-4** **TB 8-3-00** **TB 8-4-00 (1)** **TB 8-4-00 (2)** LDC Report# 5341B1 and All samples in SDG G0H100308: **MW-3** **MW-3B/A** **MW-4** **TB 8-8-00 (1)** **TB 8-8-00 (2)** **TB 8-9-00** LDC Report# 5341C1 and All samples in SDG G0H160300: **MW-6** **MW-12** **TB 8-14-00 (1)** **TB 8-14-00 (2)** **TB 8-14-00 (3)** LDC Report# 5355A1 and All samples in SDG G0H120149: **MW-1** **MW-8** **MW-9** **MW-10** **MW-11** **MW-1/K** **TB 8-9-00** **TB 8-10-00 (1)** **TB 8-10-00 (2)** **TB 8-10-00 (3)** **TB 8-11-00** LDC Report# 5369A1 and All samples in SDG G0H080263: **MW-2** **MW-2/A** **MW-3B** **TB 8-7-00 (1)** **TB 8-7-00 (2)** **TB 8-8-00** LDC Report# 5383A1	**UJ (all non-detects)** **UJ (all non-detects)** **UJ (all non-detects)**	A

Note: Bold highlight indicates that associated sample results were qualified for this compound.

Table 5.4-2. Calibration Tables
Summary of QC Outliers (Page 4 of 6)

Table 5.4-2D Continuing Calibrations for SW8260B - VOCs

Date	Compound	%D	Associated Samples	Flag	A or P
8/16/00	**Acetone** Vinyl acetate 2-Chloroethylvinyl ether	31.8 83.2 32.0	**MW-14** LDC Report# 5341A1 and **MW-2/K** **TB 8-3-00** LDC Report# 5341B1	**UJ (all non-detects)** *NA* (J+ all detects) ***No samples qualified, all ND***	A
8/17/00	**Dichlorodifluoromethane** Vinyl acetate 2-Butanone	29.1 52.8 32.1	**TB 8-3-00** LDC Report# 5341A1 and **MW-4A/A** **MW-4A** **SRC-4** **TB 8-4-00 (1)** **TB 8-4-00 (2)** LDC Report# 5341B1	**UJ (all non-detects)** *NA* (J+ all detects) *NA* (J+ all detects) ***No samples qualified, all ND***	A
8/19/00	**Dichlorodifluoromethane** Carbon disulfide Vinyl acetate 2-Butanone 2-Chloroethylvinyl ether	34.9 27.8 64.3 34.8 40.9	All samples in SDG G0H080263: **MW-2** **MW-2/A** **MW-3B** **TB 8-7-00 (1)** **TB 8-7-00 (2)** **TB 8-8-00** LDC Report# 5383A1	**UJ (all non-detects)** *NA* (J+ all detects) *NA* (J+ all detects) *NA* (J+ all detects) *NA* (J+ all detects) ***No samples qualified, all ND***	A
8/22/00	Carbon disulfide	28.9	All samples in SDG G0H100308: MW-3 MW-3B/A MW-4/ TB 8-8-00 (1) TB 8-8-00 (2) TB 8-9-00 LDC Report# 5341C1	*NA* (J+ all detects) ***No samples qualified, all ND***	A

Table 5.4-2. Calibration Tables
Summary of QC Outliers (Page 5 of 6)

Table 5.4-2D Continuing Calibrations for SW8260B - VOCs

Date	Compound	%D	Associated Samples	Flag	A or P
8/23/00	Carbon disulfide	28.4	All samples in SDG	*NA* (J+ all detects)	A
	Methyl-tert-butyl ether	35.9	G0H160300:	*NA* (J+ all detects)	
	Vinyl acetate	26.0	MW-6	*NA* (J+ all detects)	
	2-Chloroethylvinyl ether	51.8	MW-12	*NA* (J+ all detects)	
	cis-1,3-Dichloropropene	28.7	TB 8-14-00 (1)	*NA* (J+ all detects)	
	4-Methyl-2-pentanone	33.4	TB 8-14-00 (2)	*NA* (J+ all detects)	
	trans-1,3-Dichloropropene	27.6	TB 8-14-00 (3)	*NA* (J+ all detects)	
	1,1,2-Trichloroethane	26.6	LDC Report# 5355A1	*NA* (J+ all detects)	
	Dibromochloromethane	25.9	and	*NA* (J+ all detects)	
	Bromoform	32.9	All samples in SDG	*NA* (J+ all detects)	
	1,1,2,2-Tetrachloroethane	35.5	G0H120149:	***No samples qualified, all ND***	
			MW-1		
			MW-8		
			MW-9		
			MW-10		
			MW-11		
			MW-1/K		
			TB 8-9-00		
			TB 8-10-00 (1)		
			TB 8-10-00 (2)		
			TB 8-10-00 (3)		
			TB 8-11-00		
			LDC Report# 5369A1		

Note:
Bold highlight indicates that associated sample results were qualified for this compound.

Table 5.4-2E Continuing Calibration RRFs for SW8260B - VOCs

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
8/16/00	**Acetone**	0.021 (≥0.05)	**MW-14**	**UJ (all non-detects)**	A
	2-Butanone	0.025 (≥0.05)	LDC Report# 5341A1		
	2-Chloroethylvinyl ether	0.034 (≥0.05)	and		
			MW-2/K		
			TB 8-3-00		
			LDC Report# 5341B1		
8/17/00	**Acetone**	0.024 (≥0.05)	**TB 8-3-00**	**J- (all detects)**	A
	2-Butanone	0.036 (≥0.05)	LDC Report# 5341A1	**UJ (all non-detects)**	
	2-Chloroethylvinyl ether	0.030 (≥0.05)	and		
	2-Hexanone	0.049 (≥0.05)	**MW-4A/A**		
			MW-4A		
			SRC-4		
			TB 8-4-00 (1)		
			TB 8-4-00 (2)		
			LDC Report# 5341B1		

Table 5.4-2. Calibration Tables
Summary of QC Outliers (Page 6 of 6)

Table 5.4-2E Continuing Calibration RRFs for SW8260B - VOCs

Date	Compound	RRF (Limits)	Associated Samples	Flag	A or P
8/19/00	**Acetone** **2-Butanone** **2-Chloroethylvinyl ether**	0.024 (≥0.05) 0.037 (>0.05) 0.036 (≥0.05)	All samples in SDG G0H080263: **MW-2** **MW-2/A** **MW-3B** **TB 8-7-00 (1)** **TB 8-7-00 (2)** **TB 8-8-00** LDC Report# 5383A1	**UJ (all non-detects)**	A
8/22/00	**Acetone** **2-Butanone** **2-Chloroethylvinyl ether**	0.032 (≥0.05) 0.032 (≥0.05) 0.031 (≥0.05)	All samples in SDG G0H100308: **MW-3** **MW-3B/A** **MW-4** **TB 8-8-00 (1)** **TB 8-8-00 (2)** **TB 8-9-00** LDC Report# 5341C1	**UJ (all non-detects)**	A
8/23/00	**Acetone** **2-Butanone** **2-Chloroethylvinyl ether**	0.027 (≥0.05) 0.032 (≥0.05) 0.039 (≥0.05)	All samples in SDG G0H160300: **MW-6** **MW-12** **TB 8-14-00 (1)** **TB 8-14-00 (2)** **TB 8-14-00 (3)** LDC Report# 5355A1 and All samples in SDG G0H120149: **MW-1** **MW-8** **MW-9** **MW-10** **MW-11** **MW-1/K** **TB 8-9-00** **TB 8-10-00 (1)** **TB 8-10-00 (2)** **TB 8-10-00 (3)** **TB 8-11-00** LDC Report# 5369A1	**UJ (all non-detects)**	A

Note: Bold highlight indicates that associated sample results were qualified for this compound.

These tables were reproduced from the tables in the Laboratory Data Consultants (LDC) data validation reports (DVRs) to present the findings of the third party data validation. Only QC outliers were included. Notes and highlights were added were added by Earth Tech. Any changes to the LDC DVR tables determined by the Earth Tech project chemist were highlighted in italics. Bold highlight specifies sample results qualified due to validation. The "A" and "P" designations are LDC DVR designations that indicate the LDC validator determined that the finding was based upon technical validation criteria (A) or that the validation finding was related to a protocol/contractual deviation (P).

Table 5.4-3. Field and Laboratory Blank Tables
Summary of QC Outliers (Page 1 of 9)

Table 5.4-3A Laboratory Blanks for Metals

Method Blank ID	Metals: EPA Methods SW6010B/SW7470ASW/7471A Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Iron (dissolved)	0.0083 mg/L	All samples in SDG G0H040281: MW-14 (filtered) LDC Report# 5341A14
ICB/CCB	**Thallium**	0.00612 ug/L	**MW-4A/A** LDC Report# 5341B4
PB (prep blank)	Iron (dissolved)	0.0083 mg/L	All samples in SDG G0H050132: MW-2/K (filtered) MW-4A/A (filtered) MW-4A (filtered) MW-16/L (filtered) SRC-4 (filtered) LDC Report# 5341B14
PB (prep blank) ICB/CCB	Barium Calcium Iron **Zinc** Selenium Thallium	0.0013 mg/L 0.031 mg/L 0.0063 mg/L 0.0050 mg/L 0.00291 mg/L 0.00553 mg/L	All samples in SDG G0H100308: **MW-3B/A** **MW-3** MW-4 MW-3B/A MW-3 MW-4 LDC Report# 5341C4
PB (prep blank) ICB/CCB	Sodium (dissolved) Selenium (dissolved) Thallium (dissolved)	0.040 mg/L 0.00291 mg/L 0.00553 mg/L	All samples in SDG G0H100308: MW-3B/A (filtered) MW-3 (filtered) MW-4 (filtered) MW-3B/A (filtered) MW-3 (filtered) MW-4 (filtered) LDC Report# 5341C14
PB (prep blank)	Calcium Iron Zinc	0.030 mg/L 0.0071 mg/L 0.0039 mg/L	All samples in SDG G0H160300: MW-12 MW-6 LDC Report# 5355A4
ICB/CCB	Lead (dissolved)	0.00186 mg/L	All samples in SDG G0H160300: MW-12 (filtered) MW-6 (filtered) LDC Report# 5355A14

Table 5.4-3. Field and Laboratory Blank Tables
Summary of QC Outliers (Page 2 of 9)

Table 5.4-3A Laboratory Blanks for Metals

Method Blank ID	Metals: EPA Methods SW6010B/SW7470ASW/7471A Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium **Iron** Sodium **Zinc**	0.17 mg/L 0.082 mg/L 0.072 mg/L 0.0039 mg/L	All samples in SDG G0H120149: MW-10 MW-1/K **MW-11** MW-9 **MW-8** MW-1
ICB/CCB1	**Antimony** Manganese	0.0345 mg/L 0.0029 mg/L	MW-10 MW-1/K MW-11 MW-9 **MW-8** **MW-1** LDC Report# 5369A4
ICB/CCB2	**Chromium** Lead	0.0057 mg/L 0.00179 mg/L	**MW-10** LDC Report# 5369A4
PB (prep blank)	Calcium (dissolved) **Iron (dissolved)** Magnesium (dissolved)	0.034 mg/L 0.016 mg/L 0.055 mg/L	All samples in SDG G0H120149: MW-1 (filtered) **MW-8 (filtered)** **MW-9 (filtered)** **MW-10 (filtered)** MW-11 (filtered) MW-1/K (filtered)
ICB/CCB1	**Manganese** (dissolved)	0.0050 mg/L	**MW-1 (filtered)** **MW-8 (filtered)** **MW-9 (filtered)** MW-10 (filtered) MW-11 (filtered) MW-1/K (filtered) LDC Report# 5369A14
PB (prep blank)	Barium Calcium Iron **Zinc**	0.0013 mg/L 0.031 mg/L 0.0063 mg/L 0.0050 mg/L	All samples in SDG G0H080263: **MW-2** **MW-2/A** **MW-3B**
ICB/CCB	Selenium Thallium	0.00291 mg/L 0.00553 mg/L	MW-2 MW-2/A MW-3B LDC Report# 5383A4

Table 5.4-3. Field and Laboratory Blank Tables

Summary of QC Outliers (Page 3 of 9)

Table 5.4-3A Laboratory Blanks for Metals

Method Blank ID	Metals: EPA Methods SW6010B/SW7470ASW/7471A Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Sodium (dissolved)	0.040 mg/L	All samples in SDG G0H080263: MW-2 (filtered) MW-2/A (filtered) MW-3B (filtered) LDC Report# 5383A14
ICB/CCB	Selenium (dissolved) **Thallium (dissolved)**	0.00291 mg/L 0.00553 mg/L	All samples in SDG G0H080263: MW-2 (filtered) **MW-2/A (filtered)** MW-3B (filtered) LDC Report# 5383A14

Note:
Bold highlight indicates that associated non-blank field sample results were blank qualified for this element.

Table 5.4-3. Field and Laboratory Blank Tables
Summary of QC Outliers (Page 4 of 9)

Table 5.4-3B Field Blanks for Metals

Field Blank ID	Sampling Date	Metals: EPA Methods SW6010B/SW7470ASW/7471A Analyte	Concentration	Associated Samples
MW-2/K	8/3/00	Iron **Thallium**	0.0056 mg/L 0.0033 mg/L	MW-14 LDC Report# 5341A4 and **MW-4A/A** MW-4A LDC Report# 5341B4
MW-2/K (filtered)	8/3/00	Iron (dissolved)	0.0055 mg/L	MW14/8-00 (filtered) LDC Report# 5341A14 and MW-2/K (filtered) MW-4A/A (filtered) MW-4A/ (filtered) MW-16/L (filtered) SRC-4 (filtered) LDC Report# 5341B14
MW-16/L (filtered)	8/4/00	Iron (dissolved) Manganese (dissolved) Sodium (dissolved) **Zinc (dissolved)** Calcium (dissolved)	0.0043 mg/L 0.0040 mg/L 0.062 mg/L 0.0070 mg/L 0.035 mg/L	**MW-4A/A (filtered)** **MW-4A (filtered)** LDC Report# 5341B14
SRC-4	8/4/00	Iron **Zinc**	0.0060 mg/L 0.0045 mg/L	**MW-4A/A** **MW-4A** LDC Report# 5341B4
SRC-4 (filtered)	8/4/00	Manganese (dissolved) **Zinc (dissolved)**	0.0029 mg/L 0.0085 mg/L	**MW-4A/A (filtered)** **MW-4A (filtered)** LDC Report# 5341B14
MW-1/K	8/10/00	Iron Magnesium Manganese **Potassium** Sodium Strontium Zinc	0.013 mg/L 0.032 mg/L 0.0014 mg/L 1.1 mg/L 0.074 mg/L 0.001 mg/L 0.0033 mg/L	**MW-10** LDC Report# 5369A4
MW-1/K (filtered)	8/10/00	**Zinc (dissolved)**	0.0036 mg/L	**MW-10 (filtered)** LDC Report# 5369A14

Table 5.4-3. Field and Laboratory Blank Tables
Summary of QC Outliers (Page 5 of 9)

Table 5.4-3B Field Blanks for Metals

Field Blank ID	Sampling Date	Metals: EPA Methods SW6010B/SW7470ASW/7471A Analyte	Concentration	Associated Samples
WET-K2	8/3/00	Mercury	0.000087 mg/L	WET3-0 WET3-1 WET3-3 WET4-0 WET4-0A WET4-1 WET4-3 WET4-5 WET5-0 WET5-0A WET5-1 WET5-3 WET5-5 WET6-0 WET6-1 WET6-3 WET7-0 WET7-1 WET7-3 WET7-5 WET-K2 LDC Report# 5383B4

Note:
Sample SRC-4 was a source water blank. Sample MW-16/L8-00 was a filter blank.
Bold highlight indicates that associated non-blank field sample results were blank qualified for this element.

Table 5.4-3. Field and Laboratory Blank Tables
Summary of QC Outliers (Page 6 of 9)

Table 5.4-3C Blank Qualifications for Metals

Sample	Metals: EPA Methods SW6010B/SW7470ASW/7471A Analyte	Reported Concentration	Modified Final Concentration
MW-4A/A	**Thallium** **Zinc** ***(Due to source water blank only)***	0.0058 mg/L 0.010 mg/L	**0.0058UJ mg/L** **0.010UJ mg/L**
MW-4A	**Zinc** ***(Due to source water blank only)***	0.012 mg/L	**0.012UJ mg/L**
LDC Report# 5341B4			
MW-4A/A (filtered)	**Zinc (dissolved)** ***(Due to filter and source water blanks only)***	0.0037 mg/L	0.0037UJ mg/L
MW-4A (filtered)	**Zinc (dissolved)** ***(Due to filter and source water blanks only)***	0.0064 mg/L	0.0064UJ mg/L
MW-2/K* (filtered)	Iron (dissolved)	0.0055 mg/L	0.0055UJ mg/L
MW-16/L* (filtered)	Iron (dissolved)	0.0043 mg/L	0.0043UJ mg/L
LDC Report# 5341B14	** Samples identified as field blanks should not be blank-qualified.*		
MW-3B/A	**Zinc**	0.012 mg/L	**0.012UJ mg/L**
MW-3	**Zinc**	0.0094 mg/L	**0.0094UJ mg/L**
LDC Report# 5341C4			
MW-10	**Chromium** **Potassium** ***(Due to equipment blank only)***	0.013 mg/L 1.7 mg/L	**0.013UJ mg/L** **1.7UJ mg/L**
MW-11	**Iron**	0.11 mg/L	**0.11UJ mg/L**
MW-8	**Antimony** **Zinc**	0.044 mg/L 0.0060 mg/L	**0.044UJ mg/L** **0.0060UJ mg/L**
MW-1	**Antimony**	0.045 mg/L	**0.045UJ mg/L**
MW-1/K* LDC Report# 5369A4	Iron Manganese Sodium Zinc ** Samples identified as field blanks should not be blank-qualified.*	0.013 mg/L 0.0014 mg/L 0.074 mg/L 0.0033 mg/L	0.013UJ mg/L 0.0014UJ mg/L 0.074UJ mg/L 0.0033UJ mg/L

Table 5.4-3. Field and Laboratory Blank Tables
Summary of QC Outliers (Page 7 of 9)

Table 5.4-3C Blank Qualifications for Metals

Sample	Metals: EPA Methods SW6010B/SW7470ASW/7471A Analyte	Reported Concentration	Modified Final Concentration
MW-1 (filtered)	**Manganese (dissolved)**	0.011 mg/L	**0.011UJ mg/L**
MW-8 (filtered)	**Iron (dissolved)** **Manganese (dissolved)**	0.011 mg/L 0.0093 mg/L	**0.011UJ mg/L** **0.0093UJ mg/L**
MW-9 (filtered)	**Iron (dissolved)** **Manganese (dissolved)**	0.032 mg/L 0.015 mg/L	**0.032UJ mg/L** **0.015UJ mg/L**
MW-10 (filtered) LDC Report# 5369A14	**Iron (dissolved)** **Zinc (dissolved)** ***(Due to equipment blank only)***	0.014 mg/L 0.013 mg/L	**0.014UJ mg/L** **0.013UJ mg/L**
MW-2	**Zinc**	0.014 mg/L	**0.014UJ mg/L**
MW-2/A	**Zinc**	0.013 mg/L	**0.013UJ mg/L**
MW-3B LDC Report# 5383A4	**Zinc**	0.0047 mg/L	**0.0047UJ mg/L**
MW-2/A LDC Report# 5383A14	**Thallium (dissolved)**	0.0030 mg/L	**0.0030UJ mg/L**

Notes:
Bold highlight indicates that non-blank field sample results were qualified for this analyte.

* Equipment and filter blanks were qualified by the validation sub-contractor, LDC, as non-dected and estimated (UJ) according to validation protocols followed by LDC. However, according to the Functional Guidelines and USEPA Region IX validation protocols, field, equipment, filter, and trip blanks cannot be blank-qualified according to the blank qualification rules as these samples are blanks, not environmental field samples. The results for all field blanks should be considered as detected at the reported concentrations for the purpose of evaluating potential field contamination.

Table 5.4-3. Field and Laboratory Blank Tables
Summary of QC Outliers (Page 8 of 9)

Table 5.4-3D Laboratory Blanks for SW8260B - VOCs

Method Blank ID	Analysis Date	VOCs: EPA Method SW8260B Compound	Concentration	Associated Samples
0231468BLK	8/17/00	Acetone	2.1 ug/L	TB 8-3-00 LDC Report# 5341A1
0231468BLK	8/17/00	**Acetone**	2.1 ug/L	**MW-4A/A** MW-4A SRC-4 TB 8-4-00 (1) TB 8-4-00 (2) LDC Report# 5341B1
0236502BLK	8/22/00	Acetone	4.0 ug/L	All samples in SDG G0H100308: MW-3 MW-3B/A MW-4 TB 8-8-00 (1) TB 8-8-00 (2) TB 8-9-00 LDC Report# 5341C1

Note:
Bold highlight indicates that associated non-blank field sample results were blank qualified for this analyte.

Table 5.4-3E Field Blanks for SW8260B - VOCs

Blank ID	Sampling Date	VOCs: EPA Method SW8260B Compound	Concentration	Associated Samples
Equipment Blank ID				
MW-2/K	8/3/00	Methylene chloride Acetone 2-Butanone	3.7 ug/L 6.2 ug/L 2.6 ug/L	MW-14 LDC Report# 5341A1
MW-1/K	8/10/00	Methylene chloride Acetone	0.37 ug/L 2.0 ug/L	MW-10 LDC Report# 5369A1
Source Blank ID				
SRC-4	8/4/00	Methylene chloride	0.37 ug/L	MW-4A/A MW-4A LDC Report# 5341B1

Note:
No field sample results were blank qualified for this analyte.

Table 5.4-3. Field and Laboratory Blank Tables
Summary of QC Outliers (Page 9 of 9)

Table 5.4-3F Blank Qualifications for SW8260B - VOCs

Sample	VOCs: EPA Method SW8260B Compound	Reported Concentration	Modified Final Concentration
MW-4A/A LDC Report# 5341B1	**Acetone**	1.9 ug/L	**1.9UJ ug/L**

Note:
Bold highlight indicates that non-blank field sample results were qualified for this analyte.

Table 5.4-3G Common Laboratory Contaminant Qualifications for SW8260B - VOCs

Sample	VOCs: EPA Method SW8260B Compound Compound	Reported Concentration	Modified Final Concentration
MW-2/K * LDC Report# 5341B1	Methylene chloride Acetone	3.7 ug/L 6.2 ug/L	3.7UJ ug/L 6.2UJ ug/L
SRC-4* LDC Report# 5341B1	Methylene chloride	0.37 ug/L	0.37UJ ug/L
MW-1/K* LDC Report# 5369A1	Methylene chloride Acetone ** Samples identified as equipment blanks or source water blanks should not be blank-qualified.*	0.37 ug/L 2.0 ug/L	0.37UJ ug/L 2.0UJ ug/L

Note: * Trace levels of acetone and methylene chloride are considered to be common laboratory contaminants for this analytical method. Equipment blanks were qualified by the validation sub-contractor, LDC, as non-dected and estimated (UJ) according to validation protocols followed by LDC. However, according to the Functional Guidelines and USEPA Region IX validation protocols, field, equipment and trip blanks cannot be blank-qualified according to the blank qualification rules as these samples are blanks, not environmental field samples. The results for all field blanks should be considered as detected at the reported concentrations for the purpose of evaluating potential field contamination.

These tables were reproduced from the tables in the Laboratory Data Consultants (LDC) data validation reports (DVRs) to present the findings of the third party data validation. Only QC outliers were included. Notes and highlights were added were added by Earth Tech. Any changes to the LDC DVR tables determined by the Earth Tech project chemist were highlighted in italics. Bold highlight specifies sample results qualified due to validation. The "A" and "P" designations are LDC DVR designations that indicate the LDC validator determined that the finding was based upon technical validation criteria (A) or that the validation finding was related to a protocol/contractual deviation (P).

Table 5.4-4. Surrogate Recovery Tables

Summary of QC Outliers (Page 1 of 1)

Table 5.4-4A Surrogate Recoveries for SW8310 - PAHs

Sample	Detector	Surrogate	%R (Limits)	Compound	Flag	A or P
MW-4RE *(NOT USED)* LDC Report# 5341C9	NA	1-Methylnaphthalene	143 (40-140)	All TCL compounds	J+ (all detects)	A
MW-1RE *(NOT USED)* LDC Report# 5369A9	C18	1-Methylnaphthalene	24 (40-140)	All TCL compounds	J- (all detects) UJ (all non-detects)	A

Note:
No sample results were qualified for this compound.

These tables were reproduced from the tables in the Laboratory Data Consultants (LDC) data validation reports (DVRs) to present the findings of the third party data validation. Only QC outliers were included. Notes and highlights were added were added by Earth Tech. Any changes to the LDC DVR tables determined by the Earth Tech project chemist were highlighted in italics. Bold highlight specifies sample results qualified due to validation. The "A" and "P" designations are LDC DVR designations that indicate the LDC validator determined that the finding was based upon technical validation criteria (A) or that the validation finding was related to a protocol/contractual deviation (P).

Table 5.4-5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Tables
Summary of QC Outliers (Page 1 of 9)

Table 5.4-5A MS/MSD for Metals - EPA Methods SW6010B/SW7470A/SW7471A

Spike ID (Associated Samples)	Metals: EPA Methods SW6010B/SW7470A/SW7471A Analyte	%R (Limits)	Flag	A or P
MW-4A/8-00MS All samples in SDG G0H040281: **MW-14** LDC Report# 5341A4 and All samples in SDG G0H050132: **MW-4A** MW-2/K MW-4A/A SRC-4 LDC Report# 5341B4	**Aluminum**	179 (75-125)	**J+ (all detects)** **J+ (all detects)** *NA* (J+ all detects) ***No samples qualified, all ND***	A
MW-10/8-00MS** (All samples in SDG G0H120149: **MW-10** **MW-11** **MW-9** **MW-8** **MW-1** MW-1/K LDC Report# 5369A4	**Aluminum**	328 (75-125)	**J+ (all detects)** *NA* (J+ all detects) ***No samples qualified, all ND***	A

Note:
Bold highlight indicates that associated field sample results were qualified for this element.

Table 5.4-5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Tables
Summary of QC Outliers (Page 2 of 9)

Table 5.4-5B MS/MSD Issues for SW8015B - TEPH

Spike ID (Associated Samples)	TEPH: EPA Method SW8015B Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
All samples in SDG G0H100308: MW-3B/A MW-3B/ARE *(NOT USED)* MW-3 MW-3RE *(NOT USED)* MW-4 MW-4 RE *(NOT USED except unknown hydrocarbon)* LDC Report# 5341C8 and All samples in SDG G0H160300: MW-12 MW-12 RE *(NOT USED)* MW-6 MW-6 RE *(NOT USED)* MW-9 MW-9 RE *(NOT USED)* LDC Report# 5355A8 and All samples in SDG G0H120149: MW-10 MW-10 RE *(NOT USED)* MW-1/K MW-1/K RE *(NOT USED)* MW-11 MW-11RE *(NOT USED)* MW-8 MW-8 RE *(NOT USED)* MW-1 MW-1 RE *(NOT USED)* LDC Report# 5369A8 and All samples in SDG G0H080263: MW-2 MW-2 RE *(NOT USED)* MW-2/A MW-2/A RE *(NOT USED)* MW-3B MW-3B RE *(NOT USED)* LDC Report# 5383A8	TPH as extractables	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Note: MS/MSD analyses were performed at an overall frequency of 1:16 that exceeded the requirement of one MS/MSD per 20 samples per matrix. The effect of no MS/MSD for these samples on the quality of the data is not expected to be significant

Table 5.4-5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Tables
Summary of QC Outliers (Page 3 of 9)

Table 5.4-5C MS/MSD for SW8015B - TEPH

Spike ID (Associated Samples)	TEPH: EPA Method SW8015B Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-4A REMS/MSD (MW-4A RE *NOT USED)* LDC Report# 5341B8	TPH as extractables	171 (65-135)	206 (65-135)	-	J+ (all detects)	A

Note:
Bold highlight indicates that associated sample results were qualified for this analyte.

Table 5.4-5D MS/MSD Issues for SW8081A - Pesticides

Sample	Pesticides: EPA Method SW8081A Compound	Finding	Criteria	Flag	A or P
G0H050132-005MS/MSD (MW-14) LDC Report# 5341A3 and MW-4A MS/MSD (MW-2/K MW-4A/A MW-4A SRC-4) LDC Report# 5341B3	All TCL compounds	The MS/MSD associated with this sample was not spiked due to laboratory error.	The MS/MSD must be performed according to the QAPP.	None	P

Table 5.4-5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Tables
Summary of QC Outliers (Page 4 of 9)

Table 5.4-5D MS/MSD Issues for SW8081A - Pesticides

Sample	Pesticides: EPA Method SW8081A Compound	Finding	Criteria	Flag	A or P
All samples in SDG G0H100308: MW-3B/A MW-3 MW-4 LDC Report# 5341C3 and All samples in SDG G0H160300: MW-12 MW-6 MW-9 MW-12RE *(NOT USED)* MW-6 RE *(NOT USED)* MW-9 RE *(NOT USED)* LDC Report# 5355A3 and All samples in SDG G0H120149: MW-10 MW-1/K MW-11 MW-8 MW-1 LDC Report# 5369A3 and All samples in SDG G0H080263: MW-2 MW-2/A MW-3B LDC Report# 5383A3	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Note: MS/MSD analyses were performed at an overall frequency of 1:16 that exceeded the requirement of one MS/MSD per 20 samples per matrix. The effect of no MS/MSD for these samples on the quality of the data is not expected to be significant

Table 5.4-5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Tables
Summary of QC Outliers (Page 5 of 9)

Table 5.4-5E MS/MSD issues for SW8260B - VOCs

Sample	VOCs: EPA Method SW8260B Compound	Finding	Criteria	Flag	A or P
All samples in SDG G0H100308: MW-3 MW-3B/A MW-4 TB 8-8-00 (1) TB 8-8-00 (2) TB 8-9-00 LDC Report# 5341C1 and All samples in SDG G0H160300: MW-6 MW-12 TB 8-14-00 (1) TB 8-14-00 (2) TB 8-14-00 (3) LDC Report# 5355A1 and All samples in SDG G0H120149: MW-1 MW-8 MW-9 MW-10 MW-11 MW-1/K TB 8-9-00 TB 8-10-00 (1) TB 8-10-00 (2) TB 8-10-00 (3) TB 8-11-00 LDC Report# 5369A1 and All samples in SDG G0H080263: MW-2 MW-2/A MW-3B TB 8-7-00 (1) TB 8-7-00 (2) TB 8-8-00 LDC Report# 5383A1	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Note: MS/MSD analyses were performed at an overall frequency of 1:16 that exceeded the requirement of one MS/MSD per 20 samples per matrix. The effect of no MS/MSD for these samples on the quality of the data is not expected to be significant. Note that field blanks are not environmental matrix and are not included in frequency calculations.

Table 5.4-5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Tables
Summary of QC Outliers (Page 6 of 9)

Table 5.4-5F MS/MSD for SW8260B - VOCs

Spike ID (Associated Samples)	VOCs: EPA Method SW8260B Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-4A MS/MSD	**2-Butanone**	142 (65-135)	147 (65-135)	-	**J+ (all detects)**	A
(MW-4A)				-		
	Vinyl acetate	214 (65-135)	213 (65-135)	-	*NA* (J+ all detects)	
LDC Report# 5341B1	Naphthalene	-	139 (65-135)		*NA* (J+ all detects)	
					No samples qualified, all ND	

Note:
Bold highlight indicates that associated sample results were qualified for this analyte.

Table 5.4-5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Tables
Summary of QC Outliers (Page 7 of 9)

Table 5.4-5G MS/MSD Issues for SW8310 - PAHs

Sample	PAHs: EPA Method SW8310 Compound	Finding	Criteria	Flag	A or P
All samples in SDG G0H040281: MW-14 MW-14 RE *(NOT USED* LDC Report# 5341A9 and All samples in SDG G0H100308: MW-3B/A MW-3B/A RE *(NOT USED)* MW-3 MW-3RE *(NOT USED)* MW-4 MW-4 RE *(NOT USED)* LDC Report# 5341C9 and All samples in SDG G0H160300: MW-12 MW-6 MW-9 LDC Report# 5355A9 and All samples in SDG G0H120149: MW-10 MW-10 RE *(NOT USED)* MW-1/K MW-1/K RE *(NOT USED)* MW-11 MW-11 RE *(NOT USED)* MW-8 MW-8 RE *(NOT USED)* MW-1 MW-1 RE *(NOT USED)* LDC Report# 5369A9	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Note: MS/MSD analyses were performed at an overall frequency of 1:16 that exceeded the requirement of one MS/MSD per 20 samples per matrix. The effect of no MS/MSD for these samples on the quality of the data is not expected to be significant

Table 5.4-5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Tables
Summary of QC Outliers (Page 8 of 9)

Table 5.4-5H MS/MSD Issues for SW8330 - Explosives

Sample	Explosives: EPA Method SW8330 Compound	Finding	Criteria	Flag	A or P
All samples in SDG G0H100308: MW-3B/A MW-3 MW-4 LDC Report# 5341C44 and All samples in SDG G0H160300: MW-12 MW-6 MW-9 LDC Report# 5355A44 and All samples in SDG G0H120149: MW-10 MW-1/K MW-11 MW-8 MW-1 LDC Report# 5369A44 and All samples in SDG G0H080263: MW-2 MW-2/A MW-3B LDC Report# 5383A44	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None	P

Note: MS/MSD analyses were performed at an overall frequency of 1:13 that exceeded the requirement of one MS/MSD per 20 samples per matrix. The effect of no MS/MSD for these samples on the quality of the data is not expected to be significant

Table 5.4-5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Tables
Summary of QC Outliers (Page 9 of 9)

Table 5.4-5I MS/MSD for SW8330 - Explosives

Spike ID (Associated Samples)	Explosives: EPA Method SW8330 Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
MW-4A MS/MSD **(MW-4A)** LDC Report# 5341B44	**Nitrobenzene** **2,6-Dinitrobenzene** **3-Nitrotoluene**	- - 151 (65-135)	- - -	30 (≤20) 29 (≤20) 33 (≤20)	**UJ (all non-detects)**	A

Note:
Bold highlight indicates that associated sample results were qualified for this analyte.

These tables were reproduced from the tables in the Laboratory Data Consultants (LDC) data validation reports (DVRs) to present the findings of the third party data validation. Only QC outliers were included. Notes and highlights were added were added by Earth Tech. Any changes to the LDC DVR tables determined by the Earth Tech project chemist were highlighted in italics. Bold highlight specifies sample results qualified due to validation. The "A" and "P" designations are LDC DVR designations that indicate the LDC validator determined that the finding was based upon technical validation criteria (A) or that the validation finding was related to a protocol/contractual deviation (P).

Table 5.4-6. Laboratory Control Samples (LCS) Tables

Summary of QC Outliers (Page 1 of 6)

Table 5.4-6A LCS/LCSD for SW8015B - TEPH

LCS ID (Associated Samples)	TEPH: EPA Method SW8015B Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
0223219LCS (MW-14) LDC Report# 5341A8 and 0223219LCS (MW-4A/A MW-4A MW-2/K SRC-4) LDC Report# 5341B8	All TPH as extractables except TPH as motor oil	36 (60-117)	-	-	J- (all detects) UJ (all non-detects)	P
0227178LCS/D (MW-3B/A MW-3 MW-4 0227178MB) LDC Report# 5341C8 and MW-2 MW-2/A MW-3B LDC Report# 5383A8	All TPH as extractables except TPH as motor oil	53 (60-117)	54 (60-117)	-	J- (all detects) UJ (all non-detects)	P
0234334LCS/D (MW-12 MW-6 MW-9 LDC Report# 5355A8	All TPH as extractables except TPH as motor oil	44 (60-117)	50 (60-117)	-	UJ (all non-detects)	P
0243360LCS/D (MW-12RE *(NOT USED)* MW-6 RE *(NOT USED)* MW-9 RE *(NOT USED)* LDC Report# 5355A8 and (MW-10 RE *(NOT USED)* MW-1/K RE *(NOT USED)* MW-11 RE *(NOT USED)* MW-8 RE *(NOT USED)* 0243360MB) LDC Report# 5369A8	All TPH as extractables except TPH as motor oil	33 (60-117)	32 (60-117)	-	J- (all detects) UJ (all non-detects)	P

Table 5.4-6. Laboratory Control Samples (LCS) Tables
Summary of QC Outliers (Page 2 of 6)

Table 5.4-6A LCS/LCSD for SW8015B - TEPH

LCS ID (Associated Samples)	TEPH: EPA Method SW8015B Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
0230293LCS/LCSD **(MW-10** **MW-1/K** **MW-11** **MW-8** **MW-1** 0230293MB) LDC Report# 5369A8	**All TPH as extractables except TPH as motor oil**	42 (60-117)	41 (60-117)	-	**UJ (all non-detects)**	P
0238390LCS/D MW-2 RE *(NOT USED)* MW-2/A RE *(NOT USED)* MW-3B RE *(NOT USED)* LDC Report# 5383A8	All TPH as extractables except TPH as motor oil	- 59 (60-117)	56 (60-117) -	42 (≤35) -	J (all detects) UJ (all non-detects)	P

Note:
Bold highlight indicates that associated sample results were qualified for this compound.

Table 5.4-6B LCS/LCSD for SW8081A - Pesticides

LCS ID (Associated Samples)	TEPH: EPA Method SW8015B Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
0234314LCS/D **(MW-12** **MW-6** **MW-9** LDC Report# 5355A3	**gamma-BHC** **Heptachlor** **Aldrin** **Dieldrin** **Endrin** **4,4'-DDT**	- - - - - -	- - - - - -	50 (≤35) 45 (≤35) 41 (≤35) 51 (≤35) 51 (≤35) 53 (≤35)	**UJ (all non-detects)**	P

Note:
Bold highlight indicates that associated sample results were qualified for this compound.

Table 5.4-6. Laboratory Control Samples (LCS) Tables

Summary of QC Outliers (Page 3 of 6)

Table 5.4-6C LCS/LCSD for SW8260B - VOCs

LCS ID (Associated Samples)	VOCs: EPA Method SW8260B Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
0230404LCS/D (MW-14 LDC Report# 5341A1 and 0230404LCS/D (MW-2/K TB 8-3-00) LDC Report# 5341B1	Naphthalene 2-Chloroethylvinyl ether	144 (65-135) 154 (65-135)	- 155 (65-135)	- -	*NA* (J+ all detects) *NA* (J+ all detects) ***(No samples qualified, all ND)***	P
0231468LCS (TB 8-3-00) LDC Report# 5341A1 and 0231468LCS: MW-4A/A MW-4A SRC-4 TB 8-4-00 (1) TB 8-4-00 (2) LDC Report# 5341B1	2-Chloroethylvinyl ether Dibromochloromethane	147 (65-135) 144 (65-135)	- -	- -	*NA* (J+ all detects) *NA* (J+ all detects) ***(No samples qualified, all ND)***	P
0236502LCS/D: All samples in SDG G0H100308: MW-3 MW-3B/A MW-4 TB 8-8-00 (1) TB 8-8-00 (2) TB 8-9-00 LDC Report# 5341C1	Vinyl acetate	181 (65-135)	170 (65-135)	-	*NA* (J+ all detects) ***(No samples qualified, all ND)***	P
0237521LCS/D (All samples in SDG G0H160300: MW-6 MW-12 TB 8-14-00 (1) TB 8-14-00 (2) TB 8-14-00 (3) LDC Report# 5355A1)	2-Chloroethylvinyl ether Vinyl acetate	147 (65-135) 191 (65-135)	- 142 (65-135)	- 29 (≤25)	*NA* (J+ all detects) *NA* (J+ all detects) ***(No samples qualified, all ND)***	P

Table 5.4-6. Laboratory Control Samples (LCS) Tables

Summary of QC Outliers (Page 4 of 6)

Table 5.4-6C LCS/LCSD for SW8260B - VOCs

LCS ID (Associated Samples)	VOCs: EPA Method SW8260B Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
0237521LCS/LCSD (All samples in SDG G0H120149) **MW-1** **MW-8** **MW-9** **MW-10** **MW-11** **MW-1/K** **TB 8-9-00** **TB 8-10-00 (1)** **TB 8-10-00 (2)** **TB 8-10-00 (3)** **TB 8-11-00** LDC Report# 5369A1	**Vinyl acetate** 2-Chloroethylvinyl ether	191 (65-135) 147 (65-135)	142 (65-135) -	29 (≤25) -	**UJ (all non-detects)** *NA* (J+ all detects) ***(No samples qualified, all ND)***	P
0235401LCS/D (All samples in SDG G0H080263) **MW-2** **MW-2/A** **MW-3B** **TB 8-7-00 (1)** **TB 8-7-00 (2)** **TB 8-8-00** LDC Report# 5383A1	**Dichlorodifluoromethane** 2-Chloroethylvinyl ether Vinyl acetate	62 (65-135) 146 (65-135) 151 (65-135)	55 (65-135) 154 (65-135) -	- - -	**UJ (all non-detects)** *NA* (J+ all detects) *NA* (J+ all detects) ***(No samples qualified, all ND)***	P

Note:
Bold highlight indicates that associated sample results were qualified for this compound.

Table 5.4-6. Laboratory Control Samples (LCS) Tables
Summary of QC Outliers (Page 5 of 6)

Table 5.4-6D LCS/LCSD for SW8310 - PAHs

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
0234412LCS/D (MW-14 RE *(NOT USED)* LDC Report# 5341A9 and 0234412LCS/D (All samples in SDG G0H160300: **MW-12** **MW-6** **MW-9** LDC Report# 5355A9 and 0228361LCS/LCSD **(MW-10** **MW-1/K** **MW-11** **MW-8** **MW-1)** LDC Report# 5369A9	Dibenz(a,h)anthracene	53 (55-135)	53 (55-135)	-	**UJ (all non-detects)**	P
0228361LCS/D **(MW-3B/A** **MW-3** **MW-4)** LDC Report# 5341C9	**Dibenz(a,h)anthracene**	53 (55-135)	53 (55-135)	-	**UJ (all non-detects)**	P
0243369LCS/D MW-3B/A RE *(NOT USED)* MW-3RE *(NOT USED)* MW-4 RE *(NOT USED)* LDC Report# 5341C9 and 0243369LCS/LCSD MW-10 RE *(NOT USED)* MW-1/K RE *(NOT USED)* MW-11 RE *(NOT USED)* MW-8 RE *(NOT USED)* MW-1 RE *(NOT USED)* LDC Report# 5369A9	Dibenz(a,h)anthracene	-	47 (55-135)	25 (≤20)	J (all detects) UJ (all non-detects)	P

Note:
Bold highlight indicates that associated sample results were qualified for this compound.

Table 5.4-6. Laboratory Control Samples (LCS) Tables
Summary of QC Outliers (Page 6 of 6)

Table 5.4-6E LCS/LCSD for SW8330 - Explosives

LCS ID (Associated Samples)	Explosives: EPA Method SW8330 Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag	A or P
0227278LCS/D All samples in SDG G0H100308: **MW-3B/A** **MW-3** **MW-4** LDC Report# 5341C44) and All samples in SDG G0H080263: **MW-2** **MW-2/A** **MW-3B** LDC Report# 5383A44	**RDX** **1,3,5-Trinitrobenzene** **2,4,6-Trinitrotoluene** **2-Amino-4,6-dinitrotoluene** **2,6-Dinitrotoluene** **3-Nitrotoluene**	- - - - - -	- - - - - -	31 (≤20) 23 (≤20) 21 (≤20) 22 (≤20) 29 (≤20) 29 (≤20)	**UJ (all non-detects)**	P

Note:
Bold highlight indicates that associated sample results were qualified for this compound.

These tables were reproduced from the tables in the Laboratory Data Consultants (LDC) data validation reports (DVRs) to present the findings of the third party data validation. Only QC outliers were included. Notes and highlights were added were added by Earth Tech. Any changes to the LDC DVR tables determined by the Earth Tech project chemist were highlighted in italics. Bold highlight specifies sample results qualified due to validation. The "A" and "P" designations are LDC DVR designations that indicate the LDC validator determined that the finding was based upon technical validation criteria (A) or that the validation finding was related to a protocol/contractual deviation (P).

Table 5.4-7. Duplicate Sample Analysis Tables
Summary of QC Outliers (Page 1 of 1)

Table 5.4-7A. Duplicate Sample Analysis for SW6010B/7470A/7471A - Metals

DUP ID (Associated Samples)	Metals: EPA Methods SW6010B/SW7470A/SW7471A Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
MW-4A/8-00DUP (All samples in SDG G0H040281: **MW-14)** LDC Report# 5341A4 and (All samples in SDG G0H050132: **MW-2/K** **MW-4A/A** **MW-4A** **SRC-4)** LDC Report# 5341B4	**Aluminum**	23 (≤20)	-	**J (all detects)** **UJ (all non-detects)**	A

Note:
Bold highlight indicates that associated sample results were qualified for this compound.

This table was reproduced from the tables in the Laboratory Data Consultants (LDC) data validation reports (DVRs) to present the findings of the third party data validation. Only QC outliers were included. Notes and highlights were added were added by Earth Tech. Any changes to the LDC DVR tables determined by the Earth Tech project chemist were highlighted in italics. Bold highlight specifies sample results qualified due to validation. The "A" and "P" designations are LDC DVR designations that indicate the LDC validator determined that the finding was based upon technical validation criteria (A) or that the validation finding was related to a protocol/contractual deviation (P).

Table 5.4-8. TEPH Target Compound Identification Tables

(Page 1 of 2)

Sample	TEPH: EPA Method SW8015B Hydrocarbon Pattern
MW-14	ND
MW-14 RE *(NOT USED)*	ND
LDC Report# 5341A8	
MW-2/K	ND
MW-2/K RE *(NOT USED)*	ND
MW-4A/A	Pattern resembles TPH as kerosene .
MW-4A/A RE *(NOT USED)*	Pattern resembles TPH as kerosene and an unknown hydrocarbon eluting throughout the TPH as Diesel and TPH as motor oil range.
MW-4A	Pattern resembles TPH as kerosene .
MW-4A RE *(NOT USED)*	Pattern resembles TPH as kerosene and an unknown hydrocarbon eluting throughout the TPH as Diesel and TPH as motor oil range.
SRC-4	ND
SRC-4RE *(NOT USED)*	ND
LDC Report# 5341B8	
MW-3B/A	ND
MW-3B/ARE	ND
MW-3	ND
MW-3RE	ND
MW-4	ND
MW-4 RE	Pattern resembles an unknown hydrocarbon eluting within the TPH as motor oil range.
LDC Report# 5341C8	
MW-12	ND
MW-12RE *(NOT USED)*	ND
MW-6	ND
MW-6 RE *(NOT USED)*	ND
MW-9	ND
MW-9 RE *(NOT USED)*	ND
LDC Report# 5355A8	

Table 5.4-8. TEPH Target Compound Identification Tables
(Page 2 of 2)

Sample	TEPH: EPA Method SW8015B Hydrocarbon Pattern
MW-10	ND
MW-10 RE *(NOT USED)*	ND
MW-1/K	ND
MW-1/K RE *(NOT USED)*	ND
MW-11	ND
MW-11 RE *(NOT USED)*	ND
MW-8	ND
MW-8 RE *(NOT USED)*	ND
MW-1	ND
MW-1 RE *(NOT USED)*	ND
LDC Report# 5369A8	
MW-2	ND
MW-2 RE *(NOT USED)*	ND
MW-2/A	ND
MW-2/A RE *(NOT USED)*	ND
MW-3B	ND
MW-3B RE *(NOT USED)*	ND
LDC Report# 5383A8	

ND = Not Detected, Chromatographic Pattern Identification Not Applicable

This table was reproduced from the tables in the Laboratory Data Consultants (LDC) data validation reports (DVRs) to present the findings of the third party data validation. All TEPH chromatograms were reviewed and characterized by the laboratory, LDC, and Earth Tech chemists, as presented in the findings in this table. All results reported as detections for specific TEPH fuels represent a characteristic match to the specified chromatographic fuel patterns, and may include inexact matches such as weathered fuel or additional peaks in the pattern.

Table 5.4-9 Elevated PQL Tables

Summary of QC Outliers (Page 1 of 1)

Table 5.4-9A Elevated PQLs for SW8260B - VOCs

Sample	Compound	Finding	Criteria	Flag	A or P
All water samples	Vinyl acetate	Laboratory reporting limit reported at 10 ug/L.	Reporting limit should be reported at 5.0 ug/L per the QAPP.	None	P
	1,1,2-Trichloro-1,2,2-trifluoroethane	Laboratory reporting limit reported at 2.0 ug/L.	Reporting limit should be reported at 1.0 ug/L per the QAPP.	None	P

This table was reproduced from the tables in the Laboratory Data Consultants (LDC) data validation reports (DVRs) to present the findings of the third party data validation. Only QC outliers were included. Notes and highlights were added were added by Earth Tech. Any changes to the LDC DVR tables determined by the Earth Tech project chemist were highlighted in italics. Bold highlight specifies sample results qualified due to validation. The "A" and "P" designations are LDC DVR designations that indicate the LDC validator determined that the finding was based upon technical validation criteria (A) or that the validation finding was related to a protocol/contractual deviation (P).

Table 5.4-10.
Data Gaps 3 Field Duplicate and Replicate Samples Collected and Analyzed
(Page 1 of 1)

Result Sample ID	Depth ft bgs	Matrix	LAB	QUANTERRA (QES) LAB						
				Metals-Unfiltered SW6010B, SW7470A, SW7471A	Metals-Filtered SW6010B, SW7470A, SW7471A	TEPH-D/MO/K LUFT Mod. SW8015	Pesticides SW8081A	VOCs SW8260B	Explosives SW8330	PAHs SW8310
MW-2	NA	Water	QES	1	1	1	1	1	1	1
MW-2/A	NA	Water Dup	QES	X	X	X	X	X	X	X
MW-3B	NA	Water	QES	1	1	1	1	1	1	1
MW-3B/A	NA	Water Dup	QES	X	X	X	X	X	X	X
MW-4A	NA	Water	QES	1	1	1	1	1	1	1
MW-4A/A	NA	Water Dup	QES	X	X	X	X	X	X	X
TOTAL NORMAL ANALYSES*				13	13	13	13	13	13	13
TOTAL DUPLICATES				3	3	3	3	3	3	3
% OF TOTAL ANALYSES				23%	23%	23%	23%	23%	23%	23%

Result Sample ID		Matrix	LAB	QES	FGS
				Mercury SW7471A	Methyl Mercury FGS-070.1
WET-4/0*	NA	Sediment	QES/FGS	1	1
WET-4A/0	NA	Sed Dup	QES/FGS	X	X
WET-5/0	NA	Sediment	QES/FGS	1	1
WET-5A/0	NA	Sed Dup	QES/FGS	X	X
TOTAL NORMAL ANALYSES*				18	18
TOTAL DUPLICATES				2	2
% OF TOTAL ANALYSES				11%	11%

* Actual Field samples. Not including field duplicates.
QESS = Quanterra Environmental Services, West Sacramento Facility, acquired by Severn Trent Laboratories (STL) in February, 2000.

Table 5.4-11.
Benicia Tourtelot Property Cleanup RI/FS Field Duplicate and Replicate Summary
(Page 1 of 1)

Includes Interim, Remedial, Datagaps 1, 2, & 3, and RAW Sampling Events. Excludes TNT samples from RAW*

Method	Total Field Samples (SOIL)	Total Replicates	Duplicate Percentage	Total field samples (WATER)	Total Duplicates	Duplicate Percentage
General Chemistry	1	0	0	24	4	17
SW8290	23	4	17	0	0	0
Chloropicrin	36	4	11	2	0	0
SW8260	170	18	11	35	7	20
SW8330 *	534	83	16	40	7	18
SW8330M	183	18	10	37	7	19
SW8081A	38	4	11	28	6	21
SW8082	52	6	12	4	0	0
SW8310	119	28	24	36	7	19
TEPH-D/MO	222	22	10	32	7	22
TEPH-K **	137	15	11	31	7	23
Metals	272	35	13	35	6	17
Metals (Dissolved)	0	0	0	18	5	28
Nitrate/Nitrite	134	15	11	18	3	17
TOC	4	1	25	1	0	0
SW8270C (PAHs) ***	14	1	7	0	0	0
SW8270 (pentachlorophenol)	30	3	10	0	0	0
Perchlorate ****	27	1	4	22	4	18
Hydrazine	0	0	0	20	3	15
Methyl Mercury	18	2	11	0	0	0

Project field duplicate/replicate sample collection frequency goal is 10% per method per matrix.

* An additional 45 samples for SW8330 were collected in June 2000 and sent to Cal Test. As these samples were not included in the RAW sampling plan, they have not been included in the calculations for field replicate frequency. There were 10 replicate pairs, and all results were non-detected and within field precision criteria. The 28.5% frequency exceeds project goals.

** TEPH-K was not requested for all TEPH field duplicate and replicate samples, but was reported anyway in many cases.

*** Seven samples were analyzed for PAHs by SW8270B in the interim investigation sampling event when the SW8310 analyses could not be reported due to severe interference. The analyses were rejected due to grossly exceeded holding times and the data were not used for reporting purposes. Samples were re-collected at 8 locations at the same site, and analyzed for this method in the data gaps sampling event. Only the results for the 8 recollected samples were used for project reporting purposes.

**** Two field replicate samples planned for the RAW sampling event were not collected as planned. As perchlorate was not found anywhere at the project site and there is no evidence that perchlorate was used at the project site, the effect on the project objectives is not significant.

Table 5.4-12. Field Duplicate/Replicate Detected Results Precision Tables
Summary of QC Outliers (Page 1 of 5)

Table 5.4-12A. Field Duplicate/Replicate Detected Results Precision for Methyl Mercury Frontier Geosciences Method FGS 070.1

Analyte	Concentration (ug/Kg)		RPD (Limits)	Difference (Limits)
	WET 5-0	WET 5-0A		
Methyl mercury LDC Report# 5260A6	**0.87**	**0.18**	**131 (≤40)**	-
Compound	**Concentration (ug/Kg)**		**RPD (Limits)**	**Difference (Limits)**
	WET 4-0	**WET 4-0A**		
Methyl mercury LDC Report# 5260A6	**0.45**	**0.76**	**52 (≤40)**	-
Analyte	**Concentration (mg/Kg)**		**RPD (Limits)**	**Difference (Limits)**
	WET5-0	**WET5-0A**		
Mercury LDC Report# 5383B4	0.044	0.11		0.066 mg/Kg (≤0.20)
Analyte	**Concentration (mg/Kg)**		**RPD (Limits)**	**Difference (Limits)**
	WET4-0	**WET4-0A**		
Mercury LDC Report# 5383B4	0.65	0.53	20 (≤35*)	-

Notes:
Field precision criteria are not established for this method. Results exceeding the 70-130%R laboratory precision criteria specified in Method FGS 070.1 for methyl mercury are highlighted in **bold**. Results are not qualified for field precision.

Table 5.4-12. Field Duplicate/Replicate Detected Results Precision Tables
Summary of QC Outliers (Page 2 of 5)

Table 5.4-12B. Field Duplicate/Replicate Detected Results Precision for Metals: EPA Methods SW6010B/SW7470A/SW7471A

Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)
	MW-4A	MW-4A/A		
Aluminum	**2.1**	**1.1**	**62 (≤20*)**	-
Arsenic	0.0086	0.0088	-	0.002 mg/L (≤0.010)
Barium	0.11	0.12	9 (≤20*)	-
Calcium	22.7	22.6	0.4 (≤20*)	-
Chromium	0.0050	0.0028U	-	0.0022 mg/L (≤0.010)
Copper	0.0052	0.0021U	-	0.0031 mg/L (≤0.025)
Iron	**2.6**	**1.9**	**31 (≤20*)**	-
Magnesium	16.2	16.4	1 (≤20*)	-
Manganese	0.30	0.32	6 (≤20*)	-
Nickel	0.0071	0.0075	-	0.0004 mg/L (≤0.020)
Potassium	3.2	2.4	-	0.8 mg/L (≤5.0)
Sodium	199	211	6 (≤20*)	-
Thallium	0.0030U	0.0058	-	0.0028 mg/L (≤0.010)
Vanadium	0.0045	0.0032U	-	0.0013 mg/L (≤0.015)
Zinc	0.012	0.010	-	0.002 mg/L (≤0.020)
Molybdenum	0.019	0.019	-	0 mg/L (≤0.020)
Strontium	0.75	0.80	6 (≤20*)	-
Phosphorus	0.19	0.14	-	0.05 mg/L (≤1)
LDC Report# 5341B4				

Table 5.4-12. Field Duplicate/Replicate Detected Results Precision Tables
Summary of QC Outliers (Page 3 of 5)

Table 5.4-12B. Field Duplicate/Replicate Detected Results Precision for Metals: EPA Methods SW6010B/SW7470A/SW7471A

Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)
	MW-2	MW-2/A		
Aluminum	**0.78**	**2.2**	-	**1.42 mg/L (≤0.2)**
Barium	0.042	0.048	-	0.006 mg/L (≤0.01)
Calcium	71.6	68.9	4 (≤20*)	-
Chromium	0.0030	0.0075	-	0.0045 mg/L (≤0.01)
Copper	0.0021U	0.0030	-	0.0009 mg/L (≤0.025)
Iron	**0.82**	**2.4**	-	**1.58 mg/L (≤0.2)**
Magnesium	39.5	38.3	3 (≤20*)	-
Manganese	0.028	0.076	92 (≤20*)	-
Nickel	0.0016	0.0034	-	0.0018 mg/L (≤0.020)
Potassium	1.9	2.9	-	1 mg/L (≤5)
Sodium	84.8	82.2	3 (≤20*)	-
Vanadium	0.0032U	0.0085	-	0.0053 mg/L (≤0.015)
Zinc	0.014	0.013	-	0.001 mg/L (≤0.02)
Strontium	0.89	0.84	6 (≤20*)	-
LDC Report# 5383A4				

Table 5.4-12. Field Duplicate/Replicate Detected Results Precision Tables
Summary of QC Outliers (Page 4 of 5)

Table 5.4-12B. Field Duplicate/Replicate Detected Results Precision for Metals: EPA Methods SW6010B/SW7470A/SW7471A

Analyte	Concentration (mg/L)		RPD (Limits)	Difference (Limits)
	MW-2 (Dissolved)	MW-2/A (Dissolved)		
Barium	0.038	0.040	-	0.002 mg/L (≤0.01)
Calcium	71.0	75.1	6 (≤20*)	-
Magnesium	38.7	41.1	6 (≤20*)	-
Manganese	0.0049	0.0063		0.0014 (≤0.05 mg/L)
Potassium	1.8	1.9	-	0.1 mg/L (≤5)
Sodium	83.0	88.5	6 (≤20*)	-
Thallium	0.0030U	0.0030	-	0 mg/L (≤0.010)
Zinc	0.011	0.011	-	0 mg/L (≤0.020)
Strontium	0.86	0.089	3 (≤20*)	-
LDC Report# 5383A14				

Notes:
Results exceeding field precision criteria are highlighted in **bold**. Results are not qualified for field precision.
* The control limits listed in the LDC DVRs were incorrect. The correct control limits for field duplicate precision specified in table 3.2-2 of the QAPP have been inserted for each method.

Table 5.4-12. Field Duplicate/Replicate Detected Results Precision Tables
Summary of QC Outliers (Page 5 of 5)

Table 5.4-12C. Field Duplicate/Replicate Detected Results Precision for TEPH: EPA Method SW8015B

Compound	Concentration (ug/L)		RPD (Limits)	Difference (Limits)
	MW-4A/A	MW-4A		
TPH as kerosene	160	210	-	50 ug/L (≤50)
Compound	**Concentration (ug/L)**		**RPD (Limits)**	**Difference (Limits)**
	MW-4A/ARE *(NOT USED)*	**MW-4A RE *(NOT USED)***		
TPH as kerosene LDC Report# 5341B8	150	270	-	120 ug/L (≤50)

Notes:
Results exceeding field precision criteria are highlighted in **bold**. Results are not qualified for field precision.

Table 5.4-12D. Field Duplicate/Replicate Detected Results Precision for VOCs: EPA Method SW8260B

Compound	Concentration (ug/L)		RPD (Limits)	Difference (Limits)
	MW-4A/A	MW-4A		
Acetone	1.9	10U	-	-
2-Butanone LDC Report# 5341B1	17	14	-	3 ug/L (≤10)

Note:
Results exceeding field precision criteria are highlighted in **bold**. Results are not qualified for field precision.

These tables were reproduced from the tables in the Laboratory Data Consultants (LDC) data validation reports (DVRs) to present the findings of the third party data validation. Only QC outliers were included. Notes and highlights were added were added by Earth Tech. Any changes to the LDC DVR tables determined by the Earth Tech project chemist were highlighted in italics. Bold highlight specifies sample results exceeding specified criteria. The "A" and "P" designations are LDC DVR designations that indicate the LDC validator determined that the finding was based upon technical validation criteria (A) or that the validation finding was related to a protocol/contractual deviation (P).

Table 5.7-1. Completeness Table for Data Gaps 3 Investigation, August 3 through September 8, 2000

Analysis	Total Samples	Total analytes	(P) Contract	%	Completeness Analytical	%	Technical Completeness	%
Volatiles	37	2516	22	99.1	169	93.3	0	100.0
TEPH	19	76	52	31.6	57	25.0	0	100.0
PAHs	19	304	14	95.4	11	96.4	0	100.0
Explosives	37	533	26	95.4	39	92.7	0	100.0
PETN/NG	21	21	0	100	0	100.0	0	100.0
Metals	41	1035	0	100	27	97.4	0	100.0
Pesticides	19	399	18	95.5	18	95.5	0	100.0
Methyl Mercury	21	21	0	100	0	100.0	0	100.0

ATTACHMENT 1

LABORATORY DATA CONSULTANTS
DATA VALIDATION PROJECT SUMMARIES

Attachment 1

LDC #4556 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	Explosives (8330)		Metals (SW846)		NO3 (300.0)		NO2 (300.0)		Cl (300.0)		SO4 (300.0)		TOC (9060)		TOC (415.1)		TDS (160.1)		TSS (160.2)		Dioxins (8290)															
Matrix:	Wipe/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	W	S	W	S	W	S
A	G9L100226	2-25-00	3-26-00	-	-	1	16	3	15	3	15	-	-	-	-	0	4	5	0	-	-	-	-	-	-														
B	G9L020289	2-25-00	3-26-00	-	-	0	3	3	0	3	0	3	0	3	0	0	1	1	0	1	0	-	-	-	-														
C	G9L080235	2-25-00	3-26-00	-	-	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
D	G9L080242	2-25-00	3-26-00	-	-	0	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
E	G9L080248	2-25-00	3-26-00	-	-	0	6	3	6	3	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
F	G9L080262	2-25-00	3-26-00	0	4	0	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
G	G9L080277	2-25-00	3-26-00	-	-	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
H	G9L080293	2-25-00	3-26-00	-	-	0	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
I	G9L080300	2-25-00	3-26-00	-	-	0	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
J	G9L090246	2-25-00	3-26-00	-	-	2	11	3	14	3	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
K	G9L140211	2-25-00	3-26-00	-	-	2	30	4	30	4	30	-	-	-	-	0	4	2	0	-	-	-	-	-	-														
L	G9L110172	2-25-00	3-26-00	0	3	4	11	3	11	3	11	0	3	0	3	0	3	2	0	-	-	-	-	0	4														
M	G9L150204	2-25-00	3-26-00	1	5	9	10	4	11	4	11	6	0	6	0	-	-	-	-	6	0	5	0	-	-														
N	G9L170254	2-25-00	3-26-00	-	-	0	17	0	4	0	4	-	-	-	-	-	-	-	-	-	-	-	-	0	4														
O	G9L210200	2-25-00	3-26-00	-	-	6	14	0	7	0	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-														
P	G9L230278	2-25-00	3-26-00	2	14	16	23	6	6	6	6	9	0	9	0	-	-	7	0	13	0	6	0	2	0														
Total				3	26	43	171	29	104	29	104	18	3	18	3	0	12	17	0	20	0	11	0	2	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4556ST.EAR

Attachment 1

LDC #4565 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		PAH (8310)		TPHE (8015)		Explosives (8330)																									
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	W	S
A	VW-1	3-1-00	3-29-00	19	0	-	-	-	-	-	-																								
A	VW-1	3-1-00	3-29-00	2	0																														
B	VW-2	3-1-00	3-29-00	6	0	-	-	-	-	-	-																								
C	VS-1	3-1-00	3-29-00	0	23	-	-	-	-	-	-																								
D	VS-2	3-1-00	3-29-00	0	20	-	-	-	-	-	-																								
E	VS-3	3-1-00	3-29-00	0	14	-	-	-	-	-	-																								
F	VS-4	3-1-00	3-29-00	0	22	-	-	-	-	-	-																								
G	PAH-S	3-1-00	3-29-00	-	-	0	115	-	-	-	-																								
G	PAH-S	3-1-00	3-29-00	-	-	0	14	-	-	-	-																								
H	PAH-W	3-1-00	3-29-00	-	-	18	0	-	-	-	-																								
H	PAH-W	3-1-00	3-29-00	-	-	2	0	-	-	-	-																								
I	DS-4,9 (1)	3-1-00	3-29-00	-	-	-	-	0	23	-	-																								
J	DS-6,10 (2)	3-1-00	3-29-00	-	-	-	-	0	21	-	-																								
K	DS-11 (3)	3-1-00	3-29-00	-	-	-	-	0	19	-	-																								
L	DS-24 (5)	3-1-00	3-29-00	-	-	-	-	0	15	-	-																								
M	DS-23 (4)	3-1-00	3-29-00	-	-	-	-	0	23	-	-																								
N	DW-12,18,27 (1)	3-1-00	3-29-00	-	-	-	-	14	0	-	-																								
N	DW-12,18,27 (1)	3-1-00	3-29-00	-	-	-	-	2	0	-	-																								
O	S-1, S-2	3-1-00	3-29-00	-	-	-	-	-	-	0	38																								
P	S-3/4	3-1-00	3-29-00	-	-	-	-	-	-	0	49																								
Q	S-5/6	3-1-00	3-29-00	-	-	-	-	-	-	0	42																								
R	S-7/8	3-1-00	3-29-00	-	-	-	-	-	-	0	42																								
S	S-9/10	3-1-00	3-29-00	-	-	-	-	-	-	0	52																								
T	S-11/12/13/14	3-1-00	3-29-00	-	-	-	-	-	-	0	69																								
U	S-15	3-1-00	3-29-00	-	-	-	-	-	-	0	28																								
V	S-16,17	3-1-00	3-29-00	-	-	-	-	-	-	0	24																								
W	S-18	3-1-00	3-29-00	-	-	-	-	-	-	0	16																								
X	S-21	3-1-00	3-29-00	-	-	-	-	-	-	0	14																								
Y	S-22,23	3-1-00	3-29-00	-	-	-	-	-	-	0	47																								
Z	S-26,27	3-1-00	3-29-00	-	-	-	-	-	-	0	36																								
Total				27	79	20	129	16	102	0	457	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sha[illegible]ells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #4567 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	Explosives (8330)		NG-PETN (8332)																											
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	12/12,W-17,Exp-29,23-Exp	3-1-00	3-29-00	28	0	-	-																										
A	12/12,W-17,Exp-29,23-Exp	3-1-00	3-29-00	2	0																												
B	000107/000113/000118	3-1-00	3-29-00	0	5	-	-																										
C	000107/000118	3-1-00	3-29-00	-	-	0	4																										
D	12/12, W-17,Nitro-29,23-Nitro	3-1-00	3-29-00	-	-	17	0																										
D	12/12, W-17,Nitro-29,23-Nitro	3-1-00	3-29-00	-	-	2	0																										
E	S-19	3-1-00	3-29-00	-	-	0	22																										
F	S-20	3-1-00	3-29-00	-	-	0	22																										
G	S-24	3-1-00	3-29-00	-	-	0	22																										
H	S-25	3-1-00	3-29-00	-	-	0	20																										
I	000108	3-1-00	3-29-00	-	-	0	3																										
Total				30	5	19	93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #4582 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	Perchlorate (DHS)																													
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	L63568	3-7-00	3-29-00	0	5																												
B	L63569	3-7-00	3-29-00	10	0																												
Total				10	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #4678 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Pest (8081A)		PCB (8082)		TPHE (8015)		Dioxins (8290)		Explosives (8330)		Hydrazines (8315)																	
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	G0B250230	4-14-00	4-28-00	4	7	1	0	1	0	2	10	2	6	1	7	-	-																
B	G0B260131	4-14-00	4-28-00	3	3	-	-	1	2	2	7	-	-	1	4	-	-																
B	G0B260131	4-14-00	4-28-00	0	0	-	-	0	2	0	0	-	-	0	0	-	-																
C	G0B240168	4-14-00	4-28-00	2	7	-	-	-	-	1	8	-	-	1	9	-	-																
D	602492	4-14-00	4-28-00	-	-	-	-	-	-	-	-	-	-	-	-	6	0																
Total				9	17	1	0	2	4	5	25	2	6	3	20	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4678ST.EAR

Attachment 1

LDC #4720 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	Hydrazines (8315)		Perchlorate (DOHS)																											
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	L68187	4-26-00	5-10-00	-	-	13	0																										
B	602499	4-26-00	5-10-00	6	0	-	-																										
C	602498	4-26-00	5-10-00	8	0	-	-																										
Total				14	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sh[illegible] cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #4733 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		TPHE (8015)		Dioxins (8290)		Explosives (8330)		Hydrazines (8315)		Perchlorate (DOHS)																			
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	L67876/L67877	5-1-00	5-15-00	-	-	-	-	-	-	-	-	-	-	0	0																		
B	602505	5-1-00	5-15-00	-	-	-	-	-	-	-	-	0	0	-	-																		
C	602509	5-1-00	5-15-00	-	-	-	-	-	-	-	-	0	0	-	-																		
D	G0D040260	5-1-00	5-15-00	2	8	2	16	1	4	2	16	-	-	-	-																		
Total				2	8	2	16	1	4	2	16	11	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4733ST.EAR

Attachment 1

LDC #4743 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		PCBs (8082)		TPHE (8015)		Explosives (8330)		Cl (300.0A)		NO_3, NO_2, SO_4 (300.0A)		TSS (160.2)		TDS (160.1)		TOC (415.1)													
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	G0D010147	5-3-00	5-17-00	3	18	0	1	1	17	1	0	3	0	3	0	2	0	3	0	1	0												
Total				3	18	0	1	1	17	1	0	3	0	3	0	2	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Sha[illegible] cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #4754 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Pest (8081A)		PCBs (8082)		Metals (SW846)		Dioxins (8290)		TPHE (8015)		PAH (8310)		Explosives (8330)		Cl, NO_2, NO_3, SO_4 (300.0A)		TOC (415.1)											
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	G0D070177	5-5-00	5-17-00	5	11	2	0	2	0	4	0	2	0	2	3	2	0	2	4	4	0	2	0										
Total				5	11	2	0	2	0	4	0	2	0	2	3	2	0	2	4	4	0	2	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4754ST.EAR

Attachment 1

LDC #4761 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		TPHE (8015)		PAH (8310)		Explosives (8330)																							
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	G0D080146	5-8-00	5-22-00	2	11	1	0	1	0	1	16																						
Total				2	11	1	0	1	0	1	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sha[illegible] cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #4769 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Chloro-picrin (8270C)		Pest (8081)		Metals (SW846)		PAHs (8310)		TPH-E (8015)		Explosives (8330)		Dioxins (8290)		TOC (415.1)													
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	G0C310244	5-10-00	5-24-00	4	0	0	0	0	0	4	0	1	0	6	6	3	4	0	2	0	0												
A	G0C310244	5-10-00	5-24-00	1	16	1	0	4	0	1	0	1	0	2	31	2	14	0	1	1	0												
Total				5	16	1	0	4	0	5	0	2	0	8	37	5	18	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4769ST.EAR

Attachment 1

LDC #4778 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Chloro-picrin (8270C)		Pest (8081)		Metals (SW846)		TPHE (8015)		Explosives (8330)		NO_3, NO_2 (300.0A)		Hydrazines (8315)															
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	602517/602514	5-11-00	5-25-00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	0														
B	G0D060121	5-11-00	5-25-00	1	9	0	0	0	0	0	0	0	0	0	14	0	8	-	-														
B	G0D060121	5-11-00	5-25-00	0	0	0	9	0	9	0	8	0	6	0	0	0	0	-	-														
Total				1	9	0	9	0	9	0	8	0	6	0	14	0	8	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sh[illegible] cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #4783 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	Perchlorate (DOHS)																													
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	L68699	5-12-00	5-26-00	11	0																												
Total				11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4783ST.EAR

Attachment 1

LDC #4812 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Pest (8081A)		PCBs (8082)		Diss. Metals (SW846)		TPH-E (8015)		PAHs (8310)		Explosives (8330)		Cl, NO_2-N, NO_3-N, SO_4 (300.0)		TDS (160.1)		TSS (160.2)		TOC (415.1)									
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	G0D130323	5-23-00	6-6-00	7	0	4	0	1	0	6	0	4	0	8	0	4	0	6	0	4	0	4	0	4	0								
Total				7	0	4	0	1	0	6	0	4	0	8	0	4	0	6	0	4	0	4	0	4	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #4827 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Chloropicrin (8270)		Pest (8081A)		PCBs (8082)		Metals (SW846)		Diss. Metals (SW846)		TPH-E (8015)		PAHs (8310)		Explosives (8330)		Cl, NO_2-N, NO_3-N, SO_4 (300.0)		TDS (160.1)		TSS (160.2)		TOC (415.1)					
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	G0D120283	5-26-00	6-9-00	2	0	-	-	4	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
A	G0D120283	5-26-00	6-9-00	4	0	-	-	0	0	-	-	4	0	4	0	8	0	8	0	4	0	6	0	4	0	4	0	6	0				
B	G0D200159	5-26-00	6-9-00	4	0	-	-	4	0	1	0	-	-	7	0	2	0	2	0	2	0	2	0	2	0	2	0	2	0				
C	G0D200312	5-26-00	6-9-00	4	0	-	-	1	0	1	0	-	-	3	0	1	0	1	0	3	0	6	0	2	0	2	0	2	0				
D	GOD210210	5-26-00	6-9-00	-	-	-	-	-	-	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
E	G0D210225	5-26-00	6-9-00	-	-	-	-	-	-	0	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
F	G0D250199	5-26-00	6-9-00	2	0	-	-	1	0	-	-	-	-	3	0	1	0	1	0	1	0	3	0	3	0	2	0	3	0				
G	G0E040279	5-26-00	6-9-00	-	-	5	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Total				16	0	5	0	10	0	2	14	4	0	17	0	12	0	12	0	10	0	17	0	11	0	10	0	13	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4827ST.EAR

Attachment 1

LDC #4837 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Pest (8081)		PCBs (8082)		Metals (SW846)		TPHE (8015)		Explosives (8330)		PAH (8310)		Cl, NO_3, NO_2, SO4 (300.0A)		TSS (160.2)		TDS (160.1)		TOC (415.1)									
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	G0D180262	5-30-00	6-13-00	4	0	5	0	1	0	3	0	4	0	4	0	5	0	4	0	3	0	4	0	4	0								
Total				4	0	5	0	1	0	3	0	4	0	4	0	5	0	4	0	3	0	4	0	4	0	0	0	0	0	0	0	0	0

Sh[illegible]ells indicate Level IV validation (all other cells are Level III validation)

4837[illegible]AR

Attachment 1

LDC #4855 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		TPHE (8015)																											
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	G0D140298	6-2-00	6-16-00	10	0	18	0																										
Total				10	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4855ST.EAR

Attachment 1

LDC #4858 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Pest (8081)		Metals (SW846)		TPHE (8015)		Explosives (8330)		PAH (8310)		Cl, NO_3, NO_2, SO_4 (300.0A)		TSS (160.2)		TDS (160.1)		TOC (415.1)											
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	G0D110255	6-2-00	6-16-00	5	0	4	0	5	0	6	0	4	0	6	0	4	0	3	0	4	0	4	0										
Total				5	0	4	0	5	0	6	0	4	0	6	0	4	0	3	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0

Sh[illegible]ells indicate Level IV validation (all other cells are Level III validation)

4858[illegible]EAR

Attachment 1

LDC #4864 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		SVOA (8270C)		Pest (8081A)		PCBs (8082)		Diss. Metals (SW846)		TPH-E (8015)		PAHs (8310)		Explosives (8330)		Cl, NO_2-N, NO_3-N, SO_4 (300.0)		TDS (160.1)		TSS (160.2)		TOC (415.1)							
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	G0D220129	6-5-00	6-19-00	4	0	0	4	4	0	2	0	5	0	3	6	4	0	3	0	3	0	3	0	3	0	3	0						
B	G0D220130	6-5-00	6-19-00	-	-	0	6	-	-	0	10	-	-	1	14	1	0	-	-	-	-	-	-	-	-	-	-						
Total				4	0	0	10	4	0	2	10	5	0	4	20	5	0	3	0	3	0	3	0	3	0	3	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4864ST.EAR

Attachment 1

LDC #4868 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Metals (SW846)		TPHE (8015)		Explosives (8330)		PAH (8310)		Dioxins (8290)		TOC (415.1)																	
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	G0C300256	6-6-00	6-20-00	6	4	6	0	3	23	10	24	2	0	0	4	5	0																
Total				6	4	6	0	3	23	10	24	2	0	0	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #4886 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	Explosives (8330)																													
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	A050623	6-8-00	6-22-00	0	22																												
A	A050623	6-8-00	6-22-00	0	2																												

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4886ST.EAR

LDC #4886 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	Explosives (8330)																															
Total				0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

R5

LDC #4934 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Chloro-picrin (8270C)		Dioxins (8290)		Explo-sives (8330)		NO_3, NO_2 (300.0A)		CLO_4 (DHS-IC-Rev0)		PAH (8310)		*Pest (8081)		PCB (8081)		Metals (SW846)		*Pentachloro-phenol (8270C)		*TPHE (8015)					
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
A	G0E310175	6-21-00 thru 7-3-00	7-7-00	3	14	1	13	1	2	1	16	1	16	1	0	2	26	2	13	1	13	1	13	1	15	2	23				

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4934ST.EAR

R5

LDC #4934 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Chloro-picrin (8270C)		Dioxins (8290)		Explo-sives (8330)		NO_3, NO_2 (300.0A)		CLO_4 (DHS-IC-Rev0)		PAH (8310)		*Pest (8081)		PCB (8081)		Metals (SW846)		*Pentachloro-phenol (8270C)		*TPHE (8015)					
Total				3	14	1	13	1	2	1	16	1	16	1	0	2	26	2	13	1	13	1	13	1	15	2	23	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #4951 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	Explosives (8330)																													
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	A060212	6-26-00	7-11-00	0	26																												
A	A060212	6-26-00	7-11-00	0	3																												

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4951ST.EAR

LDC #4951 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	Explosives (8330)																															
Total				0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #4958 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	Perchlorate																													
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	L70099	6-26-00	7-11-00	0	26																												
B	L70102	6-26-00	7-11-00	1	0																												

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4958ST.EAR

LDC #4958 (Earth Tech / Benicia Tourtelot Cleanup)

LDC	SDG#	DATE REC'D	DATE DUE	Perchlorate																													
Total				1	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

R4

LDC #4962 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Chloro-picrin (8270)		Pentachloro-phenol (8270C)		PAH (8310)		Dioxins (8290)		PCB (8082)		Metals (SW846)		NO_2, NO_3 (300.0A)		Pest (8081)		TPHE (8015)		CLO4 (DHS-IC-Rev0)		Explo-sives (8330)							
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	G0F010289	6-26-00	7-6-00	4	13	3	13	3	13	8	16	3	4	3	26	5	15	3	15	6	23	7	29	-	-	4	16						
B	G0F010290	6-27-00	7-6-00	2	3	1	8	1	8	1	7	1	0	1	7	1	7	1	8	2	7	2	15	1	0	1	7						
B	G0F010290	6-27-00	7-6-00	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	0	0	5						

Shaded cells indicate Level IV validation (all other cells are Level III validation)

4962ST.EAR

R4

LDC #4962 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Chloro-picrin (8270)		Pentachloro-phenol (8270C)		PAH (8310)		Dioxins (8290)		PCB (8082)		Metals (SW846)		NO_2, NO_3 (300.0A)		Pest (8081)		TPHE (8015)		CLO4 (DHS-IC-Rev0)		Explo-sives (8330)							
Total				6	21	4	26	4	26	9	28	4	9	4	38	6	27	4	28	8	35	9	49	1	0	5	28	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #5037 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)																											
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
A	G0F090283	7-13-00	7-14-00	1	4																										

Shaded cells indicate Level IV validation (all other cells are Level III validation)

5037ST.EAR

LDC #5037 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)																											
Total				1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #5260 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	Methyl Mercury																											
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
A	MHG1-000815-1	8-29-00	9-6-00	1	26																										
Total				1	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

5260ST.EAR

Attachment 1

LDC #5341 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Pest. (8081)		Metals (SW846)		Diss. Metals (SW846)		TPH-E (8015)		PAHs (8310)		Explosives (8330)															
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
A	G0H040281	9-14-00	9-21-00	2	0	2	0	3	0	3	0	2	0	2	0	1	0														
B	G0H050132	9-14-00	9-21-00	9	0	12	0	8	0	9	0	12	0	6	0	6	0														
C	G0H100308	9-14-00	9-21-00	6	0	3	0	5	0	5	0	6	0	6	0	3	0														
Total				17	0	17	0	16	0	17	0	20	0	14	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #5355 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Pest. (8081)		Metals (SW846)		Diss. Metals (SW846)		TPH-E (8015)		PAHs (8310)		Explosives (8330)															
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
A	G0H160300	9-20-00	9-27-00	5	0	3	0	4	0	4	0	6	0	3	0	3	0														
Total				5	0	3	0	4	0	4	0	6	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

5355ST.EAR

Attachment 1

R1

LDC #5369 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Pest. (8081)		Metals (SW846)		Diss. Metals (SW846)		TPH-E (8015)		PAHs (8310)		Explosives (8330)													
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
A	G0H120149	9-25-00	*10-2-00	6	0	1	0	1	0	1	0	2	0	2	0	1	0												
A	G0H120149	9-25-00	*10-2-00	5	0	4	0	7	0	7	0	8	0	8	0	4	0												
Total				11	0	5	0	8	0	8	0	10	0	10	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

Attachment 1

LDC #5383 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		Pest. (8081)		Metals (SW846)		Diss. Metals (SW846)		Mercury (7471A)		TPH-E (8015)		PAHs (8310)		Explosives (8330)													
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
A	G0H080263	9-27-00	10-2-00	6	0	3	0	4	0	4	0	-	-	6	0	3	0	3	0												
B	G0H120169	9-27-00	10-2-00	-	-	-	-	-	-	-	-	1	24	-	-	-	-	-	-												
Total				6	0	3	0	4	0	4	0	1	24	6	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

5383ST.EAR

Attachment 1

LDC #5392 (Earth Tech / Benicia Tourtelot)

LDC	SDG#	DATE REC'D	DATE DUE	Explosives (8330)																											
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
A	G0I020132	9-28-00	10-3-00	0	20																										
Total				0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

ATTACHMENT 2

PERFORMANCE EVALUATION RESULTS

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Onsite Environmental Laboratories	Field Sample ID			PE-TCUP-DSL				PE-TCUP-PAH				PE-TCUP-XP			
	Sample Date			11/29/99				11/29/99				11/29/99			
	Lab Sample ID			3F014-04				3F014-02				3F014-03			
	Sample Type			Performance Evaluation				Performance Evaluation				Performance Evaluation			
Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery	Reported Value	Qualifier	True Value	% Recovery	Reported Value	Qualifier	True Value	% Recovery
TEPH as Diesel (C10 - C28)	SW8015B	mg/kg	1	742		1320	56								
Acenaphthene	SW8310	mg/kg	0.4					1.7		2.45	69				
Acenapthylene	SW8310	mg/kg	0.4					0.46	U	ND					
Anthracene	SW8310	mg/kg	0.14					0.16	U	ND					
Benzo(a)anthracene	SW8310	mg/kg	0.02					0.023	U	ND					
Benzo(a)pyrene	SW8310	mg/kg	0.02					0.023	U	ND					
Benzo(b)fluoranthene	SW8310	mg/kg	0.03					0.25		0.28	89				
Benzo(g,h,i)perylene	SW8310	mg/kg	0.02					0.023	U	ND					
Benzo(k)fluoranthene	SW8310	mg/kg	0.02					0.023	U	ND					
Chrysene	SW8310	mg/kg	0.04					0.2		0.19	95				
Dibenz(a,h)anthracene	SW8310	mg/kg	0.04					0.046	U	ND					
Fluorene	SW8310	mg/kg	0.04					0.69		0.93	74				
Fluoranthene	SW8310	mg/kg	0.05					0.057	U	ND					
Indeno(1,2,3-c,d)pyrene	SW8310	mg/kg	0.04					0.046	U	ND					
Naphthalene	SW8310	mg/kg	0.4					0.84		1.3	65				
Phenanthrene	SW8310	mg/kg	0.12					1.6		1.8	89				
Pyrene	SW8310	mg/kg	0.06					0.42		0.4	105				
HMX	SW8330	mg/kg	0.4									0.42	U	ND	
RDX	SW8330	mg/kg	0.4									8.1		8.55	95
1,3,5-Trinitrobenzene	SW8330	mg/kg	0.4									0.42	U	ND	
1,3-Dinitrobezene	SW8330	mg/kg	0.4									0.42	U	ND	
Nitrobezene	SW8330	mg/kg	0.4									3.9		5.39	72
Tetryl	SW8330	mg/kg	0.4									0.42	U	ND	
Amino-Dinitrotoluenes	SW8330	mg/kg	0.4									0.84	U	ND	
2,4,6-Trinitrotoluene	SW8330	mg/kg	0.4									8.3		8.34	100
2,6-Dinitrotoluene	SW8330	mg/kg	0.4									3.2		3.6	89
2,4-Dinitrotoluene	SW8330	mg/kg	0.4									4.2		4.13	102
2-Nitrotoluene	SW8330	mg/kg	0.4									0.42	U	ND	
4-Nitrotoluene	SW8330	mg/kg	0.4									0.42	U	ND	
3-Nitrotoluene	SW8330	mg/kg	0.4									0.42	U	ND	

Notes: All Results Are Within Project Accuracy Goals (see Table 3.2.3 of QAPP) or Vendor Limits
Project Accuracy Goal for Methods SW8310 and SW8330 = 65-135%R for most compounds; 60-117%R for SW8015B/TEPH (Vendor Limits: 640-1680 mg/kg)
ND = Not Specified as Present in PE Sample at Detection Limit
U = Not Detected at the Reporting Limit Specified
Control Limits: 60-117 % Recovery; Vendor Limits: 640-1680 mg/kg

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Benicia TCUP December 1999	**Field Sample ID**	**PE-TCUP-VOC**
Performance Evaluation	**Sample Date**	**11/29/99 (Holding time not applicable as compounds in sealed ampule)**
Samples for Onsite	**Analysis Date**	**12/09/99**
Environmental Laboratories	**Lab Sample ID**	**3F014-01**
	Sample Type	**Performance Evaluation**

Parameter	Method	Units	RL		Qualifier	True Value	% Recovery/Control Limits
1,1,1,2-Tetrachloroethane	SW8260B	MG/KG	0.005	0.005	U	ND	
1,1,1-Trichloroethane	SW8260B	MG/KG	0.005	0.0286		0.0244	117 %R (65-135%R Control Limits: OK)
1,1,2,2-Tetrachloroethane	SW8260B	MG/KG	0.005	0.0846		0.0599	141 %R (65-135%R Control Limits/0.0424-0.0791 mg/kg Vendor Limits: High Bias*)
1,1,2-Trichloroethane	SW8260B	MG/KG	0.005	0.005	U	ND	
1,1-Dichloroethane	SW8260B	MG/KG	0.005	0.0881		0.0696	127 %R (65-135%R Control Limits: OK)
1,1-Dichloroethene	SW8260B	MG/KG	0.005	0.005	U	ND	
1,1-Dichloropropene	SW8260B	MG/KG	0.005	0.005	U	ND	
1,2,3-Trichlorobenzene	SW8260B	MG/KG	0.005	0.005	U	ND	
1,2,3-Trichloropropane	SW8260B	MG/KG	0.005	0.005	U	ND	
1,2,4-Trichlorobenzene	SW8260B	MG/KG	0.005	0.005	U	ND	
1,2,4-Trimethylbenzene	SW8260B	MG/KG	0.005	0.005	U	ND	
1,2-Dibromoethane	SW8260B	MG/KG	0.005	0.005	U	ND	
1,2,-Dibromo-3-chloropropane	SW8260B	MG/KG	0.01	0.010	U	ND	
1,2-Dichlorobenzene	SW8260B	MG/KG	0.005	0.142		0.101	141 %R (65-135%R Control Limits/0.0785-0.128 mg/kg Vendor Limits: High Bias*)
1,2-Dichloroethane	SW8260B	MG/KG	0.005	0.153		0.101	151 %R (65-135%R Control Limits/0.0790-0.128 mg/kg Vendor Limits: High Bias*)
1,2-Dichloropropane	SW8260B	MG/KG	0.005	0.005	U	ND	
1,3,5-Trimethylbenzene	SW8260B	MG/KG	0.005	0.005	U	ND	
1,3-Dichlorobenzene	SW8260B	MG/KG	0.005	0.0333		0.0284	117 %R (65-135%R Control Limits: OK)
1,3-Dichloropropane	SW8260B	MG/KG	0.005	0.005	U	ND	
1,4-Dichlorobenzene	SW8260B	MG/KG	0.005	0.0555		0.0434	128 %R (65-135%R Control Limits: OK)
2,2-Dichloropropane	SW8260B	MG/KG	0.005	0.005	U	ND	
2-Butanone	SW8260B	MG/KG	0.02	0.020	U	ND	
2-Chloroethyl vinyl ether	SW8260B	MG/KG	0.02	0.005	U	ND	
2-Chlorotoluene	SW8260B	MG/KG	0.005	0.005	U	ND	
2-Hexanone	SW8260B	MG/KG	0.02	0.020	U	ND	
4-Chlorotoluene	SW8260B	MG/KG	0.005	0.005	U	ND	
4-Methyl-2-pentanone	SW8260B	MG/KG	0.02	0.0297		0.0234	127 %R (65-135%R Control Limits: OK)
Acetone	SW8260B	MG/KG	0.02	0.020	UJ	ND	
Benzene	SW8260B	MG/KG	0.005	0.0515		0.0392	131 %R (65-135%R Control Limits: OK)
Bromobenzene	SW8260B	MG/KG	0.005	0.005	U	ND	
Bromochloromethane	SW8260B	MG/KG	0.005	0.005	U	ND	
Bromodichloromethane	SW8260B	MG/KG	0.005	0.0645		0.0455	142 %R (65-135%R Control Limits/0.0362-0.0568 mg/kg Vendor Limits: High Bias*)
Bromoform	SW8260B	MG/KG	0.005	0.188		0.126	149 %R (65-135%R Control Limits/0.0974-0.167 mg/kg Vendor Limits: High Bias*)
Bromomethane	SW8260B	MG/KG	0.01	0.010	U	ND	
Carbon disulfide	SW8260B	MG/KG	0.02	0.005	U	ND	
Carbon tetrachloride	SW8260B	MG/KG	0.005	0.0976		0.0800	122 %R (65-135%R Control Limits: OK)
Chlorobenzene	SW8260B	MG/KG	0.005	0.119		0.0899	132 %R (65-135%R Control Limits: OK)
Chloroethane	SW8260B	MG/KG	0.01	0.010	U	ND	
Chloroform	SW8260B	MG/KG	0.005	0.0605		0.0466	130 %R (65-135%R Control Limits: OK)
Chloromethane	SW8260B	MG/KG	0.01	0.010	U	ND	

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Benicia TCUP December 1999	**Field Sample ID**	**PE-TCUP-VOC**
Performance Evaluation	**Sample Date**	**11/29/99 (Holding time not applicable as compounds in sealed ampule)**
Samples for Onsite	**Analysis Date**	**12/09/99**
Environmental Laboratories	**Lab Sample ID**	**3F014-01**
	Sample Type	**Performance Evaluation**

Parameter	Method	Units	RL		Qualifier	True Value	% Recovery/Control Limits
cis-1,2-Dichloroethene	SW8260B	MG/KG	0.005	0.005	U	ND	
cis-1,3-Dichloropropene	SW8260B	MG/KG	0.005	0.005	U	ND	
Dibromochloromethane	SW8260B	MG/KG	0.005	0.0759		0.0580	131 %R (65-135%R Control Limits: OK)
Dibromomethane	SW8260B	MG/KG	0.005	0.005	U	ND	
Dichlorodifluoromethane	SW8260B	MG/KG	0.01	0.010	U	ND	
Ethylbenzene	SW8260B	MG/KG	0.005	0.0714		0.0612	117 %R (65-135%R Control Limits: OK)
Freon 113	SW8260B	MG/KG	0.005	0.005	U	ND	
Hexachlorobutadiene	SW8260B	MG/KG	0.005	0.005	U	ND	
Isopropyl benzene	SW8260B	MG/KG	0.005	0.005	U	ND	
Methylene chloride	SW8260B	MG/KG	0.02	0.0458	J-	0.0394	116 %R (65-135%R Control Limits: OK)
Naphthalene	SW8260B	MG/KG	0.01	0.010	U	ND	
n-Butylbenzene	SW8260B	MG/KG	0.005	0.005	U	ND	
n-Propylbenzene	SW8260B	MG/KG	0.005	0.005	U	ND	
sec-Butylbenzene	SW8260B	MG/KG	0.005	0.005	U	ND	
Styrene	SW8260B	MG/KG	0.005	0.005	U	ND	
t-Butylbenzene	SW8260B	MG/KG	0.005	0.005	U	ND	
Tert-butyl methyl ether	SW8260B	MG/KG	0.005	0.005	U	ND	
Tetrachloroethene (PCE)	SW8260B	MG/KG	0.005	0.0634		0.0569	111 %R (65-135%R Control Limits: OK)
Toluene	SW8260B	MG/KG	0.005	0.239		0.168	142 %R (65-135%R Control Limits/0.135-0.206 mg/kg Vendor Limits: High Bias*)
trans-1,2-Dichloroethene	SW8260B	MG/KG	0.005	0.005	U	ND	
trans-1,3-Dichloropropene	SW8260B	MG/KG	0.005	0.005	U	ND	
Trichloroethene (TCE)	SW8260B	MG/KG	0.005	0.147		0.110	134 %R (65-135%R Control Limits: OK)
Trichlorofluoromethane	SW8260B	MG/KG	0.01	0.010	U	ND	
Vinyl acetate	SW8260B	MG/KG	0.01	0.010	UJ-	ND	
Vinyl chloride	SW8260B	MG/KG	0.02	0.010	U	ND	
Xylene (m,p)	SW8260B	MG/KG	0.01	0.104		0.0882	118 %R (65-135%R Control Limits: OK)
Xylene (o)	SW8260B	MG/KG	0.005	0.0295		0.0279	106 %R (65-135%R Control Limits: OK)

Notes: All Results Are Within 65-135%R Project Accuracy Goals (see Table 3.2.3 of QAPP) or are Acceptable with No Corrective Action*

* All Compounds with High Bias in PE Sample Results Were Non-Detected in Field Samples, Therefore PE Results Acceptable and No Corrective Action Required.

ND = Not Specified as Present in PE Sample at Detection Limit U = Not Detected at the Reporting Limit Specified J = Qualified as Estimated

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation	Field Sample ID	ED-0702W2
Samples for Quanterra	Sample Date	1/08/99
Environmental Services	Lab Sample ID	3035560002SA
(QES/STL WS)		

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
TOTAL DISSOLVED SOLIDS (TDS)	160.1	mg/L	10	529		554	95
TOTAL SUSPENDED SOLIDS (TSS)	160.2	mg/L	10	NR			
CHLORIDE	E300	mg/L	10	78.4		81.9	96
NITRATE-N	E300	mg/L	0.05	5.3		5.82	91
NITRITE-N	E300	mg/L	0.05	ND (0.11 U)		NA	NA
SULFATE	E300	mg/L	10	38.6		39.6	97
TOTAL ORGANIC CARBON (TOC)	E415.1/SW9060	mg/L	2	31		31.2	99

Notes: All Results Are Within 80-120%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
NA = Not applicable; Not specified as present in PE sample
ND = Not Specified as Present in PE Sample at Detection Limit
NR = Not requested for analysis/Not run
U = Not Detected at the Reporting Limit Specified

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Quanterra Environmental Services (QES/STL WS)	Field Sample ID			PE-TCUP-TOC				PE-TCUP-G			
	Sample Date			11/29/99				11/29/99			
	Lab Sample ID			G9L020289-001				G9L020289-001			
Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery	Reported Value	Qualifier	True Value	% Recovery
TOTAL DISSOLVED SOLIDS (TDS)	160.1	mg/L	10	NR				247		310	80
TOTAL SUSPENDED SOLIDS (TSS)	160.2	mg/L	10	NR				NR			
CHLORIDE	E300	mg/L	1	NR				7.8		8	98
NITRATE-N	E300	mg/L	0.1	NR				5.2	J-	5.2	100
NITRITE-N	E300	mg/L	0.05	NR				0.007	UJ	NA	NA
SULFATE	E300	mg/L	1	NR				14.2		14.8	96
TOTAL ORGANIC CARBON (TOC)	E415.1/SW9060	mg/L	100	4470	J-	4920	91	NR			

Notes: All Results Are Within 80-120%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
NA = Not applicable; Not specified as present in PE sample
NR = Not requested for analysis/Not run
U = Not Detected at the Reporting Limit Specified
J = Qualified as Estimated

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Quanterra Environmental Services (QES/STL WS)	Field Sample ID	EV-1
	Sample Date	3/31/00
	Lab Sample ID	G0D010147-018

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
TOTAL DISSOLVED SOLIDS (TDS)	160.1	mg/L	10	679		683	99
TOTAL SUSPENDED SOLIDS (TSS)	160.2	mg/L	10	67.0		68.2	98
CHLORIDE	E300	mg/L	20.0	299		NC	
NITRATE-N	E300	mg/L	0.1	0.0050	U	NC	
NITRITE-N	E300	mg/L	1.0	1.0		NC	
SULFATE	E300	mg/L	1	0.10	U	NC	
TOTAL ORGANIC CARBON (TOC)	E415.1/SW9060	mg/L	1	0.45	J	NC	

Notes: All Results Are Within 80-120%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
NC = Not certified for this analyte
U = Not Detected at the Reporting Limit Specified

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation	**Field Sample ID**	**ED-0702W2**
Samples for Quanterra	**Sample Date**	**1/08/99**
Environmental Services	**Lab Sample ID**	**303556002SA**
(QES/STL WS)	**Sample Type**	**FD9**

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
ALUMINUM	SW6010B	mg/L	0.1	0.50		0.500	100.0
ANTIMONY	SW6010B	mg/L	0.060	0.061		0.078	78.4
ARSENIC	SW6010B	mg/L	0.0	0.12		0.133	90.2
BARIUM	SW6010B	mg/L	0.010	0.77		0.778	99.0
BERYLLIUM	SW6010B	mg/L	0.0020	0.12		0.122	98.4
CADMIUM	SW6010B	mg/L	0.0050	0.056		0.0622	90.0
CALCIUM	SW6010B	mg/L	0.50	ND		NA	NA
CHROMIUM, TOTAL	SW6010B	mg/L	0.010	0.60		0.611	98.2
COBALT	SW6010B	mg/L	0.010	0.33		0.322	102.5
COPPER	SW6010B	mg/L	0.020	0.13		0.133	97.7
IRON	SW6010B	mg/L	0.10	0.72		0.733	98.2
LEAD	SW6010B	mg/L	0.0030	0.20		0.211	94.8
MAGNESIUM	SW6010B	mg/L	0.50	ND		NA	NA
MANGANESE	SW6010B	mg/L	0.010	0.63		0.644	97.8
MERCURY	SW7470A	mg/L	0.00050	NR		0.00467	
MOLYBDENUM	SW6010B	mg/L	0.020	0.34		0.3510	96.9
NICKEL	SW6010B	mg/L	0.040	0.24		0.249	96.4
PHOSPHORUS	SW6010B	mg/L	NR	NR		NA	NA
POTASSIUM	SW6010B	mg/L	5.0	ND		NA	NA
SELENIUM	SW6010B	mg/L	0.0050	0.058		0.0667	87.0
SILVER	SW6010B	mg/L	0.010	0.084		0.0889	94.5
SODIUM	SW6010B	mg/L	5.0	0.077	J	NA	NA
THALLIUM	SW6010B	mg/L	0.1000	0.049		0.0544	90.1
VANADIUM	SW6010B	mg/L	0.010	0.35		0.356	98.3
ZINC	SW6010B	mg/L	0.020	0.56		0.606	92.4

Notes: All Results Are Within 80-120%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
NA = Not applicable; Not specified as present in PE sample
J = Qualified as Estimated
ND = Not Specified as Present in PE Sample at Detection Limit
NR = Not requested for analysis/Not run

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Quanterra Environmental Services (QES/STL WS)	Field Sample ID	PE-TCUP-M
	Sample Date	11/29/99
	Lab Sample ID	G9L020289-003
	Sample Type	Performance Evaluation

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
ALUMINUM	SW6010B	mg/kg	40	4400		4710	93
ANTIMONY	SW6010B	mg/kg	3.0	32.7	J	34.5	95
ARSENIC	SW6010B	mg/kg	0.8	72.2	J	75.2	96
BARIUM	SW6010B	mg/kg	1.0	153		146	105
BERYLLIUM	SW6010B	mg/kg	0.4	54.5		52.2	104
CADMIUM	SW6010B	mg/kg	1.0	191		181	106
CALCIUM	SW6010B	mg/kg	1000	1810		1790	101
CHROMIUM, TOTAL	SW6010B	mg/kg	2.0	70.3		66.1	106
COBALT	SW6010B	mg/kg	2.0	76.5		72.6	105
COPPER	SW6010B	mg/kg	3.0	90.9		86.1	106
IRON	SW6010B	mg/kg	15	9910		9390	106
LEAD	SW6010B	mg/kg	0.6	52.3	J	56.8	92
MAGNESIUM	SW6010B	mg/kg	100	1160		1170	99
MANGANESE	SW6010B	mg/kg	1.0	165		157	105
MERCURY	SW7471A	mg/kg	0.1	0.69		0.71	97
MOLYBDENUM	SW6010B	mg/kg	4.0	73.3		68.3	107
NICKEL	SW6010B	mg/kg	4.0	110		101	109
PHOSPHORUS	SW6010B	mg/kg	30	370		NA	NA
POTASSIUM	SW6010B	mg/kg	500	1320		1420	93
SELENIUM	SW6010B	mg/kg	2.0	54.7	J	62.5	88
SILVER	SW6010B	mg/kg	2.0	61.5		71.7	86
SODIUM	SW6010B	mg/kg	200	295		333	89
THALLIUM	SW6010B	mg/kg	2.0	62	J	61.9	100
VANADIUM	SW6010B	mg/kg	5.0	116		111	105
ZINC	SW6010B	mg/kg	4.0	79.9		79.6	100

Notes: All Results Are Within 80-120%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
NA = Not applicable; Not specified as present in PE sample
J = Qualified as Estimated
ND = Not Specified as Present in PE Sample at Detection Limit

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation	**Field Sample ID**	**WV-S1**
Samples for Quanterra	**Sample Date**	**3/30/00**
Environmental Services	**Lab Sample ID**	**G0C310244-018**
(QES/STL WS)	**Sample Type**	**Performance Evaluation**

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
ALUMINUM	SW6010B	mg/L	0.20	2.8		2.84	99
ANTIMONY	SW6010B	mg/L	0.060	0.14		0.149	94
ARSENIC	SW6010B	mg/L	0.010	0.15		0.175	86
BARIUM	SW6010B	mg/L	0.010	0.76		0.768	99
BERYLLIUM	SW6010B	mg/L	0.0020	0.12		0.117	103
CADMIUM	SW6010B	mg/L	0.0050	0.38		0.395	96
CALCIUM	SW6010B	mg/L	1.0	0.039	J	NA	NA
CHROMIUM, TOTAL	SW6010B	mg/L	0.010	1.0		0.957	104
COBALT	SW6010B	mg/L	0.020	0.094		0.0849	111
COPPER	SW6010B	mg/L	0.025	0.069		0.0682	101
IRON	SW6010B	mg/L	0.20	1.3		1.24	105
LEAD	SW6010B	mg/L	0.0030	0.70		0.776	90
MAGNESIUM	SW6010B	mg/L	0.50	0.025	U	NA	NA
MANGANESE	SW6010B	mg/L	0.0050	1.9		1.81	105
MERCURY	SW7471A	mg/L	0.00020	0.0074		0.00783	95
MOLYBDENUM	SW6010B	mg/L	0.020	0.20		0.214	93
NICKEL	SW6010B	mg/L	0.020	0.14		0.148	95
PHOSPHORUS	SW6010B	mg/L	0.30	0.12	U	NA	NA
POTASSIUM	SW6010B	mg/L	1.0	0.60	U	NA	NA
SELENIUM	SW6010B	mg/L	0.0050	0.49		0.572	86
SILVER	SW6010B	mg/L	0.010	0.22		0.223	99
SODIUM	SW6010B	mg/L	1.0	0.11	J	NA	NA
THALLIUM	SW6010B	mg/L	0.010	0.53		0.613	86
VANADIUM	SW6010B	mg/L	0.015	1.6		1.53	105
ZINC	SW6010B	mg/L	0.020	0.71		0.708	100

Notes: All Results Are Within 80-120%R Project Accuracy Goals (see Table 3.2.3 of QAPP)

NA = Not applicable; Not specified as present in PE sample

U = Not Detected at the Reporting Limit Specified

ND = Not Specified as Present in PE Sample at Detection Limit

J = Qualified as Estimated

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Quanterra Environmental Services (QES/STL WS)	Field Sample ID			PE-MO				PE-MO(RE)			
	Sample Date			3/31/00				3/31/00			
	Lab Sample ID			G0D010147-017				G0D010147-017			
	Sample Type			Performance Evaluation				Performance Evaluation			
Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery	Reported Value	Qualifier	True Value	% Recovery
diesel fuel #2	M8015DB	mg/kg	50	50	U	ND		50	U	ND	
motor oils	M8015DB	mg/kg	250	1400		1300	108	1100		1300	85
unknown extract. hydrocarbon	M8015DB	mg/kg	50	50	U	ND		50	U	ND	

Notes: All Results Are Within 60-117%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
ND = Not Specified as Present in PE Sample at Detection Limit
U = Not Detected at the Reporting Limit Specified

1999-2000

Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation	Field Sample ID	WV-S2
Samples for Quanterra	Sample Date	3/30/00
Environmental Services	Lab Sample ID	G0C310244-019
(QES/STL WS)	Sample Type	Performance Evaluation

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
diesel fuel #2	M8015DB	ug/L	200	430		631	68
motor oils	M8015DB	ug/L	1000	1000	U	ND	
unknown extract. hydrocarbon	M8015DB	ug/L	200	200	U	ND	

Notes: All Results Are Within 60-117%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
ND = Not Specified as Present in PE Sample at Detection Limit
U = Not Detected at the Reporting Limit Specified

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Quanterra Environmental Services (QES/STL WS)	Field Sample ID	WV-S1
	Sample Date	3/30/00
	Lab Sample ID	G0C310244-018
	Sample Type	Performance Evaluation

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
aldrin	SW8081A	ug/L	1.0	2.4		2.48	97
alpha BHC	SW8081A	ug/L	1.0	4.4		4.11	107
alpha endosulfan	SW8081A	ug/L	1.0	1.0	U	ND	
alpha-chlordane	SW8081A	ug/L	1.0	7.2		7.39	97
beta BHC	SW8081A	ug/L	1.0	1.8		1.68	107
beta endosulfan	SW8081A	ug/L	2.0	2.0	U	ND	
delta BHC	SW8081A	ug/L	1.0	5.8		5.74	101
dieldrin	SW8081A	ug/L	2.0	2.1		1.7	124
endosulfan sulfate	SW8081A	ug/L	2.0	2.0	U	ND	
endrin	SW8081A	ug/L	2.0	9.8		8.84	111
endrin aldehyde	SW8081A	ug/L	2.0	0.55	J	ND	
endrin ketone	SW8081A	ug/L	2.0	0.56	J	ND	
gamma BHC (lindane)	SW8081A	ug/L	1.0	0.069	J	ND	
gamma-chlordane	SW8081A	ug/L	1.0	1.0	U	ND	
heptachlor	SW8081A	ug/L	1.0	0.84	J	0.83	101
heptachlor epoxide	SW8081A	ug/L	1.0	0.75	J	0.86	87
methoxychlor	SW8081A	ug/L	40	40	U	ND	
p,p'-DDD	SW8081A	ug/L	2.0	6.8		6.03	113
p,p'-DDE	SW8081A	ug/L	2.0	3.7		3.95	94
p,p'-DDT	SW8081A	ug/L	2.0	6.7		6.79	99
toxaphene	SW8081A	ug/L	40	40	U	ND	

Notes: All Results Are Within 30-140%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
ND = Not Specified as Present in PE Sample at Detection Limit
U = Not Detected at the Reporting Limit Specified
J = Qualified as Estimated

1999-2000

Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Quanterra Environmental Services (QES/STL WS)	Field Sample ID	PE-PCB
	Sample Date	3/31/00
	Lab Sample ID	G0D010147-016
	Sample Type	Performance Evaluation

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
PCB-1016 (Arochlor 1016)	SW8082	mg/kg	1.7	1.7	U	ND	
PCB-1221 (Arochlor 1221)	SW8082	mg/kg	3.4	3.4	U	ND	
PCB-1232 (Arochlor 1232)	SW8082	mg/kg	1.7	1.7	U	ND	
PCB-1242 (Arochlor 1242)	SW8082	mg/kg	1.7	1.7	U	ND	
PCB-1248 (Arochlor 1248)	SW8082	mg/kg	1.7	1.7	U	ND	
PCB-1254 (Arochlor 1254)	SW8082	mg/kg	1.7	1.7	U	ND	
PCB-1260 (Arochlor 1260)	SW8082	mg/kg	1.7	9.9		15.4	64

Notes: All Results Are Within Project Accuracy Goals* (see Table 3.2.3 of QAPP Addendum)
*Arochlor 1260. Control Limits 40-140 % Recovery. Vendor limits 6.87-18.65
ND = Not Specified as Present in PE Sample at Detection Limit
U = Not Detected at the Reporting Limit Specified

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Quanterra Environmental Services (QES/STL WS)		
Sample Date	3/27/00	
Field Sample ID	ED-199-MW01-W05	
Lab Sample ID	G0C290241001	
Sample Type	FD9	

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
1,1,1,2-tetrachloroethane	SW8260	ug/L	2	2	U	ND	
1,1,1-trichloroethane	SW8260	ug/L	2	52		52.1	100
1,1,2,2-tetrachloroethane	SW8260	ug/L	2	2	U	ND	
1,1,2-trichloroethane	SW8260	ug/L	2	62		63.5	98
1,1-dichloroethane	SW8260	ug/L	2	2	U	ND	
1,1-dichloroethene	SW8260	ug/L	2	69		73.5	94
1,1-dichloropropene	SW8260	ug/L	2	2	U	ND	
1,2,3-trichlorobenzene	SW8260	ug/L	2	2	U	ND	
1,2,3-trichloropropane	SW8260	ug/L	2	2	U	ND	
1,2,4-trichlorobenzene	SW8260	ug/L	2	2	U	ND	
1,2,4-trimethylbenzene	SW8260	ug/L	2	2	U	ND	
1,2-dibromo-3-chloropropane	SW8260	ug/L	4	4	U	ND	
1,2-dichlorobenzene	SW8260	ug/L	2	24		26.8	90
1,2-dichloroethane	SW8260	ug/L	2	56		58.2	96
1,2-dichloropropane	SW8260	ug/L	2	2	U	ND	
1,3,5-trimethylbenzene	SW8260	ug/L	2	2	U	ND	
1,3-dichlorobenzene	SW8260	ug/L	2	19		22.7	84
1,3-dichloropropane	SW8260	ug/L	2	2	U	ND	
1,4-dichlorobenzene	SW8260	ug/L	2	37		42.9	86
1,4-dioxane	SW8260	ug/L	0	100	U	ND	
2,2-dichloropropane	SW8260	ug/L	2	2	U	ND	
2-butanone	SW8260	ug/L	4	4	U	ND	
2-chloroethyl vinyl ether	SW8260	ug/L	4	4	U	ND	
2-chlorotoluene	SW8260	ug/L	2	2	U	ND	
2-hexanone	SW8260	ug/L	4	4	U	ND	
4-chlorotoluene	SW8260	ug/L	2	2	U	ND	
4-methyl-2-pentanone	SW8260	ug/L	4	57		61.7	92
acetone	SW8260	ug/L	4	3.3	J	ND	
benzene	SW8260	ug/L	2	34		35.6	96
bromobenzene	SW8260	ug/L	2	2	U	ND	
bromochloromethane	SW8260	ug/L	2	2	U	ND	
bromodichloromethane	SW8260	ug/L	2	60		55.1	109

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation	Sample Date	3/27/00
Samples for Quanterra	Field Sample ID	ED-199-MW01-W05
Environmental Services	Lab Sample ID	G0C290241001
(QES/STL WS)	Sample Type	FD9

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
bromoform	SW8260	ug/L	2	37		35.6	104
bromomethane	SW8260	ug/L	2	2	U	ND	
carbon disulfide	SW8260	ug/L	4	4	U	ND	
carbon tetrachloride	SW8260	ug/L	2	46		45.8	100
chlorobenzene	SW8260	ug/L	2	19		19.9	95
chloroethane	SW8260	ug/L	2	2	U	ND	
chloroform	SW8260	ug/L	2	43		44.2	97
chloromethane	SW8260	ug/L	2	2	U	ND	
cis-1,2-dichloroethene	SW8260	ug/L	2	0.37	J	ND	
cis-1,3-dichloropropene	SW8260	ug/L	2	2	U	ND	
dibromochloromethane	SW8260	ug/L	2	28		27.8	101
dibromomethane	SW8260	ug/L	2	2	U	ND	
dichlorodifluoromethane	SW8260	ug/L	2	2	U	ND	
ethylbenzene	SW8260	ug/L	2	71		69.7	102
ethylene dibromide	SW8260	ug/L	4	4	U	ND	
Freon 113	SW8260	ug/L	4	4	U	ND	
hexachlorobutadiene	SW8260	ug/L	2	2	U	ND	
isopropylbenzene (cumene)	SW8260	ug/L	2	2	U	ND	
methyl tert-butyl ether (MTBE)	SW8260	ug/L	4	4	U	ND	
methylene chloride	SW8260	ug/L	2	35		38.4	91
n-butylbenzene	SW8260	ug/L	2	2	U	ND	
n-propylbenzene	SW8260	ug/L	2	2	U	ND	
naphthalene	SW8260	ug/L	2	2	U	ND	
p-cymene (p-isopropyltoluene)	SW8260	ug/L	2	2	U	ND	
sec-butylbenzene	SW8260	ug/L	2	2	U	ND	
styrene	SW8260	ug/L	2	2	U	ND	
t-butylbenzene	SW8260	ug/L	2	2	U	ND	
tetrachloroethene (PCE)	SW8260	ug/L	2	56		58.8	95
toluene	SW8260	ug/L	2	21		21.1	100
trans-1,2-dichloroethene	SW8260	ug/L	2	42		45.9	92
trans-1,3-dichloropropene	SW8260	ug/L	2	2	U	ND	
trichloroethene (TCE)	SW8260	ug/L	2	45		48.3	93

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation	Sample Date	3/27/00
Samples for Quanterra	Field Sample ID	ED-199-MW01-W05
Environmental Services	Lab Sample ID	G0C290241001
(QES/STL WS)	Sample Type	FD9

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
trichlorofluoromethane	SW8260	ug/L	2	2	U	ND	
vinyl acetate	SW8260	ug/L	4	4	U	ND	
vinyl chloride	SW8260	ug/L	2	2	U	ND	
xylene (m,p)	SW8260	ug/L	2	2	U	ND	
xylene (o)	SW8260	ug/L	2	2	U	ND	

Notes: All Results Are Within 65-135%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
ND = Not Specified as Present in PE Sample at Detection Limit
U = Not Detected at the Reporting Limit Specified
J = Qualified as Estimated

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation	Field Sample ID	WV-S4
Samples for Quanterra	Sample Date	3/30/00
Environmental Services	Lab Sample ID	G0C310244-033
(QES/STL WS)	Sample Type	Performance Evaluation

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
chloropicrin	SW8270	ug/L	5.0	22		51.6	43

Notes: All Results Are Within 40-140%R Project Accuracy Goals (see Table 3.2.3 of QAPP Addendum)

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation	Field Sample ID	WV-S2A
Samples for Quanterra	Sample Date	3/30/00
Environmental Services	Lab Sample ID	G0C310244-020
(QES/STL WS)	Sample Type	Performance Evaluation

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
acenaphthene	SW8310	ug/L	40	40	U	ND	
acenapthylene	SW8310	ug/L	40	40	U	ND	
anthracene	SW8310	ug/L	2.0	11		11.9	92
benzo(a)anthracene	SW8310	ug/L	2.0	2.0	U	ND	
benzo(a)pyrene	SW8310	ug/L	2.0	2.0	U	ND	
benzo(b)fluoranthene	SW8310	ug/L	4.0	4.7	J+	8.12	58
benzo(g,h,i)perylene	SW8310	ug/L	4.0	4.0	U	ND	
benzo(k)fluoranthene	SW8310	ug/L	2.0	2.0	U	ND	
chrysene	SW8310	ug/L	2.0	2.4		5.02	48
dibenz(a,h)anthracene	SW8310	ug/L	4.0	4.0	U	ND	
fluoranthene	SW8310	ug/L	4.0	4.0	U	ND	
fluorene	SW8310	ug/L	4.0	4.0	U	ND	
indeno(1,2,3-c,d)pyrene	SW8310	ug/L	4.0	4.9		10	49
naphthalene	SW8310	ug/L	20	20	UJ	ND	
phenanthrene	SW8310	ug/L	2.0	14		14.2	99
pyrene	SW8310	ug/L	4.0	4.0	U	ND	

Notes: All Results Are Within 40-140%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
ND = Not Specified as Present in PE Sample at Detection Limit
U = Not Detected at the Reporting Limit Specified
J = Qualified as Estimated

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Quanterra Environmental Services (QES/STL WS)	Field Sample ID			WV-S-6				WV-S-6RE			
	Sample Date			5/30/00				5/30/00			
	Lab Sample ID			G0F010289-18				G0F010289-18			
	Sample Type			Performance Evaluation				Performance Evaluation			
Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery	Reported Value	Qualifier	True Value	% Recovery
acenaphthene*	SW8310	ug/L	2.0	**2.0**	**U**	**8.21**	**0**	**2.0**	**U**	**8.21**	**0**
acenapthylene	SW8310	ug/L	2.0	2.0	U	ND		2.0	U	ND	
anthracene	SW8310	ug/L	0.1	0.1	U	ND		0.1	U	ND	
benzo(a)anthracene	SW8310	ug/L	0.1	0.1	U	ND		0.1	U	ND	
benzo(a)pyrene	SW8310	ug/L	1.0	10		11.9	84	8.6		11.9	72
benzo(b)fluoranthene	SW8310	ug/L	0.2	0.25		ND		0.21		ND	
benzo(g,h,i)perylene	SW8310	ug/L	0.2	0.2	U	ND		0.2	U	ND	
benzo(k)fluoranthene	SW8310	ug/L	1.0	2.7		3.01	90	2.2		3.01	73
chrysene	SW8310	ug/L	0.1	0.1	U	ND		0.1	U	ND	
dibenz(a,h)anthracene	SW8310	ug/L	0.2	4.4		6.18	71	4		6.18	65
fluoranthene	SW8310	ug/L	0.2	0.2	U	ND		0.2	U	ND	
fluorene	SW8310	ug/L	2.0	9.3		14.5	64	15		14.5	103
indeno(1,2,3-c,d)pyrene	SW8310	ug/L	0.2	0.2	U	ND		0.2	U	ND	
naphthalene	SW8310	ug/L	1.0	5.8		13.1	44	11		13.1	84
phenanthrene	SW8310	ug/L	0.1	0.1	U	ND		0.1	U	ND	
pyrene	SW8310	ug/L	0.2	3.8		4.65	82	4		4.65	86

Notes: All Results Are Within 40-140%R Project Accuracy Goals (see Table 3.2.3 of QAPP) Except Acenaphthene*
ND = Not Specified as Present in PE Sample at Detection Limit
U = Not Detected at the Reporting Limit Specified
J = Qualified as Estimated
*Vendor Limit: 4.85-9.13

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Quanterra Environmental Services (QES/STL WS)	Field Sample ID Sample Date Lab Sample ID Sample Type	PE-8310-S 5/30/00 G0F010289-020 Performance Evaluation

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery
acenaphthene	SW8310	mg/kg	0.400	1.8		2.45	73
acenapthylene	SW8310	mg/kg	0.200	0.2	U	ND	
anthracene	SW8310	mg/kg	0.008	0.004	J	ND	
benzo(a)anthracene	SW8310	mg/kg	0.016	0.01	J	ND	
benzo(a)pyrene	SW8310	mg/kg	0.010	0.015		ND	
benzo(b)fluoranthene	SW8310	mg/kg	0.004	0.2		0.278	72
benzo(g,h,i)perylene	SW8310	mg/kg	0.016	0.016	U	ND	
benzo(k)fluoranthene	SW8310	mg/kg	0.004	0.004	U	ND	
chrysene	SW8310	mg/kg	0.020	0.15		0.19	79
dibenz(a,h)anthracene	SW8310	mg/kg	0.040	0.04	U	ND	
fluoranthene	SW8310	mg/kg	0.020	0.014	J	ND	
fluorene	SW8310	mg/kg	0.040	0.67		0.926	72
indeno(1,2,3-c,d)pyrene	SW8310	mg/kg	0.020	0.017	J	ND	
naphthalene	SW8310	mg/kg	0.200	0.9		1.29	70
phenanthrene	SW8310	mg/kg	0.016	1.4		1.84	76
pyrene	SW8310	mg/kg	0.040	0.32		0.403	79

Notes: All Results Are Within 40-140%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
ND = Not Specified as Present In PE Sample at Detection Limit
U = Not Detected at the Reporting Limit Specified
J = Qualified as Estimated

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Quanterra Environmental Services (QES/STL WS)	Field Sample ID				WV-S3				WV-S-7			
	Sample Date				3/30/00				5/30/00			
	Lab Sample ID				G0C310244-021				G0F010289-019			
	Sample Type				Performance Evaluation				Performance Evaluation			
Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery		Reported Value	Qualifier	True Value	% Recovery
HMX	SW8330	ug/L	5.0	0.88	J	0.877	100		14		20	70
RDX	SW8330	ug/L	5.0	5.0	U	0.638	ND		9.1		12.8	71
1,3,5-trinitrobenzene	SW8330	ug/L	5.0	5.0	U	1.4	ND		0.8	J	1.0	80
1,3-dinitrobenzene	SW8330	ug/L	5.0	3.3	J	3.96	83		8.3		11.2	74
nitrobenzene	SW8330	ug/L	5.0	12		16.8	71		8.2		11.2	73
tetryl*	SW8330	ug/L	5.0	**1.2**	J	**3.3**	**36***		18		20	90
2,4,6-trinitrotoluene	SW8330	ug/L	5.0	0.76	J	0.921	83		5.0	U	1.0	ND
2,6-dinitrotoluene**	SW8330	ug/L	5.0	11		12.2	90		**0.61**	**J**	**1.0**	**61**
2,4-dinitrotoluene	SW8330	ug/L	5.0	7.2		7.7	94		0.81	J	1.0	81
2-nitrotoluene	SW8330	ug/L	5.0	9.9		11.3	88		8.8		11.2	79
4-nitrotoluene	SW8330	ug/L	5.0	4.1	J	4.69	87		8.8	J	11.2	79
3-nitrotoluene	SW8330	ug/L	5.0	8.6		9.94	87		8.9	J	11.2	79
2-amino-4,6-dinitrotoluene	SW8330	ug/L	5.0	10		11.1	90		8.8		11.2	79
4-amino-2,6-dinitrotoluene	SW8330	ug/L	5.0	8.1		9.28	87		8.9		11.2	79

Notes: All Results Are Within 65-135%R* Project Accuracy Goals (see Table 3.2.3 of QAPP)
Except tetryl* in WV-S3 and 2,6-dinitrotoluene in WV-S7**

ND = Not Specified as Present in PE Sample at Detection Limit PQL = Practical Quantitation Limits

U = Not Detected at the Reporting Limit Specified

J = Qualified as Estimated

* Tetryl Vendor Limit: 1.99-4.16 (50-150%R in QAPP); True value less than PQL

* 2,6-Dinitrotoluene Vendor Limit not established; True value less than PQL

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Quanterra Environmental Services (QES/STL WS)	Field Sample ID				PE-8330-S-2		
	Sample Date				5/30/00		
	Lab Sample ID				G0F010289-021		
	Sample Type				Performance Evaluation		
Parameter	**Method**	**Units**	**PQL**	**Reported Value**	**Qualifier**	**True Value**	**% Recovery**
HMX	SW8330	mg/kg	4.0	4.0	U	ND	
RDX	SW8330	mg/kg	4.0	15		12.5	120
1,3,5-trinitrobenzene	SW8330	mg/kg	4.0	4.0	U	ND	
1,3-dinitrobenzene	SW8330	mg/kg	4.0	5.2		5.27	99
nitrobenzene	SW8330	mg/kg	4.0	13		15.2	86
tetryl	SW8330	mg/kg	4.0	4.0	U	ND	
2,4,6-trinitrotoluene	SW8330	mg/kg	4.0	10		7.74	129
2,6-dinitrotoluene	SW8330	mg/kg	4.0	5.3		5.24	101
2,4-dinitrotoluene	SW8330	mg/kg	4.0	4.9		4.81	102
2-nitrotoluene	SW8330	mg/kg	4.0	15		15.5	97
4-nitrotoluene	SW8330	mg/kg	4.0	4.0	U	ND	
3-nitrotoluene	SW8330	mg/kg	4.0	11		12	92
2-amino-4,6-dinitrotoluene	SW8330	mg/kg	4.0	3.3	J	3.02	109
4-amino-2,6-dinitrotoluene	SW8330	mg/kg	4.0	4.0	U	ND	

Notes: All Results Are Within 65-135%R Project Accuracy Goals (see Table 3.2.3 of QAPP)
ND = Not Specified as Present in PE Sample at Detection Limit PQL = Practical Quantitation Limits
U = Not Detected at the Reporting Limit Specified
J = Qualified as Estimated

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Truesdail Laboratories (Hydrazines)	Field Sample ID	ED-0717W1	RW-1
	Sample Date	1/27/99	4/20/00
	Lab Sample ID	601793-1	602499-RW-1
	Sample Type	FD9 (provided for reference)	

Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery	Reported Value	Qualifier	True Value	% Recovery
Hydrazine	SW8315-Mod	ug/L	2	7.5		8	94	12.9		15.0	86
MMH	SW8315-Mod	ug/L	5	8.3		15.2	55	10.9		36.8	30
UDMH	SW8315-Mod	ug/L	5	11.2		18.1	62	15.5		73.5	21

Notes: All Results Are Within 65-125%R* Project Accuracy Goals (see Table 3.2.3 of QAPP)

Except MMH in ED-0717W1 and MMH and UDMH in RW-1

* Vendor Limits not established for this method

1999-2000
Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for Truesdail Laboratories (Hydrazines)	Field Sample ID			1PE				1PE-DUP			
	Sample Date			4/20/00				4/20/00			
	Lab Sample ID			602514-001				602514-002			
	Sample Type			Performance Evaluation				Performance Evaluation			
Parameter	Method	Units	RL	Reported Value	Qualifier	True Value	% Recovery	Reported Value	Qualifier	True Value	% Recovery
Hydrazine	SW8315-Mod	ug/L	1	16.3		14.5	112	15.9		14.5	110
MMH	SW8315-Mod	ug/L	5	46.4		49	95	43.8		49	89
UDMH	SW8315-Mod	ug/L	5	45.3		59	77	45.4		59	77

Notes: All Results Are Within 65-125%R* Project Accuracy Goals (see Table 3.2.3 of QAPP)

* Vendor Limits not established for this method

1999-2000

Performance Evaluation (PE) Sample Results
For Non-OE RI
Analytical Program

Performance Evaluation Samples for E.S. Babcock & Sons	Field Sample ID			ED-0869W2				ED-199-MW01-W07			
	Sample Date			4/23/99				3/27/00			
	Lab Sample ID			G9D270173-002				L67464-007			
Parameter	Method	Units	PQL	Reported Value	Qualifier	True Value	% Recovery	Reported Value	Qualifier	True Value	% Recovery
Perchlorate	CADOHS	mg/L	0.004	0.016		0.0157	102	0.014		0.015	93

Notes: All Results Are Within 75-125%R Project Accuracy Goals (see Table 3.2.3 of QAPP)

U. S. Army Corps of Engineers
Hazardous, Toxic, and Radioactive Waste Center of Expertise
(HTRW CX)
Chemical Data Quality Management Branch
Omaha, NE

Date:	1-11-2000
No. of Pages: (Including Cover)	2

POC:	Pamela Schemmer
Laboratory:	Quanterra Env
	Service
City, State:	West Sacramento
Phone:	916-373-5600
FAX:	916-372-1059

From:	Lab Validation Coordinator
Office:	CENWO-HX-C
	Omaha, NE
E-Mail:	Laboratory.Validation@usace.army.mil
Phone:	(402) 697-2574
FAX:	(402) 697-2595

Evaluation Report of Performance Evaluation Samples

An evaluation of the PE sample results that you submitted to our office are attached.

( ) **Please respond TO THIS OFFICE in writing/FAX to the paragraphs checked on the attached page(s), within 7 working days.**

Failure to respond to this office within 7 working days will result in automatic FAILURE for the affected parameters. No second Performance Evaluation (PE) Samples will be issued (if applicable) in cases of non-responsiveness.

Please review the raw data for the parameters that your lab has problems with and provide revised data. If calculation, dilution, calibration, and other errors cannot be found, redigestion/reanalysis may be necessary. The revised data package shall include a case narrative on problems found, solutions taken, and corrective actions implemented to prevent similar problems from happening in the future. Appropriate supporting documentation to the case narrative shall also be submitted for review.

(✓) **No further action is required at this time.**

Q:\LAB-VAL\FAX\PE.doc

03 Jan 00

To: Kevin Coats

From: Chemistry Quality Assurance Branch (CQAB), Omaha

Subject: Performance Audit Sample Results From:

Quantera Inc. (QESWSCA)
Attn: Pamela Schemmer
880 Riverside Parkway
West Sacramento, CA 95605

As requested, (WO# 4396) two audit soil samples and two audit water samples were forwarded for analysis on 06 Dec 99.
1. The results submitted by Quantera Inc. (QESWSCA) were reviewed by Stephen Schnitker on 03 Jan 00.
2. Details of the results are as follows:

Sample I.D.		QESWSCA's RESULTS
QESWSCA-EXP-S-01991206		
	HMX	4.6
	RDX	31
	TNB	4.0
	TNT	96
QESWSCA-EXP-S-58991206		
	TNB	2.8
	TNT	5.8
	Tetryl	4.1
	4-Am-2,6-DNT	0.29
	2-Am-4,6-DNT	NA
QESWSCA-EXP-W-08991206		
	HMX	1.2
	RDX	1.4
	1,3,5-TNB	0.69
	1,3-DNB	0.67
	Tetryl	1.3
	2,4,6-TNT	0.60
	2,4-DNT	0.70
	2,6-DNT	0.62
	2-Am-DNT	0.70
	4-Am-DNT	0.76
	NB	0.65
	2-NT	0.73
	3-NT	0.74
	4-NT	0.74
QESWSCA-EXP-W-67991206		
	DNB	2.46
	TNT	21.9
	2,4-DNT	2.90
	RDX	9.63
	TNB	5.21

All data agree.

CR 1/6/00

SUMMARY OF FINDINGS AND CORRECTIVE ACTIONS
STL Sacramento
ERA WP-60 PERFORMANCE EVALUATION

Deficiency: **Trace Metals**
Methods EPA 6020, EPA 200.8

	Reported result	Assigned value	Acceptance range
Cobalt	814 ug/L	710 ug/L	624 – 795 ug/L
Iron	2080 ug/L	2540 ug/L	2260 – 2860 ug/L
Manganese	2820 ug/L	2480 ug/L	2230 – 2760 ug/L

Investigative Actions Taken:

The raw data was reviewed for calculation and transcription errors, and for unacceptable quality controls in calibration and fortified sample recoveries (laboratory check sample and duplicate). All initial and continuing calibration criteria were in control. Re-analysis of the sample was performed on 4/24/00, and all analytes were within the warning limits.

Conclusions:

On the day before the original reported analysis, service was performed on the instrument by Perkin Elmer representatives. This maintenance included an intensive cleaning of the lens assembly. After such cleaning, the instrument needs to be run for a while with high level samples to "burn in" the new lens assemble.

Corrective Actions Taken:

Maintenance such as this will be followed by the analysis of 3-5 high level ICS solutions, until the instrument appears stable, before analytical work is done on the instrument.

AccuStandard Inc.
125 Market St.
New Haven, CT 06513
NIST No. :

ACCUracy Water Supply Performance Evaluation Lab Report

for Study No. : WS04

Study Date: 20000308

EPA Lab No. : CA00044
State Lab No. :
DEQ Lab No. :
Invoice No.: 143171

Lab Contact Info

Auth. Rep. : Pamela Schemmer
Company : STL Sacramento formerly
Address : 880 Riverside Parkway
y, State, Zip : West Sacramento CA 95605
Phone : 916-373-5600
Fax : 916-372-1059

Analyte	Analyte	Method No. Code	Method Description	</>	Lab Results	Units	True Value	Low Accept. Limit	High Accept. Limit	Evaluation
OPE-DIOX-001	WS-PE	Dioxin Mix								
2,3,7,8-Tetrachlorodibenzo-p-dioxi	0252		SW846 8290		60.8	pg/L	78.50	45.18	93.47	ACCEPT.
2,3,7,8-Tetrachlorodibenzo-p-dioxi	0252		EPA 1613B		60.8	pg/L	78.50	45.18	93.47	ACCEPT.

End Summary Report for
EPA Lab No. : CA00044

Certifying Official: John Yanusas
Phone: 203-786-5290
Date: 3/15/2000

Signature John Yanusas

AccuStandard Inc.
125 Market St.
New Haven, CT 06513
tel: 203-786-5290
fax: 203-786-5287
email: usa@accustandard.com
NVLAP Accreditation No. : 200389-0

ACCUracy Water Supply Performance Evaluation Lab Report for Study No. : CAWS05

EPA Lab No. : CA00044
State Lab No. :
DEQ Lab No. :
Invoice No. : 143172

Auth. Rep. : Pamela Schemmer
Company : STL Sacramento
Address : 880 Riverside Parkway
City, State, Zip : West Sacramento CA 95605
Phone : 916-374-4441
Fax : 916-372-1059

NVLAP®

Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code : 200389-0

(**Note:** Results graded under US EPA Criteria Document, Dec. 1998)

Analyte	Analyte No.	Method Code	Method Description	Lab Results	Units	True Value	Low Acceptance Limit	High Acceptance Limit	Evaluation
OPE-DIOX-001	143172-01-0		WS-PE Dioxin Mix			**Date Results Received**	5/18/2000		
2,3,7,8-Tetrachlorodibenzo-p-dioxin	0252		EPA1613B	43.2	pg/L	40.0	22.6	49.5	ACCEPT.
2,3,7,8-Tetrachlorodibenzo-p-dioxin	0252		EPA8290	43.2	pg/L	40.0	22.6	49.5	ACCEPT.

Note: This report shall not be reproduced for official use, or modified, or used in part without the approval of AccuStandard, Inc. Additionally, statements regarding laboratory proficiency based on this report should be limited to the analytes which have been evaluated in this study.

Note: This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Signatory John Yanusas
John Yanusas
V.P. New Business Development

Study Open Date: 4/5/2000
Study Close Date: 6/2/2000
Date Printed: 6/21/2000

AccuStandard Inc.
125 Market St.
New Haven, CT 06513
NIST No. :

ACCUracy Water Supply
Performance Evaluation Lab Report
for Study No. : WS04
Study Date: 20000308

EPA Lab No. : CA00044
State Lab No. :
DEQ Lab No. :
Invoice No.: 143171

Lab Contact Info

Auth. Rep. : Pamela Schemmer
Company : STL Sacramento formerly
Address : 880 Riverside Parkway
y, State, Zip : West Sacramento CA 95605
Phone : 916-373-5600
Fax : 916-372-1059

Analyte	Analyte	Method No. Code	Method Description	</>	Lab Results	Units	True Value	Low Accept. Limit	High Accept. Limit	Evaluation
OPE-DIOX-001	WS-PE	Dioxin Mix								
2,3,7,8-Tetrachlorodibenzo-p-dioxi	0252		SW846 8290		60.8	pg/L	78.50	45.18	93.47	ACCEPT.
2,3,7,8-Tetrachlorodibenzo-p-dioxi	0252		EPA 1613B		60.8	pg/L	78.50	45.18	93.47	ACCEPT.

End Summary Report for
EPA Lab No. : CA00044

Certifying Official: John Yanusas
Phone: 203-786-5290
Date: 3/15/2000

Signature John Yanusas

SUMMARY OF FINDINGS AND CORRECTIVE ACTIONS
STL Sacramento
ERA WP-60 PERFORMANCE EVALUATION

Deficiency: **Trace Metals**
Methods EPA 6020, EPA 200.8

	Reported result	Assigned value	Acceptance range
Cobalt	814 ug/L	710 ug/L	624 – 795 ug/L
Iron	2080 ug/L	2540 ug/L	2260 – 2860 ug/L
Manganese	2820 ug/L	2480 ug/L	2230 – 2760 ug/L

Investigative Actions Taken:

The raw data was reviewed for calculation and transcription errors, and for unacceptable quality controls in calibration and fortified sample recoveries (laboratory check sample and duplicate). All initial and continuing calibration criteria were in control. Re-analysis of the sample was performed on 4/24/00, and all analytes were within the warning limits.

Conclusions:

On the day before the original reported analysis, service was performed on the instrument by Perkin Elmer representatives. This maintenance included an intensive cleaning of the lens assembly. After such cleaning, the instrument needs to be run for a while with high level samples to "burn in" the new lens assemble.

Corrective Actions Taken:

Maintenance such as this will be followed by the analysis of 3-5 high level ICS solutions, until the instrument appears stable, before analytical work is done on the instrument.

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Minerals	Total Solids at 105°C	mg/l		244	166 - 310	190 - 286		
	Total Dissolved Solids	mg/l		228	168 - 288	188 - 268		
	Conductivity at 25°C	µmhos		315	291 - 339	299 - 331		
	Alkalinity as CaCO3	mg/l		55.3	49.2 - 61.7	51.3 - 59.6		
	Chloride	mg/l		39.5	34.8 - 43.6	36.3 - 42.2		
	Fluoride	mg/l		2.54	2.21 - 2.84	2.32 - 2.73		
	Potassium	mg/l		24.5	21.1 - 28.0	22.2 - 26.8		
	Sodium	mg/l		50.4	45.4 - 55.6	47.1 - 53.9		
	Sulfate	mg/l		23.7	18.7 - 28.1	20.2 - 26.6		
pH	pH	S.U.		9.00	8.73 - 9.27	8.82 - 9.18		
Hardness	Total Suspended Solids	mg/l		36.3	26.7 - 38.7	28.7 - 36.7		
	Calcium	mg/l		42.4	37.8 - 48.2	39.5 - 46.4		
	Magnesium	mg/l		29.8	26.1 - 33.4	27.3 - 32.2		
	Calcium hardness (CaCO3)	mg/l		106	83.8 - 128	91.2 - 121		
	Total Hardness (CaCO3)	mg/l		228	208 - 249	215 - 242		
Demand	BOD	mg/l		37.1	18.5 - 55.7	24.7 - 49.5		
	CBOD	mg/l		32.0	14.3 - 49.7	20.2 - 43.8		
	COD	mg/l		59.8	41.6 - 73.2	46.9 - 67.9		
	TOC	mg/l		23.6	19.6 - 27.5	20.9 - 26.2		
Nutrients - Simple	Ammonia as N	mg/l		1.30	0.926 - 1.69	1.05 - 1.56		
	Nitrate as N	mg/l		16.0	12.7 - 19.0	13.7 - 17.9		
	Ortho-phosphate as P	mg/l		3.31	2.82 - 3.83	2.99 - 3.66		
Nutrients - Complex	Total phosphorus as P	mg/l		4.34	3.30 - 5.09	3.60 - 4.79		
	Total kjeldahl nitrogen	mg/l		5.78	3.97 - 7.51	4.56 - 6.92		
Cyanide	Cyanide, total	mg/l		0.729	0.506 - 0.937	0.578 - 0.865		
Phenolics	Phenolics, total	mg/l		0.748	0.408 - 1.09	0.522 - 0.974		
Grease & Oil	Grease & Oil (Gravimetric)	mg/l		29.7	18.7 - 34.9	21.4 - 32.2		
TRC	Total Residual Chlorine	mg/l		1.33	1.05 - 1.61	1.14 - 1.52		

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Trace Metals	Aluminum	µg/l		547	459 - 635	488 - 606		
	Antimony	µg/l		317	217 - 384	244 - 356		
	Arsenic	µg/l	427	484	405 - 567	432 - 540	Check for Error	EPA206.2
	Barium	µg/l		542	395 - 689	444 - 640		
	Beryllium	µg/l		835	711 - 943	749 - 904		
	Boron	µg/l		566	413 - 719	464 - 668		
	Cadmium	µg/l	393	403	344 - 458	363 - 439	Acceptable	EPA213.2
	Chromium	µg/l	772	787	686 - 889	720 - 856	Acceptable	EPA218.2
	Cobalt	µg/l		710	624 - 795	653 - 767		
	Copper	µg/l		639	580 - 701	601 - 681		
	Iron	µg/l		2540	2260 - 2860	2360 - 2760		
	Lead	µg/l	153	141	117 - 164	125 - 157	Acceptable	EPA239.2
	Manganese	µg/l		2480	2230 - 2760	2320 - 2670		
	Molybdenum	µg/l		515	443 - 589	467 - 565		
	Nickel	µg/l		828	748 - 926	777 - 896		
	Selenium	µg/l	933	853	677 - 988	729 - 936	Acceptable	EPA270.2
	Silver	µg/l		219	188 - 251	198 - 240		
	Strontium	µg/l		261	222 - 299	235 - 286		
	Thallium	µg/l	431	399	321 - 464	345 - 440	Acceptable	EPA279.2
	Vanadium	µg/l		531	477 - 583	495 - 565		
	Zinc	µg/l		1200	1070 - 1350	1110 - 1300		
Mercury	Mercury	µg/l	1.10	1.12	0.721 - 1.52	0.855 - 1.39	Acceptable	EPA245.1
Titanium	Titanium	µg/l		251	216 - 283	227 - 271		
Coliforms	Total Coliforms	CFU		16	D.L. - 26	0 - 21		
	Fecal Coliforms (E.coli)	CFU		13	D.L. - 25	D.L. - 19		
	Total Coliforms (MPN)	CFU		16	1 - 55	7 - 45		
	Fecal Coliforms (MPN)	CFU		13	1 - 46	5 - 38		

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Minerals	Total Solids at 105°C	mg/l	222	244	166 - 310	190 - 286	Acceptable	MCAWW160.3
	Total Dissolved Solids	mg/l	208	228	168 - 288	188 - 268	Acceptable	MCAWW160.1
	Conductivity at 25°C	µmhos	311	315	291 - 339	299 - 331	Acceptable	MCAWW120.1
	Alkalinity as CaCO3	mg/l	56.0	55.3	49.2 - 61.7	51.3 - 59.6	Acceptable	MCAWN310.1
	Chloride	mg/l	39.5	39.5	34.8 - 43.6	36.3 - 42.2	Acceptable	MCAWW300.0
	Fluoride	mg/l	2.37	2.54	2.21 - 2.84	2.32 - 2.73	Acceptable	MCAWW300.0
	Potassium	mg/l	23.3	24.5	21.1 - 28.0	22.2 - 26.8	Acceptable	EPA200.7
	Sodium	mg/l	49.5	50.4	45.4 - 55.6	47.1 - 53.9	Acceptable	EPA200.7
	Sulfate	mg/l	24.4	23.7	18.7 - 28.1	20.2 - 26.6	Acceptable	MCAWW300.0
pH	pH	S.U.	8.96	9.00	8.73 - 9.27	8.82 - 9.18	Acceptable	MCAWW150.1
Hardness	Total Suspended Solids	mg/l	33.0	36.3	26.7 - 38.7	28.7 - 36.7	Acceptable	MCAWW160.2
	Calcium	mg/l	44.3	42.4	37.8 - 48.2	39.5 - 46.4	Acceptable	EPA200.7
	Magnesium	mg/l	31.1	29.8	26.1 - 33.4	27.3 - 32.2	Acceptable	EPA200.7
	Calcium hardness (CaCO3)	mg/l		106	83.8 - 128	91.2 - 121		
	Total Hardness (CaCO3)	mg/l	239	228	208 - 249	215 - 242	Acceptable	EPA200.7
Demand	BOD	mg/l		37.1	18.5 - 55.7	24.7 - 49.5		
	CBOD	mg/l		32.0	14.3 - 49.7	20.2 - 43.8		
	COD	mg/l	60.0	59.8	41.6 - 73.2	46.9 - 67.9	Acceptable	MCAWW410.4
	TOC	mg/l	24.0	23.6	19.6 - 27.5	20.9 - 26.2	Acceptable	MCAWW415.1
Nutrients - Simple	Ammonia as N	mg/l	1.26	1.30	0.926 - 1.69	1.05 - 1.56	Acceptable	MCAWW350.1
	Nitrate as N	mg/l	15.5	16.0	12.7 - 19.0	13.7 - 17.9	Acceptable	MCAWW300.
	Ortho-phosphate as P	mg/l	3.79	3.31	2.82 - 3.83	2.99 - 3.66	Check for Error	MCAWW300.
Nutrients - Complex	Total phosphorus as P	mg/l	4.51	4.34	3.30 - 5.09	3.60 - 4.79	Acceptable	MCAWW365.2
	Total kjeldahl nitrogen	mg/l	5.62	5.78	3.97 - 7.51	4.56 - 6.92	Acceptable	MCAWW351.2
Cyanide	Cyanide, total	mg/l	0.750	0.729	0.506 - 0.937	0.578 - 0.865	Acceptable	MCAWW335.4
Phenolics	Phenolics, total	mg/l	0.828	0.748	0.408 - 1.09	0.522 - 0.974	Acceptable	MCAWW420.4
Grease & Oil	Grease & Oil (Gravimetric)	mg/l	28.4	29.7	18.7 - 34.9	21.4 - 32.2	Acceptable	EPA1664
TRC	Total Residual Chlorine	mg/l		1.33	1.05 - 1.61	1.14 - 1.52		

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Trace Metals	Aluminum	µg/l	556	547	459 - 635	488 - 606	Acceptable	EPA6010B
	Antimony	µg/l	310	317	217 - 384	244 - 356	Acceptable	EPA6010B
	Arsenic	µg/l	475	484	405 - 567	432 - 540	Acceptable	EPA6010B
	Barium	µg/l	525	542	395 - 689	444 - 640	Acceptable	EPA6010B
	Beryllium	µg/l	866	835	711 - 943	749 - 904	Acceptable	EPA6010B
	Boron	µg/l	565	566	413 - 719	464 - 668	Acceptable	EPA6010B
	Cadmium	µg/l	402	403	344 - 458	363 - 439	Acceptable	EPA6010B
	Chromium	µg/l	830	787	686 - 889	720 - 856	Acceptable	EPA6010B
	Cobalt	µg/l	767	710	624 - 795	653 - 767	Acceptable	EPA6010B
	Copper	µg/l	649	639	580 - 701	601 - 681	Acceptable	EPA6010B
	Iron	µg/l	2660	2540	2260 - 2860	2360 - 2760	Acceptable	EPA6010B
	Lead	µg/l	136	141	117 - 164	125 - 157	Acceptable	EPA6010B
	Manganese	µg/l	2600	2480	2230 - 2760	2320 - 2670	Acceptable	EPA6010B
	Molybdenum	µg/l	517	515	443 - 589	467 - 565	Acceptable	EPA6010B
	Nickel	µg/l	870	828	748 - 926	777 - 896	Acceptable	EPA6010B
	Selenium	µg/l	860	853	677 - 988	729 - 936	Acceptable	EPA6010B
	Silver	µg/l	225	219	188 - 251	198 - 240	Acceptable	EPA6010B
	Strontium	µg/l	263	261	222 - 299	235 - 286	Acceptable	EPA6010B
	Thallium	µg/l	384	399	321 - 464	345 - 440	Acceptable	EPA6010B
	Vanadium	µg/l	515	531	477 - 583	495 - 565	Acceptable	EPA6010B
	Zinc	µg/l	1220	1200	1070 - 1350	1110 - 1300	Acceptable	EPA6010B
Mercury	Mercury	µg/l		1.12	0.721 - 1.52	0.855 - 1.39		
Titanium	Titanium	µg/l		251	216 - 283	227 - 271		
Coliforms	Total Coliforms	CFU		16	D.L. - 26	0 - 21		
	Fecal Coliforms (E.coli)	CFU		13	D.L. - 25	D.L. - 19		
	Total Coliforms (MPN)	CFU		16	1 - 55	7 - 45		
	Fecal Coliforms (MPN)	CFU		13	1 - 46	5 - 38		

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Volatiles	Acetone	µg/l		< 5.00				
	Acetonitrile	µg/l		< 5.00				
	Acrylonitrile	µg/l		< 5.00				
	Acrolein	µg/l		< 5.00				
	Benzene	µg/l	73.6	74.1	53.6 - 95.1	60.5 - 88.2	Acceptable	8021B
	Bromodichloromethane	µg/l	11.3	11.7	8.04 - 15.5	9.27 - 14.2	Acceptable	8021B
	Bromoform	µg/l	66.9	72.3	47.6 - 98.9	56.1 - 90.3	Acceptable	8021B
	Bromomethane	µg/l	< 1.00	< 5.00			Acceptable	8021B
	2-Butanone (MEK)	µg/l		< 5.00				
	Carbon disulfide	µg/l		< 5.00				
	Carbon tetrachloride	µg/l	21.9	23.9	15.0 - 33.8	18.1 - 30.6	Acceptable	8210B
	Chlorobenzene	µg/l	78.0	76.2	53.4 - 97.2	60.7 - 89.9	Acceptable	8210B
	Chlorodibromomethane	µg/l	16.9	17.9	11.8 - 23.7	13.8 - 21.7	Acceptable	8210B
	Chloroethane	µg/l	< 1.00	< 5.00			Acceptable	8210B
	2-Chloroethylvinylether	µg/l	< 1.00	< 5.00			Acceptable	8210B
	Chloroform	µg/l	22.8	24.0	16.9 - 31.0	19.2 - 28.6	Acceptable	8210B
	Chloromethane	µg/l	< 1.00	< 5.00			Acceptable	8210B
	DBCP	µg/l		< 5.00				
	1,2-Dibromoethane (EDB)	µg/l		< 5.00				
	Dibromomethane	µg/l	< 1.00	< 5.00			Acceptable	8021B
	1,2-Dichlorobenzene	µg/l	21.0	19.7	13.6 - 25.4	15.6 - 23.4	Acceptable	8021B
	1,3-Dichlorobenzene	µg/l	32.1	35.9	25.3 - 44.9	28.5 - 41.6	Acceptable	8021B
	1,4-Dichlorobenzene	µg/l	14.9	12.7	8.57 - 16.9	9.95 - 15.5	Acceptable	8021B
	Dichlorodifluoromethane	µg/l	< 1.00	< 5.00			Acceptable	8021B
	1,1-Dichloroethane	µg/l	< 1.00	< 5.00			Acceptable	8021B
	1,2-Dichloroethane	µg/l	31.0	31.0	21.5 - 41.6	24.9 - 38.2	Acceptable	8021B
	1,1-Dichloroethylene	µg/l	< 1.00	< 5.00			Acceptable	8021B
	cis-1,2-Dichloroethylene	µg/l	42.0	46.4	19.8 - 72.1	28.5 - 63.4	Acceptable	8021B
	trans-1,2-Dichloroethylene	µg/l	< 1.00	< 5.00			Acceptable	8021B
	1,2-Dichloropropane	µg/l	34.7	35.2	22.3 - 47.3	26.4 - 43.2	Acceptable	8021B
	cis-1,3-Dichloropropylene	µg/l	< 1.00	< 5.00			Acceptable	8021B
	trans-1,3-Dichloropropylene	µg/l	< 1.00	< 5.00			Acceptable	8021B
	Ethylbenzene	µg/l	26.3	24.6	16.6 - 32.0	19.2 - 29.4	Acceptable	8021B
	2-Hexanone	µg/l		< 5.00				
	Methylene chloride	µg/l	54.4	65.7	41.5 - 90.2	49.6 - 82.1	Acceptable	8021B
	MIBK	µg/l		78.5	30.0 - 122	45.4 - 107		
	Styrene	µg/l		< 5.00				
	1,1,1,2-Tetrachloroethane	µg/l		< 5.00				
	1,1,2,2-Tetrachloroethane	µg/l	< 1.00	< 5.00			Acceptable	8021B
	Tetrachloroethylene	µg/l	63.0	73.4	48.6 - 93.8	56.1 - 86.2	Acceptable	8021B
	Toluene	µg/l	43.1	42.2	30.3 - 52.8	34.0 - 49.0	Acceptable	8021B
	1,1,1-Trichloroethane	µg/l	26.8	27.8	18.2 - 36.7	21.2 - 33.6	Acceptable	8021B
	1,1,2-Trichloroethane	µg/l	< 1.00	< 5.00			Acceptable	8021B
	Trichloroethylene	µg/l	21.5	23.3	15.2 - 30.3	17.7 - 27.8	Acceptable	8021B
	Trichlorofluoromethane	µg/l	< 1.00	< 5.00			Acceptable	8021B

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Volatiles (cont.)	1,2,3-Trichloropropane	µg/l		< 5.00				
	Vinyl acetate	µg/l		< 5.00				
	Vinyl chloride	µg/l	< 1.00	< 5.00			Acceptable	8021B
	Xylenes, total	µg/l	60.0	57.5	28.4 - 81.1	37.2 - 72.3	Acceptable	8021B

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Pesticides	Aldrin	µg/l	1.45	2.72	0.696 - 3.68	1.19 - 3.18	Acceptable	EPA8081A
	alpha-BHC	µg/l	3.42	3.86	1.46 - 5.60	2.15 - 4.91	Acceptable	EPA8081A
	beta-BHC	µg/l	3.30	4.19	1.48 - 6.07	2.24 - 5.30	Acceptable	EPA8081A
	delta-BHC	µg/l	< 0.0500	< 0.100			Acceptable	EPA8081A
	gamma-BHC(Lindane)	µg/l	0.0200	< 0.100			Acceptable	EPA8081A
	alpha-Chlordane	µg/l	< 0.0500	< 0.100			Acceptable	EPA8081A
	gamma-Chlordane	µg/l	3.33	4.51	2.40 - 5.97	2.97 - 5.40	Acceptable	EPA8081A
	4,4'-DDD	µg/l	1.52	1.76	0.856 - 2.46	1.12 - 2.20	Acceptable	EPA8081A
	4,4'-DDE	µg/l	0.524	0.702	0.324 - 0.956	0.429 - 0.851	Acceptable	EPA8081A
	4,4'-DDT	µg/l	1.22	1.32	0.589 - 1.81	0.792 - 1.61	Acceptable	EPA8081A
	Dieldrin	µg/l	3.55	3.82	1.97 - 5.27	2.52 - 4.72	Acceptable	EPA8081A
	Endrin	µg/l	1.95	2.19	1.01 - 3.20	1.37 - 2.83	Acceptable	EPA8081A
	Endrin aldehyde	µg/l	< 0.100	< 0.100			Acceptable	EPA8081A
	Endrin ketone	µg/l	< 0.100	< 0.100			Acceptable	EPA8081A
	Endosulfan I	µg/l	< 0.0500	< 0.100			Acceptable	EPA8081A
	Endosulfan II	µg/l	< 0.100	< 0.100			Acceptable	EPA8081A
	Endosulfan sulfate	µg/l	< 0.100	< 0.100			Acceptable	EPA8081A
	Heptachlor	µg/l	1.26	2.24	0.592 - 3.12	1.01 - 2.70	Acceptable	EPA8081A
	Heptachlor epoxide	µg/l	0.525	0.667	0.337 - 0.861	0.425 - 0.774	Acceptable	EPA8081A
	Methoxychlor	µg/l	3.55	3.68	1.39 - 5.68	2.06 - 4.96	Acceptable	EPA8081A
	Toxaphene	µg/l	< 2.00	< 0.100			Acceptable	EPA8081A

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
PCB's In H2O	Aroclor 1232	µg/l	1.52	1.54	0.605 - 2.15	0.863 - 1.90	Acceptable	EPA8082
(Standard 1)	PCB Aroclor Identity		1232	1232	1232	1232	Acceptable	EPA8082
PCB's In H2O	Aroclor 1254	µg/l	2.58	3.13	1.39 - 4.24	1.86 - 3.76	Acceptable	EPA8082
(Standard 2)	PCB Aroclor Identity		1254	1254	1254	1254	Acceptable	EPA8082
PCB's In Oil	Aroclor 1254	mg/Kg	30.3	35.8	5.24 - 52.7	13.1 - 44.8	Acceptable	EPA8082
(Standard 1)	PCB Aroclor Identity		1254	1254	1254	1254	Acceptable	EPA8082
PCB's In Oil	Aroclor 1016/1242	mg/Kg	29.2	39.7	7.22 - 53.4	14.9 - 45.7	Acceptable	EPA8082
(Standard 2)	PCB Aroclor Identity		1242	1242	1242	1242	Acceptable	EPA8082
Chlordane	Chlordane, technical	µg/l	2.86	3.47	1.52 - 4.93	2.09 - 4.36	Acceptable	EPA8081A

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Base Neutrals	Acenaphthene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Acenaphthylene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Aniline	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Anthracene	µg/l	11.6	13.7	1.56 - 22.4	5.04 - 19.0	Acceptable	EPA8270C
	Benzidine	µg/l	< 100	< 10.0			Acceptable	EPA8270C
	Benzo(a)anthracene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Benzo(b)fluoranthene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Benzo(k)fluoranthene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Benzo(g,h,i)perylene	µg/l	16.5	21.8	D.L. - 38.7	2.36 - 31.4	Acceptable	EPA8270C
	Benzo(a)pyrene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Benzyl alcohol	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	4-Bromophenyl-phenylether	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Butylbenzylphthalate	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Carbazole	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	4-Chloroaniline	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	bis(2-Chloroethoxy)methane	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	bis(2-Chloroethyl)ether	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	1-Chloronaphthalene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	2-Chloronaphthalene	µg/l	57.0	84.0	10.5 - 114	27.4 - 97.7	Acceptable	EPA8270C
	4-Chlorophenyl-phenylether	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	2,2'-oxybis(1-chloropropane)	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Chrysene	µg/l	33.9	40.4	11.0 - 57.2	18.7 - 49.5	Acceptable	EPA8270C
	Dibenz(a,h)anthracene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Dibenzofuran	µg/l	66.5	86.5	27.4 - 110	41.1 - 95.9	Acceptable	EPA8270C
	Di-n-butylphthalate	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	1,2-Dichlorobenzene	µg/l	28.8	47.9	D.L. - 67.1	6.60 - 55.0	Acceptable	EPA8270C
	1,3-Dichlorobenzene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	1,4-Dichlorobenzene	µg/l	60.0	119	D.L. - 170	9.90 - 141	Acceptable	EPA8270C
	3,3'-Dichlorobenzidine	µg/l	< 50.0	< 10.0			Acceptable	EPA8270C
	Diethylphthalate	µg/l	80.0	96.5	D.L. - 149	23.1 - 124	Acceptable	EPA8270C
	Dimethylphthalate	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	2,4-Dinitrotoluene	µg/l	47.4	60.7	14.3 - 81.2	25.4 - 70.0	Acceptable	EPA8270C
	2,6-Dinitrotoluene	µg/l	115	158	41.9 - 203	68.6 - 179	Acceptable	EPA8270C
	Di-n-octylphthalate	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	bis(2-ethylhexyl)phthalate	µg/l	90.6	129	16.7 - 203	47.8 - 172	Acceptable	EPA8270C
	Fluoranthene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Fluorene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Hexachlorobenzene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Hexachlorobutadiene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Hexachlorocyclopentadiene	µg/l	< 50.0	< 10.0			Acceptable	EPA8270C
	Hexachloroethane	µg/l	54.2	95.2	D.L. - 156	D.L. - 123	Acceptable	EPA8270C
	Indeno(1,2,3-cd)pyrene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	Isophorone	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	1-Methylnaphthalene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	2-Methylnaphthalene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C

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Base Neutrals	Naphthalene	µg/l	17.8	26.8	D.L. - 40.1	5.46 - 33.1	Acceptable	EPA8270C
(cont.)	2-Nitroaniline	µg/l	< 50.0	< 10.0			Acceptable	EPA8270C
	3-Nitroaniline	µg/l	< 50.0	< 10.0			Acceptable	EPA8270C
	4-Nitroaniline	µg/l	< 50.0	< 10.0			Acceptable	EPA8270C
	Nitrobenzene	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	N-Nitrosodiethylamine	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	N-Nitrosodimethylamine	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	N-Nitrosodiphenylamine	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	N-Nitroso-di-n-propylamine	µg/l	72.2	110	14.8 - 157	36.0 - 135	Acceptable	EPA8270C
	Phenanthrene	µg/l	67.9	91.5	30.8 - 119	45.0 - 105	Acceptable	EPA8270C
	Pyrene	µg/l	49.3	69.7	19.6 - 98.8	32.6 - 85.9	Acceptable	EPA8270C
	Pyridine	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	1,2,4-Trichlorobenzene	µg/l	43.2	73.9	D.L. - 102	16.4 - 85.2	Acceptable	EPA8270C

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Acids	Benzoic acid	µg/l	< 50.0	< 10.0			Acceptable	EPA8270C
	4-Chloro-3-methylphenol	µg/l	98.9	138	40.3 - 184	64.2 - 160	Acceptable	EPA8270C
	2-Chlorophenol	µg/l	20.6	29.9	5.07 - 40.5	11.0 - 34.6	Acceptable	EPA8270C
	2,4-Dichlorophenol	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	2,6-Dichlorophenol	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	2,4-Dimethylphenol	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	4,6-Dinitro-2-methylphenol	µg/l	< 50.0	< 10.0			Acceptable	EPA8270C
	2,4-Dinitrophenol	µg/l	< 50.0	< 10.0			Acceptable	EPA8270C
	2-Methylphenol	µg/l	50.1	80.2	7.60 - 110	22.2 - 92.8	Acceptable	EPA8270C
	3-Methylphenol	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	4-Methylphenol	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	2-Nitrophenol	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	3-Nitrophenol	µg/l		< 10.0				
	4-Nitrophenol	µg/l	< 50.0	< 10.0			Acceptable	EPA8270C
	Pentachlorophenol	µg/l	73.1	134	10.1 - 200	41.7 - 168	Acceptable	EPA8270C
	Phenol	µg/l	23.7	71.7	D.L. - 111	D.L. - 88.7	Acceptable	EPA8270C
	2,4,5-Trichlorophenol	µg/l	< 10.0	< 10.0			Acceptable	EPA8270C
	2,4,6-Trichlorophenol	µg/l	76.2	120	30.3 - 160	51.8 - 138	Acceptable	EPA8270C

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PAH's	Acenaphthene	µg/l	< 1.00	0.821	D.L. - 1.84	D.L. - 1.39	Acceptable	EPA8310
	Acenaphthylene	µg/l	< 0.500	< 0.100			Acceptable	EPA8310
	Anthracene	µg/l	0.662	0.857	0.173 - 1.26	0.354 - 1.08	Acceptable	EPA8310
	Benzo(a)anthracene	µg/l	< 0.0500	< 0.100			Acceptable	EPA8310
	Benzo(b)fluoranthene	µg/l	0.688	0.870	0.225 - 1.25	0.396 - 1.08	Acceptable	EPA8310
	Benzo(k)fluoranthene	µg/l	< 0.0250	< 0.100			Acceptable	EPA8310
	Benzo(g,h,i)perylene	µg/l	2.81	4.12	D.L. - 6.39	0.937 - 5.34	Acceptable	EPA8310
	Benzo(a)pyrene	µg/l	< 0.0500	< 0.100			Acceptable	EPA8310
	Chrysene	µg/l	0.549	0.620	0.309 - 0.839	0.397 - 0.755	Acceptable	EPA8310
	Dibenz(a,h)anthracene	µg/l	< 0.200	< 0.100			Acceptable	EPA8310
	Fluoranthene	µg/l	3.07	3.74	1.76 - 4.97	2.29 - 4.43	Acceptable	EPA8310
	Fluorene	µg/l	< 0.100	< 0.100			Acceptable	EPA8310
	Indeno(1,2,3-cd)pyrene	µg/l	< 0.0500	< 0.100			Acceptable	EPA8310
	Naphthalene	µg/l	< 0.500	< 0.100			Acceptable	EPA8310
	Phenanthrene	µg/l	< 0.0400	< 0.100			Acceptable	EPA8310
	Pyrene	µg/l	< 0.100	< 0.100			Acceptable	EPA8310

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Minerals	Total Solids at 105°C	mg/l		244	166 - 310	190 - 286		
	Total Dissolved Solids	mg/l		228	168 - 288	188 - 268		
	Conductivity at 25°C	µmhos	311	315	291 - 339	299 - 331	Acceptable	EPA9050A
	Alkalinity as CaCO3	mg/l		55.3	49.2 - 61.7	51.3 - 59.6		
	Chloride	mg/l		39.5	34.8 - 43.6	36.3 - 42.2		
	Fluoride	mg/l	2.62	2.54	2.21 - 2.84	2.32 - 2.73	Acceptable	MCAWW340.2
	Potassium	mg/l	23.3	24.5	21.1 - 28.0	22.2 - 26.8	Acceptable	EPA6010B
	Sodium	mg/l	49.5	50.4	45.4 - 55.6	47.1 - 53.9	Acceptable	EPA6010B
	Sulfate	mg/l		23.7	18.7 - 28.1	20.2 - 26.6		
pH	pH	S.U.	8.96	9.00	8.73 - 9.27	8.82 - 9.18	Acceptable	EPA6010B
Hardness	Total Suspended Solids	mg/l		36.3	26.7 - 38.7	28.7 - 36.7		
	Calcium	mg/l	44.3	42.4	37.8 - 48.2	39.5 - 46.4	Acceptable	EPA6010B
	Magnesium	mg/l	31.1	29.8	26.1 - 33.4	27.3 - 32.2	Acceptable	EPA6010B
	Calcium hardness (CaCO3)	mg/l		106	83.8 - 128	91.2 - 121		
	Total Hardness (CaCO3)	mg/l	239	228	208 - 249	215 - 242	Acceptable	EPA6010B
Demand	BOD	mg/l		37.1	18.5 - 55.7	24.7 - 49.5		
	CBOD	mg/l		32.0	14.3 - 49.7	20.2 - 43.8		
	COD	mg/l		59.8	41.6 - 73.2	46.9 - 67.9		
	TOC	mg/l	24.2	23.6	19.6 - 27.5	20.9 - 26.2	Acceptable	EPA9060
Nutrients - Simple	Ammonia as N	mg/l		1.30	0.926 - 1.69	1.05 - 1.56		
	Nitrate as N	mg/l	15.6	16.0	12.7 - 19.0	13.7 - 17.9	Acceptable	MCAWW353.2
	Ortho-phosphate as P	mg/l	3.44	3.31	2.82 - 3.83	2.99 - 3.66	Acceptable	MCAWW365.2
Nutrients - Complex	Total phosphorus as P	mg/l		4.34	3.30 - 5.09	3.60 - 4.79		
	Total kjeldahl nitrogen	mg/l		5.78	3.97 - 7.51	4.56 - 6.92		
Cyanide	Cyanide, total	mg/l	0.750	0.729	0.506 - 0.937	0.578 - 0.865	Acceptable	EPA9012A
Phenolics	Phenolics, total	mg/l	0.828	0.748	0.408 - 1.09	0.522 - 0.974	Acceptable	EPA9066
Grease & Oil	Grease & Oil (Gravimetric)	mg/l		29.7	18.7 - 34.9	21.4 - 32.2		
TRC	Total Residual Chlorine	mg/l		1.33	1.05 - 1.61	1.14 - 1.52		

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Trace Metals	Aluminum	µg/l	556	547	459 - 635	488 - 606	Acceptable	EPA200.7
	Antimony	µg/l	310	317	217 - 384	244 - 356	Acceptable	EPA200.7
	Arsenic	µg/l	475	484	405 - 567	432 - 540	Acceptable	EPA200.7
	Barium	µg/l	525	542	395 - 689	444 - 640	Acceptable	EPA200.7
	Beryllium	µg/l	866	835	711 - 943	749 - 904	Acceptable	EPA200.7
	Boron	µg/l	565	566	413 - 719	464 - 668	Acceptable	EPA200.7
	Cadmium	µg/l	402	403	344 - 458	363 - 439	Acceptable	EPA200.7
	Chromium	µg/l	830	787	686 - 889	720 - 856	Acceptable	EPA200.7
	Cobalt	µg/l	767	710	624 - 795	653 - 767	Acceptable	EPA200.7
	Copper	µg/l	649	639	580 - 701	601 - 681	Acceptable	EPA200.7
	Iron	µg/l	2660	2540	2260 - 2860	2360 - 2760	Acceptable	EPA200.7
	Lead	µg/l	136	141	117 - 164	125 - 157	Acceptable	EPA200.7
	Manganese	µg/l	2600	2480	2230 - 2760	2320 - 2670	Acceptable	EPA200.7
	Molybdenum	µg/l	517	515	443 - 589	467 - 565	Acceptable	EPA200.7
	Nickel	µg/l	870	828	748 - 926	777 - 896	Acceptable	EPA200.7
	Selenium	µg/l	860	853	677 - 988	729 - 936	Acceptable	EPA200.7
	Silver	µg/l	225	219	188 - 251	198 - 240	Acceptable	EPA200.7
	Strontium	µg/l	263	261	222 - 299	235 - 286	Acceptable	EPA200.7
	Thallium	µg/l	384	399	321 - 464	345 - 440	Acceptable	EPA200.7
	Vanadium	µg/l	515	531	477 - 583	495 - 565	Acceptable	EPA200.7
	Zinc	µg/l	1220	1200	1070 - 1350	1110 - 1300	Acceptable	EPA200.7
Mercury	Mercury	µg/l		1.12	0.721 - 1.52	0.855 - 1.39		
Titanium	Titanium	µg/l		251	216 - 283	227 - 271		
Coliforms	Total Coliforms	CFU		16	D.L. - 26	0 - 21		
	Fecal Coliforms (E.coli)	CFU		13	D.L. - 25	D.L. - 19		
	Total Coliforms (MPN)	CFU		16	1 - 55	7 - 45		
	Fecal Coliforms (MPN)	CFU		13	1 - 46	5 - 38		

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Volatiles	Acetone	µg/l	< 5.00	< 5.00			Acceptable	8260B
	Acetonitrile	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Acrylonitrile	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Acrolein	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Benzene	µg/l	80.4	74.1	53.6 - 95.1	60.5 - 88.2	Acceptable	8260B
	Bromodichloromethane	µg/l	13.0	11.7	8.04 - 15.5	9.27 - 14.2	Acceptable	8260B
	Bromoform	µg/l	86.0	72.3	47.6 - 98.9	56.1 - 90.3	Acceptable	8260B
	Bromomethane	µg/l	< 1.00	< 5.00			Acceptable	8260B
	2-Butanone (MEK)	µg/l	< 5.00	< 5.00			Acceptable	8260B
	Carbon disulfide	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Carbon tetrachloride	µg/l	24.0	23.9	15.0 - 33.8	18.1 - 30.6	Acceptable	8260B
	Chlorobenzene	µg/l	86.1	76.2	53.4 - 97.2	60.7 - 89.9	Acceptable	8260B
	Chlorodibromomethane	µg/l	20.1	17.9	11.8 - 23.7	13.8 - 21.7	Acceptable	8260B
	Chloroethane	µg/l	< 1.00	< 5.00			Acceptable	8260B
	2-Chloroethylvinylether	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Chloroform	µg/l	24.8	24.0	16.9 - 31.0	19.2 - 28.6	Acceptable	8260B
	Chloromethane	µg/l	< 1.00	< 5.00			Acceptable	8260B
	DBCP	µg/l	< 1.00	< 5.00			Acceptable	8260B
	1,2-Dibromoethane (EDB)	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Dibromomethane	µg/l	< 1.00	< 5.00			Acceptable	8260B
	1,2-Dichlorobenzene	µg/l	19.7	19.7	13.6 - 25.4	15.6 - 23.4	Acceptable	8260B
	1,3-Dichlorobenzene	µg/l	34.6	35.9	25.3 - 44.9	28.5 - 41.6	Acceptable	8260B
	1,4-Dichlorobenzene	µg/l	13.2	12.7	8.57 - 16.9	9.95 - 15.5	Acceptable	8260B
	Dichlorodifluoromethane	µg/l	< 1.00	< 5.00			Acceptable	8260B
	1,1-Dichloroethane	µg/l	< 1.00	< 5.00			Acceptable	8260B
	1,2-Dichloroethane	µg/l	34.0	31.0	21.5 - 41.6	24.9 - 38.2	Acceptable	8260B
	1,1-Dichloroethylene	µg/l	< 1.00	< 5.00			Acceptable	8260B
	cis-1,2-Dichloroethylene	µg/l	48.3	46.4	19.8 - 72.1	28.5 - 63.4	Acceptable	8260B
	trans-1,2-Dichloroethylene	µg/l	< 1.00	< 5.00			Acceptable	8260B
	1,2-Dichloropropane	µg/l	37.5	35.2	22.3 - 47.3	26.4 - 43.2	Acceptable	8260B
	cis-1,3-Dichloropropylene	µg/l	< 1.00	< 5.00			Acceptable	8260B
	trans-1,3-Dichloropropylene	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Ethylbenzene	µg/l	25.0	24.6	16.6 - 32.0	19.2 - 29.4	Acceptable	8260B
	2-Hexanone	µg/l	< 5.00	< 5.00			Acceptable	8260B
	Methylene chloride	µg/l	70.5	65.7	41.5 - 90.2	49.6 - 82.1	Acceptable	8260B
	MIBK	µg/l	75.3	78.5	30.0 - 122	45.4 - 107	Acceptable	8260B
	Styrene	µg/l	< 1.00	< 5.00			Acceptable	8260B
	1,1,1,2-Tetrachloroethane	µg/l	< 1.00	< 5.00			Acceptable	8260B
	1,1,2,2-Tetrachloroethane	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Tetrachloroethylene	µg/l	75.7	73.4	48.6 - 93.8	56.1 - 86.2	Acceptable	8260B
	Toluene	µg/l	46.6	42.2	30.3 - 52.8	34.0 - 49.0	Acceptable	8260B
	1,1,1-Trichloroethane	µg/l	28.0	27.8	18.2 - 36.7	21.2 - 33.6	Acceptable	8260B
	1,1,2-Trichloroethane	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Trichloroethylene	µg/l	21.9	23.3	15.2 - 30.3	17.7 - 27.8	Acceptable	8260B
	Trichlorofluoromethane	µg/l	< 1.00	< 5.00			Acceptable	8260B

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Volatiles (cont.)	1,2,3-Trichloropropane	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Vinyl acetate	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Vinyl chloride	µg/l	< 1.00	< 5.00			Acceptable	8260B
	Xylenes, total	µg/l	62.8	57.5	28.4 - 81.1	37.2 - 72.3	Acceptable	8260B

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Pesticides	Aldrin	µg/l		2.72	0.696 - 3.68	1.19 - 3.18		
	alpha-BHC	µg/l		3.86	1.46 - 5.60	2.15 - 4.91		
	beta-BHC	µg/l		4.19	1.48 - 6.07	2.24 - 5.30		
	delta-BHC	µg/l		< 0.100				
	gamma-BHC(Lindane)	µg/l		< 0.100				
	alpha-Chlordane	µg/l		< 0.100				
	gamma-Chlordane	µg/l		4.51	2.40 - 5.97	2.97 - 5.40		
	4,4'-DDD	µg/l		1.76	0.856 - 2.46	1.12 - 2.20		
	4,4'-DDE	µg/l		0.702	0.324 - 0.956	0.429 - 0.851		
	4,4'-DDT	µg/l		1.32	0.589 - 1.81	0.792 - 1.61		
	Dieldrin	µg/l		3.82	1.97 - 5.27	2.52 - 4.72		
	Endrin	µg/l		2.19	1.01 - 3.20	1.37 - 2.83		
	Endrin aldehyde	µg/l		< 0.100				
	Endrin ketone	µg/l		< 0.100				
	Endosulfan I	µg/l		< 0.100				
	Endosulfan II	µg/l		< 0.100				
	Endosulfan sulfate	µg/l		< 0.100				
	Heptachlor	µg/l		2.24	0.592 - 3.12	1.01 - 2.70		
	Heptachlor epoxide	µg/l		0.667	0.337 - 0.861	0.425 - 0.774		
	Methoxychlor	µg/l		3.68	1.39 - 5.68	2.06 - 4.96		
	Toxaphene	µg/l		< 0.100				

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ERA Laboratory Code: R1456-02A EPA ID: CA00044 State ID: CA2166 Report Issued: 03/28/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
PCB's In H2O	Aroclor 1232	µg/l		1.54	0.605 - 2.15	0.863 - 1.90		
(Standard 1)	PCB Aroclor Identity			1232	1232	1232		
PCB's In H2O	Aroclor 1254	µg/l		3.13	1.39 - 4.24	1.86 - 3.76		
(Standard 2)	PCB Aroclor Identity			1254	1254	1254		
PCB's In Oil	Aroclor 1254	mg/Kg		35.8	5.24 - 52.7	13.1 - 44.8		
(Standard 1)	PCB Aroclor Identity			1254	1254	1254		
PCB's In Oil	Aroclor 1016/1242	mg/Kg		39.7	7.22 - 53.4	14.9 - 45.7		
(Standard 2)	PCB Aroclor Identity			1242	1242	1242		
Chlordane	Chlordane, technical	µg/l		3.47	1.52 - 4.93	2.09 - 4.36		

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Base Neutrals	Acenaphthene	µg/l		< 10.0				
	Acenaphthylene	µg/l		< 10.0				
	Aniline	µg/l		< 10.0				
	Anthracene	µg/l		13.7	1.56 - 22.4	5.04 - 19.0		
	Benzidine	µg/l		< 10.0				
	Benzo(a)anthracene	µg/l		< 10.0				
	Benzo(b)fluoranthene	µg/l		< 10.0				
	Benzo(k)fluoranthene	µg/l		< 10.0				
	Benzo(g,h,i)perylene	µg/l		21.8	D.L. - 38.7	2.36 - 31.4		
	Benzo(a)pyrene	µg/l		< 10.0				
	Benzyl alcohol	µg/l		< 10.0				
	4-Bromophenyl-phenylether	µg/l		< 10.0				
	Butylbenzylphthalate	µg/l		< 10.0				
	Carbazole	µg/l		< 10.0				
	4-Chloroaniline	µg/l		< 10.0				
	bis(2-Chloroethoxy)methane	µg/l		< 10.0				
	bis(2-Chloroethyl)ether	µg/l		< 10.0				
	1-Chloronaphthalene	µg/l		< 10.0				
	2-Chloronaphthalene	µg/l		84.0	10.5 - 114	27.4 - 97.7		
	4-Chlorophenyl-phenylether	µg/l		< 10.0				
	2,2'-oxybis(1-chloropropane)	µg/l		< 10.0				
	Chrysene	µg/l		40.4	11.0 - 57.2	18.7 - 49.5		
	Dibenz(a,h)anthracene	µg/l		< 10.0				
	Dibenzofuran	µg/l		86.5	27.4 - 110	41.1 - 95.9		
	Di-n-butylphthalate	µg/l		< 10.0				
	1,2-Dichlorobenzene	µg/l		47.9	D.L. - 67.1	6.60 - 55.0		
	1,3-Dichlorobenzene	µg/l		< 10.0				
	1,4-Dichlorobenzene	µg/l		119	D.L. - 170	9.90 - 141		
	3,3'-Dichlorobenzidine	µg/l		< 10.0				
	Diethylphthalate	µg/l		96.5	D.L. - 149	23.1 - 124		
	Dimethylphthalate	µg/l		< 10.0				
	2,4-Dinitrotoluene	µg/l		60.7	14.3 - 81.2	25.4 - 70.0		
	2,6-Dinitrotoluene	µg/l		158	41.9 - 203	68.6 - 179		
	Di-n-octylphthalate	µg/l		< 10.0				
	bis(2-ethylhexyl)phthalate	µg/l		129	16.7 - 203	47.8 - 172		
	Fluoranthene	µg/l		< 10.0				
	Fluorene	µg/l		< 10.0				
	Hexachlorobenzene	µg/l		< 10.0				
	Hexachlorobutadiene	µg/l		< 10.0				
	Hexachlorocyclopentadiene	µg/l		< 10.0				
	Hexachloroethane	µg/l		95.2	D.L. - 156	D.L. - 123		
	Indeno(1,2,3-cd)pyrene	µg/l		< 10.0				
	Isophorone	µg/l		< 10.0				
	1-Methylnaphthalene	µg/l		< 10.0				
	2-Methylnaphthalene	µg/l		< 10.0				

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Base Neutrals	Naphthalene	µg/l		26.8	D.L. - 40.1	5.46 - 33.1		
(cont.)	2-Nitroaniline	µg/l		< 10.0				
	3-Nitroaniline	µg/l		< 10.0				
	4-Nitroaniline	µg/l		< 10.0				
	Nitrobenzene	µg/l		< 10.0				
	N-Nitrosodiethylamine	µg/l		< 10.0				
	N-Nitrosodimethylamine	µg/l		< 10.0				
	N-Nitrosodiphenylamine	µg/l		< 10.0				
	N-Nitroso-di-n-propylamine	µg/l		110	14.8 - 157	36.0 - 135		
	Phenanthrene	µg/l		91.5	30.8 - 119	45.0 - 105		
	Pyrene	µg/l		69.7	19.6 - 98.8	32.6 - 85.9		
	Pyridine	µg/l		< 10.0				
	1,2,4-Trichlorobenzene	µg/l		73.9	D.L. - 102	16.4 - 85.2		

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Acids	Benzoic acid	µg/l		< 10.0				
	4-Chloro-3-methylphenol	µg/l		138	40.3 - 184	64.2 - 160		
	2-Chlorophenol	µg/l		29.9	5.07 - 40.5	11.0 - 34.6		
	2,4-Dichlorophenol	µg/l		< 10.0				
	2,6-Dichlorophenol	µg/l		< 10.0				
	2,4-Dimethylphenol	µg/l		< 10.0				
	4,6-Dinitro-2-methylphenol	µg/l		< 10.0				
	2,4-Dinitrophenol	µg/l		< 10.0				
	2-Methylphenol	µg/l		80.2	7.60 - 110	22.2 - 92.8		
	3-Methylphenol	µg/l		< 10.0				
	4-Methylphenol	µg/l		< 10.0				
	2-Nitrophenol	µg/l		< 10.0				
	3-Nitrophenol	µg/l		< 10.0				
	4-Nitrophenol	µg/l		< 10.0				
	Pentachlorophenol	µg/l		134	10.1 - 200	41.7 - 168		
	Phenol	µg/l		71.7	D.L. - 111	D.L. - 88.7		
	2,4,5-Trichlorophenol	µg/l		< 10.0				
	2,4,6-Trichlorophenol	µg/l		120	30.3 - 160	51.8 - 138		

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
PAH's	Acenaphthene	µg/l		0.821	D.L. - 1.84	D.L. - 1.39		
	Acenaphthylene	µg/l		< 0.100				
	Anthracene	µg/l		0.857	0.173 - 1.26	0.354 - 1.08		
	Benzo(a)anthracene	µg/l		< 0.100				
	Benzo(b)fluoranthene	µg/l		0.870	0.225 - 1.25	0.396 - 1.08		
	Benzo(k)fluoranthene	µg/l		< 0.100				
	Benzo(g,h,i)perylene	µg/l		4.12	D.L. - 6.39	0.937 - 5.34		
	Benzo(a)pyrene	µg/l		< 0.100				
	Chrysene	µg/l		0.620	0.309 - 0.839	0.397 - 0.755		
	Dibenz(a,h)anthracene	µg/l		< 0.100				
	Fluoranthene	µg/l		3.74	1.76 - 4.97	2.29 - 4.43		
	Fluorene	µg/l		< 0.100				
	Indeno(1,2,3-cd)pyrene	µg/l		< 0.100				
	Naphthalene	µg/l		< 0.100				
	Phenanthrene	µg/l		< 0.100				
	Pyrene	µg/l		< 0.100				

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ERA Laboratory Code: R1456-02B EPA ID: CA00044 State ID: CA2166 Report Issued: 03/28/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Minerals	Total Solids at 105°C	mg/l		244	166 - 310	190 - 286		
	Total Dissolved Solids	mg/l		228	168 - 288	188 - 268		
	Conductivity at 25°C	µmhos		315	291 - 339	299 - 331		
	Alkalinity as CaCO3	mg/l		55.3	49.2 - 61.7	51.3 - 59.6		
	Chloride	mg/l	39.5	39.5	34.8 - 43.6	36.3 - 42.2	Acceptable	EPA9056
	Fluoride	mg/l	2.37	2.54	2.21 - 2.84	2.32 - 2.73	Acceptable	EPA9056
	Potassium	mg/l	24.7	24.5	21.1 - 28.0	22.2 - 26.8	Acceptable	EPA6020
	Sodium	mg/l	47.1	50.4	45.4 - 55.6	47.1 - 53.9	Acceptable	EPA6020
	Sulfate	mg/l	24.4	23.7	18.7 - 28.1	20.2 - 26.6	Acceptable	EPA9056
pH	pH	S.U.		9.00	8.73 - 9.27	8.82 - 9.18		
Hardness	Total Suspended Solids	mg/l		36.3	26.7 - 38.7	28.7 - 36.7		
	Calcium	mg/l	42.0	42.4	37.8 - 48.2	39.5 - 46.4	Acceptable	EPA6020
	Magnesium	mg/l	30.8	29.8	26.1 - 33.4	27.3 - 32.2	Acceptable	EPA6020
	Calcium hardness (CaCO3)	mg/l		106	83.8 - 128	91.2 - 121		
	Total Hardness (CaCO3)	mg/l	232	228	208 - 249	215 - 242	Acceptable	EPA6020
Demand	BOD	mg/l		37.1	18.5 - 55.7	24.7 - 49.5		
	CBOD	mg/l		32.0	14.3 - 49.7	20.2 - 43.8		
	COD	mg/l		59.8	41.6 - 73.2	46.9 - 67.9		
	TOC	mg/l		23.6	19.6 - 27.5	20.9 - 26.2		
Nutrients - Simple	Ammonia as N	mg/l		1.30	0.926 - 1.69	1.05 - 1.56		
	Nitrate as N	mg/l	15.5	16.0	12.7 - 19.0	13.7 - 17.9	Acceptable	EPA9056
	Ortho-phosphate as P	mg/l	3.79	3.31	2.82 - 3.83	2.99 - 3.66	Check for Error	EPA9056
Nutrients - Complex	Total phosphorus as P	mg/l		4.34	3.30 - 5.09	3.60 - 4.79		
	Total kjeldahl nitrogen	mg/l		5.78	3.97 - 7.51	4.56 - 6.92		
Cyanide	Cyanide, total	mg/l	0.750	0.729	0.506 - 0.937	0.578 - 0.865	Acceptable	EPA335.2
Phenolics	Phenolics, total	mg/l		0.748	0.408 - 1.09	0.522 - 0.974		
Grease & Oil	Grease & Oil (Gravimetric)	mg/l		29.7	18.7 - 34.9	21.4 - 32.2		
TRC	Total Residual Chlorine	mg/l		1.33	1.05 - 1.61	1.14 - 1.52		

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Trace Metals	Aluminum	µg/l	547	547	459 - 635	488 - 606	Acceptable	EPA200.8
	Antimony	µg/l	313	317	217 - 384	244 - 356	Acceptable	EPA200.8
	Arsenic	µg/l	458	484	405 - 567	432 - 540	Acceptable	EPA200.8
	Barium	µg/l	511	542	395 - 689	444 - 640	Acceptable	EPA200.8
	Beryllium	µg/l	876	835	711 - 943	749 - 904	Acceptable	EPA200.8
	Boron	µg/l	572	566	413 - 719	464 - 668	Acceptable	EPA200.8
	Cadmium	µg/l	377	403	344 - 458	363 - 439	Acceptable	EPA200.8
	Chromium	µg/l	861	787	686 - 889	720 - 856	Check for Error	EPA200.8
	Cobalt	µg/l	814	710	624 - 795	653 - 767	Not Acceptable	EPA200.8
	Copper	µg/l	685	639	580 - 701	601 - 681	Check for Error	EPA200.8
	Iron	µg/l	2080	2540	2260 - 2860	2360 - 2760	Not Acceptable	EPA200.8
	Lead	µg/l	142	141	117 - 164	125 - 157	Acceptable	EPA200.8
	Manganese	µg/l	2820	2480	2230 - 2760	2320 - 2670	Not Acceptable	EPA200.8
	Molybdenum	µg/l	484	515	443 - 589	467 - 565	Acceptable	EPA200.8
	Nickel	µg/l	901	828	748 - 926	777 - 896	Check for Error	EPA200.8
	Selenium	µg/l	843	853	677 - 988	729 - 936	Acceptable	EPA200.8
	Silver	µg/l	233	219	188 - 251	198 - 240	Acceptable	EPA200.8
	Strontium	µg/l	287	261	222 - 299	235 - 286	Check for Error	EPA200.8
	Thallium	µg/l	409	399	321 - 464	345 - 440	Acceptable	EPA200.8
	Vanadium	µg/l	489	531	477 - 583	495 - 565	Check for Error	EPA200.8
	Zinc	µg/l	1100	1200	1070 - 1350	1110 - 1300	Check for Error	EPA200.8
Mercury	Mercury	µg/l	1.06	1.12	0.721 - 1.52	0.855 - 1.39	Acceptable	EPA200.8
Titanium	Titanium	µg/l		251	216 - 283	227 - 271		
Coliforms	Total Coliforms	CFU		16	D.L. - 26	0 - 21		
	Fecal Coliforms (E.coli)	CFU		13	D.L. - 25	D.L. - 19		
	Total Coliforms (MPN)	CFU		16	1 - 55	7 - 45		
	Fecal Coliforms (MPN)	CFU		13	1 - 46	5 - 38		

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ERA Laboratory Code: R1456-02C EPA ID: CA00044 State ID: CA2166 Report Issued: 03/28/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Minerals	Total Solids at 105°C	mg/l		244	166 - 310	190 - 286		
	Total Dissolved Solids	mg/l		228	168 - 288	188 - 268		
	Conductivity at 25°C	µmhos		315	291 - 339	299 - 331		
	Alkalinity as CaCO3	mg/l	56.0	55.3	49.2 - 61.7	51.3 - 59.6	Acceptable	SM2320B
	Chloride	mg/l		39.5	34.8 - 43.6	36.3 - 42.2		
	Fluoride	mg/l		2.54	2.21 - 2.84	2.32 - 2.73		
	Potassium	mg/l	24.7	24.5	21.1 - 28.0	22.2 - 26.8	Acceptable	EPA200.8
	Sodium	mg/l	47.1	50.4	45.4 - 55.6	47.1 - 53.9	Acceptable	EPA200.8
	Sulfate	mg/l		23.7	18.7 - 28.1	20.2 - 26.6		
pH	pH	S.U.		9.00	8.73 - 9.27	8.82 - 9.18		
Hardness	Total Suspended Solids	mg/l		36.3	26.7 - 38.7	28.7 - 36.7		
	Calcium	mg/l	42.0	42.4	37.8 - 48.2	39.5 - 46.4	Acceptable	EPA200.8
	Magnesium	mg/l	30.8	29.8	26.1 - 33.4	27.3 - 32.2	Acceptable	
	Calcium hardness (CaCO3)	mg/l		106	83.8 - 128	91.2 - 121		
	Total Hardness (CaCO3)	mg/l	232	228	208 - 249	215 - 242	Acceptable	EPA200.8
Demand	BOD	mg/l		37.1	18.5 - 55.7	24.7 - 49.5		
	CBOD	mg/l		32.0	14.3 - 49.7	20.2 - 43.8		
	COD	mg/l		59.8	41.6 - 73.2	46.9 - 67.9		
	TOC	mg/l	24.2	23.6	19.6 - 27.5	20.9 - 26.2	Acceptable	SM5310C
Nutrients - Simple	Ammonia as N	mg/l		1.30	0.926 - 1.69	1.05 - 1.56		
	Nitrate as N	mg/l		16.0	12.7 - 19.0	13.7 - 17.9		
	Ortho-phosphate as P	mg/l		3.31	2.82 - 3.83	2.99 - 3.66		
Nutrients - Complex	Total phosphorus as P	mg/l		4.34	3.30 - 5.09	3.60 - 4.79		
	Total kjeldahl nitrogen	mg/l		5.78	3.97 - 7.51	4.56 - 6.92		
Cyanide	Cyanide, total	mg/l	0.750	0.729	0.506 - 0.937	0.578 - 0.865	Acceptable	SM4500CNE
Phenolics	Phenolics, total	mg/l	0.828	0.748	0.408 - 1.09	0.522 - 0.974	Acceptable	SM5530D
Grease & Oil	Grease & Oil (Gravimetric)	mg/l		29.7	18.7 - 34.9	21.4 - 32.2		
TRC	Total Residual Chlorine	mg/l		1.33	1.05 - 1.61	1.14 - 1.52		

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Trace Metals	Aluminum	µg/l	547	547	459 - 635	488 - 606	Acceptable	EPA6020
	Antimony	µg/l	313	317	217 - 384	244 - 356	Acceptable	EPA6020
	Arsenic	µg/l	458	484	405 - 567	432 - 540	Acceptable	EPA6020
	Barium	µg/l	511	542	395 - 689	444 - 640	Acceptable	EPA6020
	Beryllium	µg/l	876	835	711 - 943	749 - 904	Acceptable	EPA6020
	Boron	µg/l	572	566	413 - 719	464 - 668	Acceptable	EPA6020
	Cadmium	µg/l	377	403	344 - 458	363 - 439	Acceptable	EPA6020
	Chromium	µg/l	861	787	686 - 889	720 - 856	Check for Error	EPA6020
	Cobalt	µg/l	814	710	624 - 795	653 - 767	Not Acceptable	EPA6020
	Copper	µg/l	685	639	580 - 701	601 - 681	Check for Error	EPA6020
	Iron	µg/l	2080	2540	2260 - 2860	2360 - 2760	Not Acceptable	EPA6020
	Lead	µg/l	142	141	117 - 164	125 - 157	Acceptable	EPA6020
	Manganese	µg/l	2820	2480	2230 - 2760	2320 - 2670	Not Acceptable	EPA6020
	Molybdenum	µg/l	484	515	443 - 589	467 - 565	Acceptable	EPA6020
	Nickel	µg/l	901	828	748 - 926	777 - 896	Check for Error	EPA6020
	Selenium	µg/l	843	853	677 - 988	729 - 936	Acceptable	EPA6020
	Silver	µg/l	233	219	188 - 251	198 - 240	Acceptable	EPA6020
	Strontium	µg/l	287	261	222 - 299	235 - 286	Check for Error	EPA6020
	Thallium	µg/l	409	399	321 - 464	345 - 440	Acceptable	EPA6020
	Vanadium	µg/l	489	531	477 - 583	495 - 565	Check for Error	EPA6020
	Zinc	µg/l	1100	1200	1070 - 1350	1110 - 1300	Check for Error	EPA6020
Mercury	Mercury	µg/l	1.06	1.12	0.721 - 1.52	0.855 - 1.39	Acceptable	EPA6020
Titanium	Titanium	µg/l		251	216 - 283	227 - 271		
Coliforms	Total Coliforms	CFU		16	D.L. - 26	0 - 21		
	Fecal Coliforms (E.coli)	CFU		13	D.L. - 25	D.L. - 19		
	Total Coliforms (MPN)	CFU		16	1 - 55	7 - 45		
	Fecal Coliforms (MPN)	CFU		13	1 - 46	5 - 38		

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ERA Laboratory Code: R1456-02D EPA ID: CA00044 State ID: CA2166 Report Issued: 03/28/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Minerals	Total Solids at 105°C	mg/l		244	166 - 310	190 - 286		
	Total Dissolved Solids	mg/l		228	168 - 288	188 - 268		
	Conductivity at 25°C	µmhos		315	291 - 339	299 - 331		
	Alkalinity as CaCO3	mg/l		55.3	49.2 - 61.7	51.3 - 59.6		
	Chloride	mg/l		39.5	34.8 - 43.6	36.3 - 42.2		
	Fluoride	mg/l		2.54	2.21 - 2.84	2.32 - 2.73		
	Potassium	mg/l		24.5	21.1 - 28.0	22.2 - 26.8		
	Sodium	mg/l		50.4	45.4 - 55.6	47.1 - 53.9		
	Sulfate	mg/l		23.7	18.7 - 28.1	20.2 - 26.6		
pH	pH	S.U.		9.00	8.73 - 9.27	8.82 - 9.18		
Hardness	Total Suspended Solids	mg/l		36.3	26.7 - 38.7	28.7 - 36.7		
	Calcium	mg/l		42.4	37.8 - 48.2	39.5 - 46.4		
	Magnesium	mg/l		29.8	26.1 - 33.4	27.3 - 32.2		
	Calcium hardness (CaCO3)	mg/l		106	83.8 - 128	91.2 - 121		
	Total Hardness (CaCO3)	mg/l		228	208 - 249	215 - 242		
Demand	BOD	mg/l		37.1	18.5 - 55.7	24.7 - 49.5		
	CBOD	mg/l		32.0	14.3 - 49.7	20.2 - 43.8		
	COD	mg/l		59.8	41.6 - 73.2	46.9 - 67.9		
	TOC	mg/l		23.6	19.6 - 27.5	20.9 - 26.2		
Nutrients - Simple	Ammonia as N	mg/l		1.30	0.926 - 1.69	1.05 - 1.56		
	Nitrate as N	mg/l		16.0	12.7 - 19.0	13.7 - 17.9		
	Ortho-phosphate as P	mg/l		3.31	2.82 - 3.83	2.99 - 3.66		
Nutrients - Complex	Total phosphorus as P	mg/l		4.34	3.30 - 5.09	3.60 - 4.79		
	Total kjeldahl nitrogen	mg/l		5.78	3.97 - 7.51	4.56 - 6.92		
Cyanide	Cyanide, total	mg/l		0.729	0.506 - 0.937	0.578 - 0.865		
Phenolics	Phenolics, total	mg/l		0.748	0.408 - 1.09	0.522 - 0.974		
Grease & Oil	Grease & Oil (Gravimetric)	mg/l		29.7	18.7 - 34.9	21.4 - 32.2		
TRC	Total Residual Chlorine	mg/l		1.33	1.05 - 1.61	1.14 - 1.52		

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ENVIRONMENTAL RESOURCE ASSOCIATES®

WP-60 Final Report

ERA Laboratory Code: R1456-02D EPA ID: CA00044 State ID: CA2166 Report Issued: 03/28/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Trace Metals	Aluminum	µg/l		547	459 - 635	488 - 606		
	Antimony	µg/l		317	217 - 384	244 - 356		
	Arsenic	µg/l	427	484	405 - 567	432 - 540	Check for Error	EPA7060A
	Barium	µg/l		542	395 - 689	444 - 640		
	Beryllium	µg/l		835	711 - 943	749 - 904		
	Boron	µg/l		566	413 - 719	464 - 668		
	Cadmium	µg/l	393	403	344 - 458	363 - 439	Acceptable	EPA7131A
	Chromium	µg/l	772	787	686 - 889	720 - 856	Acceptable	EPA7191
	Cobalt	µg/l		710	624 - 795	653 - 767		
	Copper	µg/l		639	580 - 701	601 - 681		
	Iron	µg/l		2540	2260 - 2860	2360 - 2760		
	Lead	µg/l	153	141	117 - 164	125 - 157	Acceptable	EPA7421
	Manganese	µg/l		2480	2230 - 2760	2320 - 2670		
	Molybdenum	µg/l		515	443 - 589	467 - 565		
	Nickel	µg/l		828	748 - 926	777 - 896		
	Selenium	µg/l	933	853	677 - 988	729 - 936	Acceptable	EPA7740
	Silver	µg/l		219	188 - 251	198 - 240		
	Strontium	µg/l		261	222 - 299	235 - 286		
	Thallium	µg/l	431	399	321 - 464	345 - 440	Acceptable	EPA7841
	Vanadium	µg/l		531	477 - 583	495 - 565		
	Zinc	µg/l		1200	1070 - 1350	1110 - 1300		
Mercury	Mercury	µg/l	1.10	1.12	0.721 - 1.52	0.855 - 1.39	Acceptable	EPA7470A
Titanium	Titanium	µg/l		251	216 - 283	227 - 271		
Coliforms	Total Coliforms	CFU		16	D.L. - 26	0 - 21		
	Fecal Coliforms (E.coli)	CFU		13	D.L. - 25	D.L. - 19		
	Total Coliforms (MPN)	CFU		16	1 - 55	7 - 45		
	Fecal Coliforms (MPN)	CFU		13	1 - 46	5 - 38		

NVLAP

ENVIRONMENTAL RESOURCE ASSOCIATES®

WP-60 Final Report

ERA Laboratory Code: R1456-02E EPA ID: CA00044 State ID: CA2166 Report Issued: 03/28/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Minerals	Total Solids at 105°C	mg/l		244	166 - 310	190 - 286		
	Total Dissolved Solids	mg/l		228	168 - 288	188 - 268		
	Conductivity at 25°C	µmhos		315	291 - 339	299 - 331		
	Alkalinity as CaCO3	mg/l		55.3	49.2 - 61.7	51.3 - 59.6		
	Chloride	mg/l		39.5	34.8 - 43.6	36.3 - 42.2		
	Fluoride	mg/l		2.54	2.21 - 2.84	2.32 - 2.73		
	Potassium	mg/l		24.5	21.1 - 28.0	22.2 - 26.8		
	Sodium	mg/l		50.4	45.4 - 55.6	47.1 - 53.9		
	Sulfate	mg/l		23.7	18.7 - 28.1	20.2 - 26.6		
pH	pH	S.U.		9.00	8.73 - 9.27	8.82 - 9.18		
Hardness	Total Suspended Solids	mg/l		36.3	26.7 - 38.7	28.7 - 36.7		
	Calcium	mg/l		42.4	37.8 - 48.2	39.5 - 46.4		
	Magnesium	mg/l		29.8	26.1 - 33.4	27.3 - 32.2		
	Calcium hardness (CaCO3)	mg/l		106	83.8 - 128	91.2 - 121		
	Total Hardness (CaCO3)	mg/l		228	208 - 249	215 - 242		
Demand	BOD	mg/l		37.1	18.5 - 55.7	24.7 - 49.5		
	CBOD	mg/l		32.0	14.3 - 49.7	20.2 - 43.8		
	COD	mg/l		59.8	41.6 - 73.2	46.9 - 67.9		
	TOC	mg/l		23.6	19.6 - 27.5	20.9 - 26.2		
Nutrients - Simple	Ammonia as N	mg/l		1.30	0.926 - 1.69	1.05 - 1.56		
	Nitrate as N	mg/l		16.0	12.7 - 19.0	13.7 - 17.9		
	Ortho-phosphate as P	mg/l		3.31	2.82 - 3.83	2.99 - 3.66		
Nutrients - Complex	Total phosphorus as P	mg/l		4.34	3.30 - 5.09	3.60 - 4.79		
	Total kjeldahl nitrogen	mg/l		5.78	3.97 - 7.51	4.56 - 6.92		
Cyanide	Cyanide, total	mg/l		0.729	0.506 - 0.937	0.578 - 0.865		
Phenolics	Phenolics, total	mg/l		0.748	0.408 - 1.09	0.522 - 0.974		
Grease & Oil	Grease & Oil (Gravimetric)	mg/l		29.7	18.7 - 34.9	21.4 - 32.2		
TRC	Total Residual Chlorine	mg/l		1.33	1.05 - 1.61	1.14 - 1.52		

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ENVIRONMENTAL RESOURCE ASSOCIATES®

WP-60 Final Report

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ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Trace Metals	Aluminum	µg/l		547	459 - 635	488 - 606		
	Antimony	µg/l		317	217 - 384	244 - 356		
	Arsenic	µg/l	427	484	405 - 567	432 - 540	Check for Error	EPA206.2
	Barium	µg/l		542	395 - 689	444 - 640		
	Beryllium	µg/l		835	711 - 943	749 - 904		
	Boron	µg/l		566	413 - 719	464 - 668		
	Cadmium	µg/l	393	403	344 - 458	363 - 439	Acceptable	EPA213.2
	Chromium	µg/l	772	787	686 - 889	720 - 856	Acceptable	EPA218.2
	Cobalt	µg/l		710	624 - 795	653 - 767		
	Copper	µg/l		639	580 - 701	601 - 681		
	Iron	µg/l		2540	2260 - 2860	2360 - 2760		
	Lead	µg/l	153	141	117 - 164	125 - 157	Acceptable	EPA239.2
	Manganese	µg/l		2480	2230 - 2760	2320 - 2670		
	Molybdenum	µg/l		515	443 - 589	467 - 565		
	Nickel	µg/l		828	748 - 926	777 - 896		
	Selenium	µg/l	933	853	677 - 988	729 - 936	Acceptable	EPA270.2
	Silver	µg/l		219	188 - 251	198 - 240		
	Strontium	µg/l		261	222 - 299	235 - 286		
	Thallium	µg/l	431	399	321 - 464	345 - 440	Acceptable	EPA279.2
	Vanadium	µg/l		531	477 - 583	495 - 565		
	Zinc	µg/l		1200	1070 - 1350	1110 - 1300		
Mercury	Mercury	µg/l	1.10	1.12	0.721 - 1.52	0.855 - 1.39	Acceptable	EPA245.1
Titanium	Titanium	µg/l		251	216 - 283	227 - 271		
Coliforms	Total Coliforms	CFU		16	D.L. - 26	0 - 21		
	Fecal Coliforms (E.coli)	CFU		13	D.L. - 25	D.L. - 19		
	Total Coliforms (MPN)	CFU		16	1 - 55	7 - 45		
	Fecal Coliforms (MPN)	CFU		13	1 - 46	5 - 38		

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ATTACHMENT 3

FIELD AUDIT REPORTS

M E M O

Date: December 20, 1999

To: Chris Davis
Quality Control Systems Manager

cc: Michael Dukes, P.E.

From: William M. Knight, P.E.

Subject: Field QA Audit
Non-Ordnance and Explosives RI/FS
Tourtelot Cleanup Project, Benicia, California

This memorandum summarizes the results of my Field Quality Assurance (QA) Audit of the Non-Ordnance and Explosives (non-OE) Remedial Investigation/Feasibility Study (RI/FS) at the Tourtelot site in Benicia, California. The Field QA Audit was conducted in accordance with the requirements of Section 3.3.2.3 of the non-OE RI/FS Work Plan. The Audit was conducted on December 9, 1999.

During the Audit, I observed the daily health and safety briefing, the field techniques employed by the three field teams, and the sample and document handling techniques employed by personnel at the field trailer. In general, observed procedures and techniques were in accordance with the Work Plan and best professional standards. Specific issues identified during the Audit were discussed with the Field Team Leader (FTL) during the Audit. Responses for each issue were implemented by the FTL during the same day. More details are provided in the following paragraphs.

Health and Safety Briefing: Acceptable. Suggested to the FTL that the project use a sign-in and sign-out log so that the specific employees on-site could be easily determined in an emergency.

Team #2: Working on temporary well TW-5 in the Howitzer Area. Observed acceptable procedures and techniques, including the following: push rig sampling, sub-sampling with Encore, lithologic logging, field record keeping, sample labeling, sample handling, PID calibration records, PID usage, PPE usage, and equipment decontamination. Observed the use of hand augers to generate soil for 4 duplicate samples from a depth of 0.5'-1.0', and the collection of the 4 duplicate samples by hand-packing a liner with soil from each augered hole. This could release volatile organic compounds (VOCs). Although the samples retained by Earth Tech were not scheduled for VOC analysis, the samples to be provided to DTSC and the Corps might be analyzed for VOCs. Consequently, recommended to the FTL that the duplicate samples be collected again using the drill rig or a slide hammer. FTL directed the sampling crew to resample.

Team #1: Working on shallow boreholes TNT-4C2, TNT-4C3, and TNT-4C4 near TNT Strip 4. Observed acceptable procedures and techniques, including the following: push rig sampling, lithologic logging, field record keeping, sample labeling, sample handling, PID calibration

records, PID usage, and PPE usage.

Sample Handling and Documentation: Reviewed selected historic chain-of-custody records for completeness of signature trail and accuracy of analytical requests. These were acceptable. Observed one chain-of-custody record showing samples in possession of Earth Tech since December 3rd. Recommended to FTL that he make sure the status of these samples was resolved; FTL later reported that the samples were no longer scheduled for analysis, and that they would be properly disposed with other IDW. Confirmed with QCSM that no additional sample volume was necessary for field samples designated for MS/MSD analysis.

Team #3: Working on TW-8 and TW-9, temporary well locations downhill of the Ammo Renovation Area. Team just finishing the sampling of (dry) TW-8 as I arrived, and was unable to start TW-9 due to darkness. Observed acceptable procedures and techniques, including the following: push rig sampling, lithologic logging, field record keeping, sample labeling, sample handling, PID calibration records, PID usage, PPE usage, and equipment decontamination.

Daily Field Report

EARTH TECH

A tyco INTERNATIONAL LTD. COMPANY

Owner: Granite

Report No.:

Page 1 of 2

Project: Seneca - Tourtelot Site

Date: Thurs Dec 9 1999

Project No.: 35734

Weather: A.M. sunny + cold P.M. intermittent rain

Temp.(°F): High Low Rain

Contractor(s)

Contractor Super(s) Earth Tech Field Team Leader (FTL) - Richard Burzinski

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

	Contractor	No. of People	Major Constr. Equip. Description	Size/Capacity	No.	No. in Use
Crew II	Precision	2+2+1	- Push Rig, ET Geol + Ordnance Expert			
Team I	Precision	2+2+1	- Push Rig, 2 ET Geol + Ordnance Expert			
Team 3	Clearhart	2+1+1	- Truck HSA Rig, ET Geol + Ord Expt			

Visitors

Representing

Daily Notations:

0745 Health and Safety Tailgate Briefing By FTL

Recommendation to FTL sign out log for tracking people in case of emergency

0830 With Crew #II - Mike Osborne (Geo) + Sherry Butler (UXO) at Howitzer Area. TW-5. Hand augers to 0.5-1.0' for 4 lines (including dup + splits w/ COE + DTSC. Recommendation to FTL - resample w/ slide hammer per Sec 2.7.2.1. Recordkeeping, sample labelling, sample handling good. Encore sub-sample good, PID good, decon good

1030 With Team I - Rachel Goldberg (Geo) + Phil Ody (Asst) + Shannon Wilson (UX TNT Strip #4. Review COCs/logs for holes TNT-C1 + -C4, + -5. Good. Depends on cheat sheet of analyses for each hole, plus COE + DTSC splits, prepared by Randy Cooper, sampler handler in trailer. Randy fills in required analyses given depths.

Signature: William M. Wright

Daily Field Report

EARTH TECH

A tyco INTERNATIONAL LTD. COMPANY

~~909-424-1915~~

Project No.: 35734 Report No.:

Date: Thurs Dec 9 1999 Page: 2 of 2

Team 2 cont - Calibration records good, lithologic logging good, liner labelling good. Complete TNT-2, 3 + 4 holes.

12:30 - 1330 - Lunch

1330 To see decon procedures for Team 1 rig crew, all Teams pulled due lightning + hail from thunderstorm

1430 All clear for back to work. Discuss sample documentation and shipment with Randy Cooper. Analytical summary table prepared by Robert K from Colton. COC completion and signature trail OK. Checked w/ CM's Dave's - sufficient MS/MSD volume for Quanterra even if no addn collected (done w/out prior designation so refusal/non-collection doesn't cause missed MS/MSD. TNT-1CS samples signed over to Robert K on 12/3 but not shipped. Recommend to Field Team Leader to insure sample status resol

1530 With Team 3, just finishing TW-8, refused at 15.5' w/ no GW. Decon split spoon OK, HNu calibration record OK. Bob Singh w/ Mike (UXO). Sample labels OK - 1600 Set-up on TW-9, but too late to advance hole

1645 Leave site. Told TNT-1CS samples would not be analyzed, would discard.

1840 Home

Summary - Field Audit noted minor issues. Each was discussed with the field team leader and resolved during the work day. All 3 field teams, plus Command Post sample handling, were audited.

Signature William M. Knight

White Copy - Library File Yellow Copy - Owner Pink Copy - Employee's Field File

MEMO

To: Chris Davis
Quality Control Systems Manager

cc: Michael Dukes, P.E.

From: William M. Knight, P.E. WMK

Subject: Field QA Audit
Non-Ordnance and Explosives RI/FS Data Gaps
Tourtelot Cleanup Project, Benicia, California

This memorandum summarizes the results of my Field Quality Assurance (QA) Audit of the Non-Ordnance and Explosives (non-OE) Remedial Investigation/Feasibility Study (RI/FS) Data Gaps investigation at the Tourtelot site in Benicia, California. This Field QA Audit was conducted in accordance with the requirements of Section 3.3.2.3 of the non-OE RI/FS Work Plan. The Audit was conducted on March 31, 2000.

During the Audit, I observed the daily health and safety briefing, the field techniques employed by two field teams, and the sample and document handling techniques employed by personnel at the field trailer. A third field team active on site during the day of the audit demobilized before I could audit them. The observed procedures and techniques were in accordance with the Work Plan and best professional standards. More details are provided in the following paragraphs.

Health and Safety Briefing: Acceptable.

Team #1: Rick Heidrick, Earth Tech, working with an All-Terrain mud rotary rig to advance borings at TNT Strips. Observed acceptable procedures and techniques, including the following: areas cleared for ordinance, wearing proper PPE, investigation locations placed properly, lithologic logging, sample identification and labeling.

Team #2: Richard Burzinski, Earth Tech, working with West HazMat drillers at the Ammunition Renovation Area. Observed acceptable procedures and techniques, including the following: areas cleared for ordinance, wearing proper PPE, investigation locations placed properly, lithologic logging, soil sample collection, encore subsample collection, sample identification and labeling, sample cooling, chain-of-custody preparation, photoionization detector use and calibration, and investigation derived waste management.

Team #3: Tony Buangan, Earth Tech, working with Clearhart drilling, grouting borings. Team was demobilizing before I could review their work procedures and techniques.

Sample Handling and Documentation: Reviewed selected historic chain-of-custody records for completeness of signature trail and accuracy of analytical requests. Reviewed sample storage and handling methods. All were acceptable.

Daily Field Report

EARTH TECH

A tyco INTERNATIONAL LTD. COMPANY

Owner: Granite

Report No.: -

Page 1 of

Project: Tourtelot Clean Up

Date: ~~4/4~~ 3/31/00

Project: No.: 39901

Weather: A.M. P.M.

Temp.(°F): High Low Rain

Contractor(s)

Contractor Super(s)

Number and Function of Contractors' Personnel, Hours Worked (Identify Subcontractors Separately)

Contractor	No. of People

Major Constr. Equip. Description	Size/Capacity	No.	No. in Use

Visitors

Representing

Daily Notations:

Arrive 11AM to do field audit. Previously prepared checklist

Activities:

Team 1. Rick Heldrick w/ All-Terrain at TNT strips (Borings)

2. Dick Burzinski w/ West Haz Mat at Ammunition Removal

3. Tony Buangan w/ Clearhart - grouting borings. Now demobing

Signature:

Field Audit Checklist

Project: Tonawanda Cleanup Data Gaps **Project Number:** 39901

Auditor: William M. Knight **Date:** 3/31/00 Drilling OXO

Field Team Audited: Team 1 - Rick Heidrick w/ All-Terrain + Mike Stone rock Borings at TNT Strips w/ Mud Rotary Rig

Field Task	Procedure Acceptable	Issues Identified	Not Observed	Notes
Attended Tailgate Meeting	✓			
Wearing Proper PPE	✓			Level D
Investigation Location Placement	✓			TNT-2F, -1P
Lithologic Logging	✓			TNT-2F. Collecting cores of bedrock
TNT Strip Drilling – 1st 3 Feet			X	Already performed at -2F. Same TNT-1P
TNT Field Soil Test Kits			X	Already performed for full invest.
Soil Sample Collection			X	
Encore Subsample Collection			X	
Sample Identification	✓			
Sample Labelling	✓			Core Boxes
Sample Coolers			NA	
Chain-of-Custody			NA	Core boxes not treated as env. samples
PID Calibration Records			NA	
PID Use			NA	
Groundwater Well Installation			NA	
Groundwater Well Development			NA	
Groundwater Well Purging			NA	
Groundwater Sample Collection			NA	
Decontamination			NA	
IDW Management	✓			Cuttings/Mud from Mud Rotary

William M. Knight 3/31/00

Field Audit Checklist

Project: Tourtelot Cleanup Data Gaps **Project Number:** 39901

Auditor: William M. Knight **Date:** 3/31/00

Field Team Audited: Team 2 - Dick Burzinski w/ West Hoz Drilling Mat + Mike Hayes UXO

Borings at Ammunition Renovation

Field Task	Procedure Acceptable	Issues Identified	Not Observed	Notes
Attended Tailgate Meeting	✓			
Wearing Proper PPE	✓			Level D PPE
Investigation Location Placement	✓			AR-9. 2nd try, 1st terminated at refusal 7'
Lithologic Logging	✓			
TNT Strip Drilling – 1st 3 Feet			NA	
TNT Field Soil Test Kits			NA	
Soil Sample Collection	✓			
Encore Subsample Collection	✓			AR-9/10 etc
Sample Identification	✓			
Sample Labelling	✓			
Sample Coolers	✓			2 bags ice
Chain-of-Custody	✓			completed by geologist, QC checks by sample handler
PID Calibration Records	✓			Field notebook and calibration sheet
PID Use	✓			H+S Only, and downhole. Not soil bags
Groundwater Well Installation			NA	
Groundwater Well Development			NA	
Groundwater Well Purging			NA	
Groundwater Sample Collection			NA	
Decontamination			NA	
IDW Management	✓			Cuttings Drummed

William M. Knight 3/31/00

EARTH TECH

Site Safety Meetings
Tourtelot Cleanup Project
Tailgate Safety Briefing Sign-In Log

Date: 3-31-2009 Time: 0720

Briefing Conducted By:	Signature:	Company Name:
Richard Burzinski	[signature]	Earth Tech

This sign-in log documents the tailgate safety briefing conducted in accordance with 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" as well as other applicable regulatory requirements. Personnel who perform work operations onsite are required to attend each safety briefing and acknowledge receipt of such briefings daily or as required.

TOPICS COVERED: Wind & heat

☑ General PPE usage	☑ Decontamination Procedures	☑ Emergency Procedures
☑ Respiratory Protection	☑ Smoking Eating and Drinking	☑ Existing Work Zones
☑ Hearing Conservation	☑ Slips, Trips, and Falls	☑ Lockout/Tagout
☑ Personal Hygiene	☑ Heat and Cold Stress	☑ Excavation/Confined Spaces
☑ Exposure Guidelines	☑ Site Control	☑ New Work Procedures

Personnel Sign-in List

Printed Name	Signature	Company Name
Vic Whitaker	[signature]	W.H.D.
Mike Radakovitz	[signature]	W.H.D.
Kenny George	[signature]	C.H.D
Rich Ughetz	[signature]	ATD
Chris Herrell	[signature]	CHA
Roy Cormier	[signature]	ATD
Rick Heidrick	[signature]	Earth Tech
Tony Romaya	[signature]	E. Tech.
Jim Hayes	[signature]	"
Mike Stowaroch	[signature]	EMMITTECH
Robert Kohlhardt	[signature]	EARTH TECH

Field Audit Checklist

Project: **Project Number:**

Auditor: **Date:**

Field Team Audited:

Field Task	Procedure Acceptable	Issues Identified	Not Observed	Notes
Attended Tailgate Meeting				
Wearing Proper PPE				
Investigation Location Placement				
Lithologic Logging				
TNT Strip Drilling – 1st 3 Feet				
TNT Field Soil Test Kits				
Soil Sample Collection				
Encore Subsample Collection				
Sample Identification				
Sample Labelling				
Sample Coolers				
Chain-of-Custody				
PID Calibration Records				
PID Use				
Groundwater Well Installation				
Groundwater Well Development				
Groundwater Well Purging				
Groundwater Sample Collection				
Decontamination				
IDW Management				

ATTACHMENT 4

LABORATORY CERTIFICATION DOCUMENTATION

CALTEST ANALYTICAL LABORATORIES

Department of Health Services
ELAP (Environmental Laboratory Accreditation Program) Certification

Certificate No. 1664

Issued at: Berkeley, CA.

Date Issued: May 14,1999

STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY

GRAY DAVIS, Governor

DEPARTMENT OF HEALTH SERVICES
2151 BERKELEY WAY
BERKELEY, CA 94704-1011

(510) 540-2800

May 14, 1999

CHRISTINE HORN
CALTEST ANALYTICAL LABORATORY
1885 NORTH KELLY ROAD
NAPA, CA 94558-

Certificate No.: 1664

Dear CHRISTINE HORN:

Enclosed is an amended copy of your ELAP Fields of Testing List.

If you have any questions, please contact our office at (510) 540-2800.

Sincerely,

George C. Kulasingam, Ph.D.
Program Chief
Environmental Laboratory
Accreditation Program

Enclosure

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
List of Approved Fields of Testing and Analytes

CALTEST ANALYTICAL LABORATORY
1885 NORTH KELLY ROAD
NAPA, CA

PHONE No. (707) 258-4000
COUNTY NAPA

Certificate No. 1664
Expiration Date 11/30/1999

01 Microbiology of Drinking Water and Wastewater

01.01A	Total and Fecal Coliform in Drinking Water by Multiple Tube Fermentation
01.03	Total Coliform and E. coli in Drinking Water by Chromogenic/Fluorogenic Substrate
01.05	Heterotrophic Plate Count
01.06	Total Coliform in Wastewater by Multiple Tube Fermentation
01.07	Fecal Coliform in Wastewater by Multiple Tube Fermentation
01.10	Fecal Streptococci or Enterococci by Multiple Tube Fermentation
01.12	Total Coliform in Source Water by Multiple Tube Fermentation
01.13	Fecal Coliform in Source Water by Multiple Tube Fermentation
01.16	Total Coliform in Source Water by Chromogenic/Fluorogenic Substrate

02 Inorganic Chemistry and Physical Properties of Drinking Water

02.01	Alkalinity
02.02	Calcium
02.03	Chloride
02.04	Corrosivity
02.05	Fluoride
02.06	Hardness
02.07	Magnesium
02.08	MBAS
02.09	Nitrate
02.10	Nitrite
02.11	Sodium
02.12	Sulfate
02.13	Total Filterable Residue and Conductivity
02.16	Phosphate, ortho
02.17	Silica
02.18	Cyanide
02.19	Potassium

03 Analysis of Toxic Chemical Elements in Drinking Water

03.01	Arsenic
03.02	Barium
03.03	Cadmium
03.04	Chromium, total
03.05	Copper
03.06	Iron
03.07	Lead
03.08	Manganese
03.09	Mercury
03.10	Selenium
03.11	Silver
03.12	Zinc
03.13	Aluminum
03.15	Antimony
03.16	Beryllium
03.17	Nickel
03.18	Thallium

04 Organic Chemistry of Drinking Water by GC/MS

04.02 EPA Method 524.2

05 Organic Chemistry of Drinking Water (excluding GC/MS)

05.06 EPA Method 504.1
05.07 EPA Method 505
05.09 EPA Method 507
05.10A EPA Method 508
05.11 EPA Method 508A
05.13A EPA Method 515.1

09 Physical Properties Testing of Hazardous Waste

09.01 Ignitability by Flashpoint Determination
09.02 Corrosivity - pH Determination

10 Inorganic Chemistry and Toxic Chemical Elements of Hazardous Waste

10.01 Antimony
10.02 Arsenic
10.03 Barium
10.04 Beryllium
10.05 Cadmium
10.06 Chromium, total
10.07 Cobalt
10.08 Copper
10.09 Lead
10.10 Mercury
10.11 Molybdenum
10.12 Nickel
10.13 Selenium
10.14 Silver
10.15 Thallium
10.16 Vanadium
10.17 Zinc
10.18 Chromium (VI)
10.19 Cyanide
10.20 Fluoride
10.21 Sulfide

11 Extraction Tests of Hazardous Waste

11.01 California Waste Extraction Test (WET)
11.03 Toxicity Characteristic Leaching Procedure (TCLP) All Classes

12 Organic Chemistry of Hazardous Waste by GC/MS

12.01 EPA Method 8240B
12.03 EPA Method 8270B
12.06 EPA Method 8260A

13 Organic Chemistry of Hazardous Waste (excluding GC/MS)

13.01 EPA Method 8010B
13.03 EPA Method 8020A
13.07A EPA Method 8080A
13.11B EPA Method 8141A
13.12C EPA Method 8151A
13.13 EPA Method 8310
13.14A EPA Method 632

Certificate No. 1664
Expiration Date 11/30/1999

13.15 Total Petroleum Hydrocarbons - Gasoline
13.16 Total Petroleum Hydrocarbons - Diesel
13.17 TRPH - Screening by IR
13.19 EPA Method 8021A
13.23 EPA Method 8330
13.30A EPA Method 8321A Carbamates only

16 Wastewater Inorganic Chemistry, Nutrients and Demand

16.01 Acidity
16.02 Alkalinity
16.03 Ammonia
16.04 Biochemical Oxygen Demand
16.05 Boron
16.06 Bromide
16.07 Calcium
16.08 Carbonaceous Biological Oxygen Demand (cBOD)
16.09 Chemical Oxygen Demand
16.10 Chloride
16.11 Chlorine Residual, total
16.12 Cyanide
16.13 Cyanide amenable to Chlorination
16.14 Fluoride
16.15 Hardness
16.16 Kjeldahl Nitrogen
16.17 Magnesium
16.18 Nitrate
16.19 Nitrite
16.20 Oil and Grease
16.21 Organic Carbon
16.22 Oxygen, Dissolved
16.23 pH
16.24 Phenols
16.25 Phosphate, ortho
16.26 Phosphorus, total
16.27 Potassium
16.28 Residue, Total
16.29 Residue, Filterable (Total Dissolved Solids)
16.30 Residue, Nonfilterable (Total Suspended Solids)
16.31 Residue, Settleable (Settleable Solids)
16.32 Residue, Volatile
16.33 Silica
16.34 Sodium
16.35 Specific Conductance
16.36 Sulfate
16.37 Sulfide (includes total & soluble)
16.38 Sulfite
16.39 Surfactants (MBAS)
16.41 Turbidity
16.44 Total Recoverable Petroleum Hydrocarbons by IR

17 Toxic Chemical Elements in Wastewater

17.01 Aluminum
17.02 Antimony
17.03 Arsenic

Certificate No. 1664
Expiration Date 11/30/1999

17.04	Barium
17.05	Beryllium
17.06	Cadmium
17.07	Chromium (VI)
17.08	Chromium, total
17.09	Cobalt
17.10	Copper
17.13	Iron
17.14	Lead
17.15	Manganese
17.16	Mercury
17.17	Molybdenum
17.18	Nickel
17.24	Selenium
17.25	Silver
17.27	Thallium
17.28	Tin
17.30	Vanadium
17.31	Zinc

18 Organic Chemistry of Wastewater by GC/MS

18.01	EPA Method 624
18.02	EPA Method 625

19 Organic Chemistry of Wastewater (excluding GC/MS)

19.01	EPA Method 601
19.02	EPA Method 602
19.04	EPA Method 604
19.05	EPA Method 605
19.06	EPA Method 606
19.07	EPA Method 607
19.08	EPA Method 608
19.09	EPA Method 609
19.10	EPA Method 610
19.11	EPA Method 611
19.12	EPA Method 632
19.14	EPA Method 612

Department of Health Services
ELAP (Environmental Laboratory Accreditation Program) Certification

Certificate No. 1664

Issued at: Berkeley, CA.

Date Issued: Nov. 1,1999

STATE OF CALIFORNIA—HEALTH AND HUMAN SERVICES AGENCY GRAY DAVIS, *Governor*

DEPARTMENT OF HEALTH SERVICES
2151 BERKELEY WAY
BERKELEY, CA 94704-1011

November 1, 1999

Certificate No.: 1664

CHRISTINE HORN
CALTEST ANALYTICAL LABORATORY
1885 NORTH KELLY ROAD
NAPA, CA 94558-

Dear CHRISTINE HORN:

This is to advise you that the laboratory named above continues to be certified as an environmental testing laboratory pursuant to the provisions of the California Environmental Laboratory Improvement Act of 1988 (Health and Safety Code (HSC), Division 101, Part 1, Chapter 4, Section 100825, et seq.). Certification for all currently certified Fields of Testing which the laboratory has applied for renewal shall remain in effect until 11/30/2001 unless revoked. Also, please note that continued use of the certificate is contingent upon:

* successful completion of the renewal site visit;
* acceptable performance in the required performance evaluation (PE) studies;
* timely payment of all fees, including an annual fee due on November 30, 2000;
* compliance with Environmental Laboratory Accreditation Program (ELAP) statutes (HSC, Section 100825, et seq.) and Regulations (California Code of Regulations (CCR), Title 22, Division 4, Chapter 19).

An updated "List of Approved Fields of Testing and Analytes" will be issued to the laboratory upon completion of the renewal process. The application for the next renewal must be received 90 days before the expiration of this certificate to remain in force according to the CCR, Section 64801 through 64827.

Please note that the laboratory is required to notify ELAP of any major changes in the laboratory such as the transfer of ownership, change of laboratory director, change in location, or structural alterations which may affect adversely the quality of analyses (HSC, Section 100845(b)(d)). Please include the above certificate number in all your correspondence to ELAP.

If you have any questions, please contact ELAP at (510) 540-2800.

Sincerely,

George C. Kulasingam

George C. Kulasingam, Ph.D.
Program Chief
Environmental Laboratory
Accreditation Program

CALIFORNIA DEPARTMENT OF HEALTH SERVICES
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
List of Approved Fields of Testing and Analytes

CALTEST ANALYTICAL LABORATORY		Certificate No.	1664
1885 NORTH KELLY ROAD	PHONE No. (707) 258-4000	Expiration Date	11/30/1999
NAPA, CA	COUNTY NAPA		

01 Microbiology of Drinking Water and Wastewater

01.01A	Total and Fecal Coliform in Drinking Water by Multiple Tube Fermentation
01.03	Total Coliform and E. coli in Drinking Water by Chromogenic/Fluorogenic Substrate
01.05	Heterotrophic Plate Count
01.06	Total Coliform in Wastewater by Multiple Tube Fermentation
01.07	Fecal Coliform in Wastewater by Multiple Tube Fermentation
01.10	Fecal Streptococci or Enterococci by Multiple Tube Fermentation
01.12	Total Coliform in Source Water by Multiple Tube Fermentation
01.13	Fecal Coliform in Source Water by Multiple Tube Fermentation
01.16	Total Coliform in Source Water by Chromogenic/Fluorogenic Substrate

02 Inorganic Chemistry and Physical Properties of Drinking Water

02.01	Alkalinity
02.02	Calcium
02.03	Chloride
02.04	Corrosivity
02.05	Fluoride
02.06	Hardness
02.07	Magnesium
02.08	MBAS
02.09	Nitrate
02.10	Nitrite
02.11	Sodium
02.12	Sulfate
02.13	Total Filterable Residue and Conductivity
02.16	Phosphate, ortho
02.17	Silica
02.18	Cyanide
02.19	Potassium

03 Analysis of Toxic Chemical Elements in Drinking Water

03.01	Arsenic
03.02	Barium
03.03	Cadmium
03.04	Chromium, total
03.05	Copper
03.06	Iron
03.07	Lead
03.08	Manganese
03.09	Mercury
03.10	Selenium
03.11	Silver
03.12	Zinc
03.13	Aluminum
03.15	Antimony
03.16	Beryllium
03.17	Nickel
03.18	Thallium

13.15 Total Petroleum Hydrocarbons - Gasoline
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16 Wastewater Inorganic Chemistry, Nutrients and Demand

16.01 Acidity
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16.18 Nitrate
16.19 Nitrite
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16.25 Phosphate, ortho
16.26 Phosphorus, total
16.27 Potassium
16.28 Residue, Total
16.29 Residue, Filterable (Total Dissolved Solids)
16.30 Residue, Nonfilterable (Total Suspended Solids)
16.31 Residue, Settleable (Settleable Solids)
16.32 Residue, Volatile
16.33 Silica
16.34 Sodium
16.35 Specific Conductance
16.36 Sulfate
16.37 Sulfide (includes total & soluble)
16.38 Sulfite
16.39 Surfactants (MBAS)
16.41 Turbidity
16.44 Total Recoverable Petroleum Hydrocarbons by IR

17 Toxic Chemical Elements in Wastewater

17.01 Aluminum
17.02 Antimony
17.03 Arsenic

NOTICE

The "List of Approved Fields of Testing and Analytes," as stated on this certificate will be sent to your laboratory upon completion of the entire certification process.

The American Association for Laboratory Accreditation

Laboratory accreditation for Environmental Testing

Certificate Number: 0626-01

Issued at: Frederick, MD.

Date Issued: Feb 23, 2000

THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

CALTEST ANALYTICAL LABORATORY
Napa, CA

for technical competence in the field of

Environmental Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC Guide 25-1990 "General Requirements for the Competence of Calibration and Testing Laboratories" (equivalent to relevant requirements of the ISO 9000 series of standards) and any additional program requirements in the identified field of testing.

Presented this 23rd day of February, 2000.

SEAL

President
For the Accreditation Council
Certificate Number 0626.01
Valid to October 31, 2001

For tests or types of tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation

American Association for Laboratory Accreditation

SUPPLEMENT TO SCOPE OF ACCREDITATION
TO ISO/IEC GUIDE 25-1990

CALTEST ANALYTICAL LABORATORY
1885 North Kelly Road
Napa, CA 94558
Christine Horn Phone: 707 258 4000

ENVIRONMENTAL

Valid as of: February 23, 2000
Valid until: October 31, 2001

Certificate Number: 0626-01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform recognized EPA methods for the following determinations:

Nonpotable Water

Metals: Al, Sb, Ar, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, K, Se, Si, Ag, Na, Tl, V, Zn

per EPA test methods 200.7, 200.9, 245.2

Nutrients: Ammonia (as N), Kjeldahl nitrogen, Nitrate (as N), Nitrate-nitrite (as N), Nitrite (as N), Orthophosphate (as P), Total phosphorus

per EPA test methods 300.0, 350.2, 351.3, 353.2, 354.1, 365.2

Demands: BOD, Carbonaceous BOD, COD, TOC

per EPA test methods 405.1, 410.4, 415.2

Classical Chemistry: Alkalinity, Bromide, Ca, Chloride, Chlorine (residual), Color, Copper, Cyanide, Cyanide amenable to chlorination, Fluoride, Hardness, pH, Iron, Fe, Mg, Mn, MBAS, Oil & Grease, Phenols, Total residue, Filterable residue, Nonfilterable residue, Settleable residue, Volatile residue, Dissolved silica, Specific conductance, Sulfate, Sulfide, Surfactants, Turbidity, Zn

per EPA test methods 110.2, 120.1, 130.2, 150.1, 160.1, 160.2, 160.3, 160.4, 160.5, 180.1, 200.7, 300.0, 310.1, 330.3, 335.1, 335.2, 340.2, 376.2, 420.1, 425.1, 1664

Microbiology: Fecal coliform, Total coliform, Fecal streptococci

per Standard Methods (18th Edition) 9221B,E; 9230B

Purgeable Organics: Acetone, Acrolein, Acrylonitrile, Benzene, Bromodichloromethane, Bromoform,

5301 Buckeystown Pike, Suite 350 • Frederick, MD 21704-8373 • Phone: 301-644 3248 • Fax: 301-662 2974

Purgeable Organics: Acetone, Acetonitrile, Acrolein, Acrylonitrile, Benzene, Benzyl chloride, Bromobenzene, Bromodichloromethane, Bromoform, 2-Butanone, n-Butylbenzene, sec-Butylbenzene, t-Butylbenzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroethane, 2-Chloroethyl vinyl ether, Chloroform, Chloromethane, Chlorotoluene, Dibromochloromethane, 1,2-Dibromo-3-chloropropane (DBCP), Dibromomethane, 1,2-Dibromoethane (EDB), 1,4-Dichloro-2-butane, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Dichlorodifluoromethane, 1,1-Dichloroethane, 1,2-Dichloroethane, 1,1-Dichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, 1,2-Dichloropropane, 1,3-Dichloropropane, 2,2-Dichloropropane, 1,1-Dichloropropene, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, Ethyl benzene, 2-Hexanone, Hexachlorobutadiene, Isopropylbenzene, 1,4-Isopropyltoluene, Methylene chloride, Naphthalene, n-Propylbenzene, Styrene, 1,1,1,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethane, Tetrachloroethene, Toluene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, Trichloroethene, Trichlorofluoromethane, Trichloropropane, 1,2,3-Trichloropropane, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Vinyl chloride, Xylenes (total)

per EPA test method SW 8260

Extractable Organics: Acenaphthene, Acenaphthylene, Anthracene, Benzidine, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene, Benzo(a)pyrene, Benzyl alcohol, Bis(2-chloroethoxy)methane, Bis(2-chloroethyl)ether, Bis(2-chloroisopropyl)ether, Bis(2-ethylhexyl)phthalate, 4-Bromophenylphenyl ether, Butyl benzyl phthalate, 4-Chloroaniline, 4-Chloro-3-methylphenol, 1-Chloronaphthalene, 2-Chloronaphthalene, 2-Chlorophenol, 4-Chlorophenyl phenyl ether, Chrysene, Dibenzo(a,j)acridine, Dibenzo(a,h)anthracene, Dibenzofuran, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 3,3'-Dichlorobenzidine, 2,4-Dichlorophenol, 2,6-Dichlorophenol, Diethyl phthalate, p-Dimethylaminoazobenzene, 7,12-Dimethylbenz(a)anthracene, alpha-,alpha-Dimethylphenethylamine, 2,4-Dimethylphenol, Dimethyl phthalate, Di-n-butyl phthalate, Di-n-octyl phthalate, 2,4-Dinitrophenol, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Diphenylamine, 1,2-Diphenylhydrazine, Ethyl methane sulfonate, Fluoroanthene, Fluorene, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isophorone, 2-Methyl-4,6-Dinitrophenol, Naphthalene, Nitrobenzene, 2-Nitrophenol, 4-Nitrophenol, N-Nitrosodimethylamine, N-Nitrosodi-n-propylamine, N-Nitrosodiphenylamine, Pentachlorophenol, Phenanthrene, Phenol, Pyrene, 1,2,4-Trichlorobenzene, 2,4,6-Trichlorophenol

per EPA test method SW 8270

Pesticides-Herbicides-PCBs: Aldrin, Azinphos methyl, alpha-BHC, beta-BHC, delta-BHC, gamma-BHC (Lindane), Bolstar, Chlordane (technical), Chlorpyrifos, Coumaphos, 2,4-D, Dalapon, 2,4-DB, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Demeton-O, Demeton-S, Diazinon, Dicamba, Dichlorvos, Dichloroprop, Dieldrin, Dinoseb, Disulfoton, Endosulfan I (alpha), Endosulfan II (beta), Endosulfan sulfate, Endrin, Endrin aldehyde, Endrin ketone, Ethoprop, Fensulfothion, Fenthion, Heptachlor, Heptachlor epoxide, MCPA, MCPP, Parathion ethyl, Parathion methyl, PCB-1016 (Arochlor), PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, PCB-1260, 2,4,5-T, 2,4,5-TP (Silvex), Toxaphene

per EPA test methods SW 8081, 8082, 8141, 8151, 8270

Hazardous Waste Characteristics: Conductivity, pH, Ignitability, TCLP

per EPA test methods SW 1010, 1311, 9040, 9045, 9050

Peter Rhyne

American Association for Laboratory Accreditation

Laboratory Reference to A2LA Accredited Status – A2LA Advertising Policy
(Adopted by the A2LA Board of Directors on October 29, 1999.)
Effective January 1, 2000.

A2LA-accredited laboratories are strongly recommended to use the "A2LA-accredited" logo to demonstrate their third party recognition of technical competence. "A2LA-accredited" logo sheets are sent to all accredited laboratories, and an electronic version is available upon request.

However, since A2LA laboratory accreditations are issued in a number of fields of testing and calibration, it is the ethical responsibility of accredited laboratories to describe their accredited status in a manner that does not imply accreditation in areas that are outside their actual scope of accreditation or for other testing/calibration facilities not covered under the present accreditation. This may be accomplished through adherence to the following:

1. Where the A2LA name and/or logo is used on general literature such as letterhead and advertisements, it shall always be accompanied by at least the word "accredited".

2. While there are no restrictions on the size and color of the "A2LA-accredited" logo reproduction, the logo must maintain its form.

3. The "A2LA-accredited" logo may be generated electronically provided that the prescribed formats and forms are retained.

4. When promoting or providing proof of accreditation, accredited laboratories should use the scope(s) of accreditation, as this document details the specific tests or calibrations which are accredited. The certificate should be used for display purposes and may also accompany the scope.

5. Where the "A2LA-accredited" logo is used to endorse test or calibration results, it shall always be accompanied by the A2LA certificate number(s). The following conditions also apply:

   a) The "A2LA-accredited" logo may be displayed on all calibration certificates, test certificates, and test reports which contain **exclusively** results from calibrations and test that have been carried out within the accredited scope of the laboratory concerned.

   b) Non-accredited results may be reported on calibration certificates, test certificates and test reports with the A2LA logo provided these results are unambiguously identified as non-accredited. This may be done by placing an asterisk after each such result, along with a footnote stating: "This is not covered by our current A2LA accreditation".

   c) On reports where results are reported within the field where accreditation exists but in a technology that is not included in the scope, they must be so indicated. (For example, if a laboratory is accredited in the Environmental Field for only wet chemistry and metals, any gas chromatographic data reported would need to be identified as non-accredited.

   d) As of May 1, 1999, the calibration certificates issued by A2LA-accredited laboratories shall reference, at a minimum, the A2LA name (or logo) and the accreditation certificate number when the calibrations contained in the report are covered under the A2LA-accreditation. Refer to the A2LA Calibration Accreditation Policy.

5301 Buckeystown Pike, Suite 350 • Frederick, MD 21704-8373 • Phone: 301-644 3248 • Fax: 301-662 2974

Department of The Army
Corps of Engineers, Omaha District
HTRW Center of Expertise

Laboratory Validated for the following methods:

300 series	Anion
8081A	Organochlorine Pesticides
8082	Polychlorinated Biphenyls
8270C	Semivolatile Organics
SW-846	Metals
8015	TPH
9060	Total Organic Carbon
8021	Volatile Organics
8260	Volatile Organics

Issued at: Omaha, NB

Date Issued Dec. 21, 1999

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
HTRW CENTER OF EXPERTISE
12565 WEST CENTER ROAD
OMAHA, NEBRASKA 68144-3869

REPLY TO
ATTENTION OF

December 21, 1999

Hazardous, Toxic and Radioactive Waste
Center of Expertise

Caltest Analytical Laboratory
1885 N. Kelly Road
Napa, CA 94558

Gentlemen:

This correspondence addresses the recent evaluation of Caltest Analytical Laboratory of Napa, CA by the U.S. Army Corps of Engineers (USACE) for chemical analysis in support of the USACE Hazardous, Toxic and Radioactive Waste Program.

Your laboratory is now validated for the parameters listed below:

METHOD	PARAMETERS	MATRIX[1]
300 series	Anions[4]	Water[2]
8081A	Organochlorine Pesticides	Water[2]
8081A	Organochlorine Pesticides	Solids
8082	Polychlorinated Biphenyls	Water[2]
8082	Polychlorinated Biphenyls	Solids[2]
8270C	Semivolatile Organics	Water[2]
8270C	Semivolatile Organics	Solids[2]
SW-846	TAL Metals[3]	Water[2]
SW-846	TAL Metals[3]	Solids[2]
Mod 8015	TPH - GRO/DRO[5]	Water
Mod 8015	TPH - GRO/DRO[5]	Solids
9060	Total Organic Carbon	Water[2]
8021B	Volatile Organics (AVO)	Water[2]
8021B	Volatile Organics (AVO)	Solids[6]
8021B	Volatile Organics (HVO)	Water[2]
8021B	Volatile Organics (HVO)	Solids[6]
8260B	Volatile Organics	Water[2]
8260B	Volatile Organics	Solids[6]

Remarks:

1) 'Solids' includes soils, sediments, and solid waste.

2) The laboratory has successfully analyzed a performance evaluation sample for this method/matrix.

3) TAL Metals: Aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc.

Printed on Recycled Paper

Preaward Performance Evaluation Sample Results
for Caltest Analytical Laboratory
March 1999

Sample Identifiers: L-QA-01A-OW & L-QA-01B-OW
Requested Analysis: E625
Matrix: aqueous (WP-46)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 625	1,2,4-Trichlorobenzene	ug/L								
EPA 625	1,2-Dichlorobenzene	ug/L	5	26.0	38.3	9.0	43.7			Pass
EPA 625	1,3-Dichlorobenzene	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	1,4-Dichlorobenzene	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	2,4,5-Trichlorophenol	ug/L								
EPA 625	2,4,6-Trichlorophenol	ug/L	5	84.0	85.7	43.4	88.8	51.0	81.3	Pass
EPA 625	2,4-Dichlorophenol	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	2,4-Dimethylphenol	ug/L	5	37.0	41.0	3.6	49.3	11.2	41.6	Pass
EPA 625	2,4-Dinitrophenol	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	2,4-Dinitrotoluene	ug/L	5	49.0	49.5	20.7	57.0			Pass
EPA 625	2,6-Dinitrotoluene	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	2-Chloronaphthalene	ug/L	5	32.0	41.7	16.2	48.3			Pass
EPA 625	2-Chlorophenol	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	2-Methyl Phenol	ug/L								
EPA 625	2-Methyl-4,6-Dinitrophenol	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	2-Methylnaphthalene	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	2-Nitroaniline	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	3,3'-Dichlorobenzidine	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	3-Nitroaniline	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	4-Bromophenylphenylether	ug/L	5	35.0	40.9	20.2	48.7			Pass
EPA 625	4-Chloro-3-Methylphenol	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	4-Chloroaniline	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	4-Chlorophenylphenylether	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	4-Nitroaniline	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	4-Nitrophenol	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	Acenaphthene	ug/L								
EPA 625	Acenaphthylene	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	Anthracene	ug/L								
EPA 625	Benzo(a)anthracene	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 625	Benzo(a)pyrene	ug/L	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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Sample Identifiers: L-QA-01A-OW & L-QA-01B-OW
Requested Analysis: E625
Matrix: aqueous (WP-46)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 625	Benzo(b)fluoranthene	ug/L	5	<5						
EPA 625	Benzo(g,h,i)perylene	ug/L	5	<5						
EPA 625	Benzo(k)fluoranthene	ug/L	5							
EPA 625	Benzoic Acid	ug/L								
EPA 625	Benzyl Alcohol	ug/L								
EPA 625	bis(2-chloroethoxy)methane	ug/L	5							
EPA 625	bis(2-chloroisopropyl)ether	ug/L	5							
EPA 625	bis(2-ethylhexyl)phthalate	ug/L	5	49.0	78.7	31.7	101.0			Pass
EPA 625	Butylbenzylphthalate	ug/L								
EPA 625	Chrysene	ug/L	5	29.0	33.5	15.5	41.2			Pass
EPA 625	Di-n-Butylphthalate	ug/L								
EPA 625	Di-n-Octylphthalate	ug/L	5	33.0	46.0	20.8	58.0			Pass
EPA 625	Dibenzo(a,h)anthracene	ug/L								
EPA 625	Dibenzofuran	ug/L								
EPA 625	Diethylphthalate	ug/L	5	<5						
EPA 625	Dimethylphthalate	ug/L	5	<5						
EPA 625	Fluoranthene	ug/L								
EPA 625	Fluorene	ug/L	5	88.0	111.0	54.6	133.0			Pass
EPA 625	Hexachlorobenzene	ug/L	5	79.0	121.0	59.3	139.0			Pass
EPA 625	Hexachlorobutadiene	ug/L								
EPA 625	Hexachlorocyclopentadiene	ug/L								
EPA 625	Hexachloroethane	ug/L								
EPA 625	Indeno(1,2,3-c,d)pyrene	ug/L	5	10.0	28.5	4.2	37.6			Pass
EPA 625	Isophorone	ug/L	5	<5						
EPA 625	m- and p- Cresol	ug/L	5	<5						
EPA 625	N-Nitroso di-n-Propylamine	ug/L	5	47.0	83.9	31.0	97.5	42.1	86.4	Pass
EPA 625	Naphthalene	ug/L	5	22.0	26.9	12.2	30.6			Pass
EPA 625	Nitrobenzene	ug/L	5	68.0	75.1	37.3	88.6			Pass
EPA 625	Pentachlorophenol	ug/L	5	110.0	121.0	36.0	144.0	54.0	126.0	Pass
EPA 625	Phenanthrene	ug/L	5	<5						

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for Caltest Analytical Laboratory
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Sample Identifiers: L-QA-01A-OW & L-QA-01B-OW
Requested Analysis: E625
Matrix: aqueous (WP-46)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 625	Phenol	ug/L	5	13.0	30.4	3.5	28.9	7.7	24.7	Pass
EPA 625	Pyrene	ug/L	5	87.0	112.0	52.2	136.0			Pass

[illegible]			
2-naphthylamine	ug/L	[illegible]	[illegible]
aniline	ug/L	[illegible]	[illegible]
benzidine	ug/L	[illegible]	[illegible]

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Sample Identifier: L-QA-02-OW
Requested Analysis: E8260
Matrix: aqueous (WP-46)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 8260B	1,1,1,2-Tetrachloroethane	ug/L	1	<1						
EPA 8260B	1,1,1-Trichloroethane	ug/L	5	90.00	85.40	61.80	98.10	67.80	92.10	Pass
EPA 8260B	1,1,2,2-Tetrachloroethane	ug/L	1	<1						
EPA 8260B	1,1,2-Trichloroethane	ug/L	1	<1						
EPA 8260B	1,1-Dichloroethane	ug/L	1	28.00	25.50	18.00	32.00	20.30	29.60	Pass
EPA 8260B	1,1-Dichloroethene	ug/L	1	<1						
EPA 8260B	1,2,3-Trichloropropane	ug/L	1	<1						
EPA 8260B	1,2-Dibromo-3 Chloropropane	ug/L	1	<1						
EPA 8260B	1,2-Dichloroethane	ug/L	5	150.00	137.00	98.00	164.00	109.00	153.00	Pass
EPA 8260B	1,2-Dichloroethene (total)	ug/L	1	<1						
EPA 8260B	1,2-Dichloropropane	ug/L	1	26.00	24.30	19.10	28.00	20.60	26.50	Pass
EPA 8260B	1,4-Dichloro-2-Butene	ug/L								
EPA 8260B	1,4-Dioxane	ug/L								
EPA 8260B	2-Butanone	ug/L	5	<5						
EPA 8260B	2-Chloroethylvinylether	ug/L	1	<1						
EPA 8260B	2-Hexanone	ug/L	5	<5						
EPA 8260B	2-Picoline	ug/L								
EPA 8260B	4-Methyl-2-Pentanone	ug/L	25	68.00	59.40	21.10	86.40	32.00	75.50	Pass
EPA 8260B	Acetone	ug/L	10	<10						
EPA 8260B	Acetonitrile	ug/L	5	<5						
EPA 8260B	Acrolein	ug/L	10	<10						
EPA 8260B	Acrylonitrile	ug/L	10	<10						
EPA 8260B	Benzene	ug/L	5	66.00	62.20	42.80	72.80	47.80	67.80	Pass
EPA 8260B	Benzyl Chloride	ug/L	0.5	<0.5						
EPA 8260B	Bromodichloromethane	ug/L	1	19.00	15.80	11.70	20.70	13.20	19.20	Pass
EPA 8260B	Bromoform	ug/L	5	86.00	76.40	39.20	105.00	50.20	93.80	Pass
EPA 8260B	Bromomethane	ug/L	1	<1						
EPA 8260B	Carbon Disulfide	ug/L	5	<5						
EPA 8260B	Carbon Tetrachloride	ug/L	5	120.00	108.00	70.60	130.00	80.60	120.00	Warning
EPA 8260B	Chlorobenzene	ug/L	1	16.00	16.10	12.00	18.20	13.10	17.10	Pass
EPA 8260B	Chloroethane	ug/L	1	<1						
EPA 8260B	Chloroform	ug/L	5	73.00	63.80	47.90	76.70	52.70	71.90	Warning

Sample Identifier: L-QA-02-OW
Requested Analysis: E8260
Matrix: aqueous (WP-46)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 8260B	Chloromethane	ug/L	1							
EPA 8260B	Chloroprene	ug/L	5							
EPA 8260B	cis-1,2-Dichloroethene	ug/L	1							
EPA 8260B	cis-1,3-Dichloropropene	ug/L	0.5							
EPA 8260B	Dibromochloromethane	ug/L	5	110.00	97.10	64.10	122.00	73.80	113.00	Pass
EPA 8260B	Dichlorodifluoromethane	ug/L	1							
EPA 8260B	Ethanol	ug/L								
EPA 8260B	Ethylbenzene	ug/L	5	71.00	63.40	44.70	73.80	49.60	68.90	Warning
EPA 8260B	Freon 113	ug/L	1							
EPA 8260B	Methylene Chloride	ug/L	15	96.00	83.70	54.20	101.00	62.00	92.90	Warning
EPA 8260B	Pyridine	ug/L	10							
EPA 8260B	Styrene	ug/L	1	41.00	36.80	26.10	41.30	28.70	38.80	Warning
EPA 8260B	Tetrachloroethene	ug/L	5	36.00	36.70	10.70	48.10	16.90	41.90	Pass
EPA 8260B	Toluene	ug/L	5	140.00	132.00	101.00	146.00	109.00	138.00	Warning
EPA 8260B	Total Xylene Isomers	ug/L	5							
EPA 8260B	trans-1,2-Dichloroethene	ug/L	1							
EPA 8260B	trans-1,3-Dichloropropene	ug/L	0.5							
EPA 8260B	Trichloroethene	ug/L	5							
EPA 8260B	Trichlorofluoromethane	ug/L	1							
EPA 8260B	Vinyl Acetate	ug/L	5							
EPA 8260B	Vinyl Chloride	ug/L	1							

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Sample Identifier: L-QA-03-OW
Requested Analysis: E8082A
Matrix: aqueous (WP-46)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 8082	Arochlor-1016	ug/L	0.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8082	Arochlor-1221	ug/L	0.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8082	Arochlor-1232	ug/L	0.5	1.48	1.79	0.977	2.33	N/A	N/A	Pass
EPA 8082	Arochlor-1242	ug/L	0.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8082	Arochlor-1248	ug/L	0.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8082	Arochlor-1254	ug/L	0.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8082	Arochlor-1260	ug/L	0.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Sample Identifier: L-QA-04-OW
Requested Analysis: NPDESMETAL
Matrix: aqueous (WP-46)

Method	Analyte	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 200.7	Aluminum	0.1	0.188	0.233	0.14	0.339	0.173	0.306	Pass
EPA 204.2	Antimony	0.05	0.189	0.192	0.111	0.28	0.139	0.252	Pass
EPA 206.2	Arsenic	0.01	0.119	0.117	0.0921	0.143	0.101	0.135	Pass
EPA 200.7	Barium	0.025	0.565	0.617	0.533	0.679	0.557	0.655	Pass
EPA 210.2	Beryllium	0.001	0.095	0.105	0.0872	0.124	0.0933	0.118	Pass
EPA 200.7	Boron	0.1	0.587	0.641	0.521	0.808	0.569	0.76	Pass
EPA 213.2	Cadmium	0.05	0.147	0.175	0.146	0.197	0.155	0.189	Warning
EPA 218.2	Chromium	0.05	0.227	0.242	0.189	0.284	0.205	0.268	Pass
EPA 200.7	Cobalt	0.05	0.477	0.517	0.441	0.601	0.468	0.574	Pass
EPA 220.2	Copper	0.002	0.253	0.275	0.219	0.327	0.237	0.309	Pass
EPA 218.4	Hexavalent Chromium**	0.002	Not Reported						
EPA 200.7	Iron	0.1	0.480	0.467	0.306	0.62	0.358	0.567	Pass
EPA 239.2	Lead	0.1	0.416	0.433	0.27	0.579	0.322	0.527	Pass
EPA 200.7	Manganese	0.03	0.510	0.558	0.473	0.637	0.5	0.61	Pass
EPA 245.2	Mercury	0.0004	0.00595	0.00667	0.00315	0.01	0.0043	0.00888	Pass
EPA 200.7	Molybdenum	0.025	0.132	0.142	0.1	0.174	0.112	0.161	Pass
EPA 249.2	Nickel	0.06	0.313	0.342	0.302	0.395	0.318	0.379	Warning
EPA 270.2	Selenium	0.04	0.143	0.139	0.101	0.167	0.112	0.156	Pass
EPA 272.2	Silver	0.05	0.168	0.183	0.132	0.217	0.146	0.203	Pass
EPA 279.2	Thallium	0.01	0.114	0.108	0.0652	0.147	0.0787	0.133	Pass
EPA 200.7	Vanadium	0.02	0.420	0.458	0.39	0.51	0.41	0.49	Pass
EPA 200.7	Zinc	0.02	0.108	0.117	0.0762	0.158	0.0898	0.144	Pass

**LLNL requested that the laboratory not analyze or report hexavalent chromium.

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Sample Identifier: L-QA-05-OW
Requested Analysis: E335.2
Matrix: aqueous (WP-46)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 335.2	Cyanide	mg/L	0.02	0.096	0.0826	0.0635	0.105	0.0714	0.098	Pass

Sample Identifier: L-QA-06-OW
Requested Analysis: E1664
Matrix: aqueous (WP-46)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 1664	Oil and Grease	mg/L	20	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

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Sample Identifier: L-QA-07A-OW, L-QA-07B-OW, L-QA-07C-OW
Requested Analysis: GENMIN
Matrix: a Matrix: aqueous (WP-46)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 200.7	Aluminum	mg/L	0.2							
EPA 310.1	Bicarbonate Alk (as CaCO3)	mg/L	1							
EPA 200.7	Calcium	mg/L	0.5	65.2	68.2	60.4	77.9	63.3	75	Pass
EPA 310.1	Carbonate Alk (as CaCO3)	mg/L	1							
EPA 300.0	Chloride	mg/L	5	128	122	98.3	147	106	139	Pass
EPA 200.7	Copper	mg/L	0.05	<0.05						
EPA 340.2	Fluoride	mg/L	0.5	16	14.1	11.9	16.7	12.7	15.9	Warning
EPA 310.1	Hydroxide Alk (as CaCO3)	mg/L	1							
EPA 200.7	Iron	mg/L	0.1	<0.1						
EPA 200.7	Magnesium	mg/L	0.5	34	37.7	32.8	43.4	34.6	41.7	Warning
EPA 200.7	Manganese	mg/L	0.03	<0.03						
EPA 200.7	Nickel	mg/L	0.1	<0.1						
EPA 345.1	Nitrate as N	mg/L	0.5	6	5.42	4.09	6.89	4.55	6.42	Pass
EPA 345.1	Nitrate as NO3	mg/L	0.5	26.7	22.45	16.94	28.54	18.85	26.60	Warning
EPA 353.2	Nitrite as N	mg/L	0.5	<0.5						
4500-P	Ortho-Phosphate	mg/L	0.1							
EPA 150.1	pH	units	0.1	8.75	9.13	8.45	9.58	8.64	9.39	Pass
EPA 200.7	Potassium	mg/L	1	120	127	115	133	118	130	Pass
EPA 200.7	Sodium	mg/L	1	122	131	118	146	121	141	Warning
EPA 120.1	Specific Conductance	n/a	50	1106	1010	830	1190	890	1130	Pass
EPA 300.0	Sulfate	mg/L	10	126	121	105	139	111	133	Pass
EPA 425.1	Surfactants	mg/L	not reported							
EPA 310.1	Total Alkalinity (as CaCO3)	mg/L	1							
EPA 160.1	Total Dissolved Solids (TDS)	mg/L	40	608	732	587	823	610	780	Warning
2320B	Total Hardness (as CaCO3)	mg/L	1	302	326	286	370	300	356	Pass
4500-P	Total Phosphorus (as PO4)	mg/L	0.05							
EPA 200.7	Zinc	mg/L	0.05	<0.05						

LLNL requested that the laboratory not analyze these samples for EPA 200.7 metals.

Sample Identifier: L-QA-08-OW
Requested Analysis: EM8015:DIESEL
Matrix: aqueous (UST 23)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EM 8015	TPH as Diesel	ug/L	50	1100	1440	150	2850	516	1980	Pass

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Sample Identifier: L-QA-09-OW
Requested Analysis: WDRE8330B
Matrix: aqueous (Lot 12017)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	"Score"
EPA 8330	1,3,5-Trinitrobenzene	ug/L	0.85	3.1	3.52	2.05	4.19	Pass
EPA 8330	1,3-Dinitrobenzene	ug/L	0.9	2.1	2.33	1.35	3.17	Pass
EPA 8330	2,4,6-TNT	ug/L	0.26	7.8	8.6	4.63	11.6	Pass
EPA 8330	2,4-Dinitrotoluene	ug/L	1.2	4.5	4.41	2.73	5.39	Pass
EPA 8330	2,6-Dinitrotoluene	ug/L	2.1	3.3	3.82	2.16	4.48	Pass
EPA 8330	2-Amino-4,6- Dinitrotoluene	ug/L	0.9	3.5	3.42	1.49	4.98	Pass
EPA 8330	2-Nitrotoluene	ug/L	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8330	3-Nitrotoluene	ug/L	2	2.4	2.5	1.03	3.8	Pass
EPA 8330	4-Amino-2,6- Dinitrotoluene	ug/L	0.26	5.1	5.44	2.26	5.84	Pass
EPA 8330	4-Nitrotoluene	ug/L	2	3.3	3.61	1.96	4.21	Pass
EPA 8330	HMX	ug/L	1	6.5	6.9	4.63	8.43	Pass
EPA 8330	Nitrobenzene	ug/L	1.5	7.9	8.3	4.53	9.7	Pass
EPA 8330	PETN**	ug/L	not reported	not reported	n/a	n/a	n/a	not reported
EPA 8330	RDX	ug/L	0.8	6.5	6.7	3.86	8.98	Pass
EPA 8330	Tetryl	ug/L	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

*Certified value below laboratory reporting limit

Sample Identifier: L-QA-10-SO
Requested Analysis: E8270
Matrix: soil (Soil 24)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 8270	1,2,4-Trichlorobenzene	mg/kg	not reported	not reported	11.6	4.17	11.4	5.37	10.2	not reported
EPA 8270	1,2-Dichlorobenzene	mg/kg	0.17	8.7	11.9	2.02	12.6	3.75	10.7	Pass
EPA 8270	1,3-Dichlorobenzene	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	1,4-Dichlorobenzene	mg/kg	0.17	7.1	10.1	1.6	9.84	2.97	8.47	Pass
EPA 8270	2,4,5-Trichlorophenol	mg/kg	0.17	2.9	3.88	0.357	5.2	1.16	4.39	Pass
EPA 8270	2,4,6-Trichlorophenol	mg/kg	0.17	7.8	10.2	2.82	11	4.19	9.65	Pass
EPA 8270	2,4-Dichlorophenol	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	2,4-Dimethylphenol	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	2,4-Dinitrophenol	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	2,4-Dinitrotoluene	mg/kg	0.17	10	12.5	3.55	14.8	5.43	13	Pass
EPA 8270	2,6-Dinitrotoluene	mg/kg	0.17	5.2	6.04	1.74	7.7	2.73	6.71	Pass
EPA 8270	2-Chloronaphthalene	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	2-Chlorophenol	mg/kg	0.17	6.1	7.77	0.633	9.45	2.02	7.97	Pass
EPA 8270	2-Methyl Phenol	mg/kg	0.17	4.3	8.82	0.936	8.76	2.24	7.46	Pass
EPA 8270	2-Methyl-4,6-Dinitrophenol	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	2-Methylnaphthalene	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	2-Naphthylamine	mg/kg	0.5	<0.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	2-Nitroaniline	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	3,3'-Dichlorobenzidine	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	3-Nitroaniline	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	4-Bromophenylphenylether	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	4-Chloro-3-Methylphenol	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	4-Chloroaniline	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	4-Chlorophenylphenylether	mg/kg	0.17	6	6.17	2.44	7.78	3.33	6.89	Pass
EPA 8270	4-Nitroaniline	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	4-Nitrophenol	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	Acenaphthene	mg/kg	0.17	5.5	6.28	2.42	7.18	3.21	6.39	Pass
EPA 8270	Acenaphthylene	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	Aniline	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA 8270	Anthracene	mg/kg	0.17	0.62	0.98	0.123	1.33	0.324	1.13	Pass
EPA 8270	Benzidine	mg/kg	0.17	<0.17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Preaward Performance Evaluation Sample Results
for Caltest Analytical Laboratory
March 1999

Sample Identifier: L-QA-10-SO
Requested Analysis: E8270
Matrix: soil (Soil 24)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 8270	Benzo(a)anthracene	mg/kg	0.17	<0.17						
EPA 8270	Benzo(a)pyrene	mg/kg	0.17	3.4	5.86	1.95	6.87	2.77	6.05	Pass
EPA 8270	Benzo(b)fluoranthene	mg/kg	0.17	4	6.24	2.03	7.47	2.94	6.56	Pass
EPA 8270	Benzo(g,h,i)perylene	mg/kg	0.17	<0.17						
EPA 8270	Benzo(k)fluoranthene	mg/kg	0.17	<0.17						
EPA 8270	Benzoic Acid	mg/kg	0.17	<0.17						
EPA 8270	Benzyl Alcohol	mg/kg	0.17	<0.17						
EPA 8270	bis(2-chloroethoxy)methane	mg/kg	0.17	<0.17						
EPA 8270	bis(2-chloroisopropyl)ether	mg/kg	0.17	<0.17						
EPA 8270	bis(2-ethylhexyl)phthalate	mg/kg	0.17	4.5	5.38	2.1	7.26	2.96	6.4	Pass
EPA 8270	Butylbenzylphthalate	mg/kg	0.17	<0.17						
EPA 8270	Chrysene	mg/kg	0.17	1	1.15	0.31	1.91	0.576	1.64	Pass
EPA 8270	Di-n-Butylphthalate	mg/kg	0.17	<0.17						
EPA 8270	Di-n-Octylphthalate	mg/kg	0.17	<0.17						
EPA 8270	Dibenzo(a,h)anthracene	mg/kg	0.17	<0.17						
EPA 8270	Dibenzofuran	mg/kg	0.17	3.9	4.57	1.41	5.71	2.13	4.99	Pass
EPA 8270	Diethylphthalate	mg/kg	0.17	<0.17						
EPA 8270	Dimethylphthalate	mg/kg	0.17	<0.17						
EPA 8270	Fluoranthene	mg/kg	0.17	<0.17						
EPA 8270	Fluorene	mg/kg	0.17	2.4	2.72	0.633	3.77	1.16	3.24	Pass
EPA 8270	Hexachlorobenzene	mg/kg	0.17	2.5	2.67	0.752	3.61	1.23	3.13	Pass
EPA 8270	Hexachlorobutadiene	mg/kg	0.17	<0.17						
EPA 8270	Hexachlorocyclopentadiene	mg/kg	0.17	<0.17						
EPA 8270	Hexachloroethane	mg/kg	0.17	<0.17						
EPA 8270	Indeno(1,2,3-c,d)pyrene	mg/kg	0.17	<0.17						
EPA 8270	Isophorone	mg/kg	0.17	<0.17						
EPA 8270	m- and p- Cresol	mg/kg	0.17	<0.17						
EPA 8270	N-Nitroso di-n-Propylamine	mg/kg	0.17							
EPA 8270	Naphthalene	mg/kg	0.17	3.9	4.55	1.87	5.17	2	4.54	Pass
EPA 8270	Nitrobenzene	mg/kg	0.17	<0.17						
EPA 8270	Pentachlorophenol	mg/kg	0.17	5.9	8.88	0.158	11.2	1.98	9.33	Pass

Sample Identifier: L-QA-10-SO
Requested Analysis: E8270
Matrix: soil (Soil 24)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 8270	Phenanthrene	mg/kg	0.17	0.17						
EPA 8270	Phenol	mg/kg	0.17	1.1	1.52	0.221	1.61	0.486	1.55	Pass
EPA 8270	Pyrene	mg/kg	0.17	6	6.64	2.2	9.02	3.34	7.88	Pass

Preaward Performance Evaluation Sample Results
for Caltest Analytical Laboratory
March 1999

lentifier: L-QA-11-SO
ted Analysis: E8260
rix: soil (Soil 24)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 8260B	1,1,1,2-Tetrachloroethane	mg/kg	0.005	<0.005						
EPA 8260B	1,1,1-Trichloroethane	mg/kg	0.005	0.025	0.0244	0.0142	0.0329	0.0178	0.0297	Pass
EPA 8260B	1,1,2,2-Tetrachloroethane	mg/kg	0.005	0.062	0.0599	0.0348	0.0833	0.0429	0.0752	Pass
EPA 8260B	1,1,2-Trichloroethane	mg/kg	0.005	<0.005						
EPA 8260B	1,1-Dichloroethane	mg/kg	0.005	0.074	0.0696	0.044	0.0913	0.0519	0.0834	Pass
EPA 8260B	1,1-Dichloroethene	mg/kg	0.005	<0.005						
EPA 8260B	1,2,3-Trichloropropane	mg/kg	0.005	<0.005						
EPA 8260B	1,2-Dibromo-3-Chloropropane	mg/kg	0.005	<0.005						
EPA 8260B	1,2-Dichloroethane	mg/kg	0.005	0.1	0.101	0.0671	0.132	0.0779	0.121	Pass
EPA 8260B	1,2-Dichloroethene (total)	mg/kg	0.5	<0.5						
EPA 8260B	1,2-Dichloropropane	mg/kg	0.005	<0.005						
EPA 8260B	1,4-Dichloro-2-Butene	mg/kg								not reported
EPA 8260B	1,4-Dioxane	mg/kg								not reported
EPA 8260B	2-Butanone	mg/kg	0.05	<0.05						
EPA 8260B	2-Chloroethylvinylether	mg/kg	0.02	<0.02						
EPA 8260B	2-Hexanone	mg/kg	0.05	<0.05						
EPA 8260B	2-Picoline	mg/kg								not reported
EPA 8260B	4-Methyl-2-Pentanone	mg/kg	0.05							
EPA 8260B	Acetone	mg/kg	0.1	<0.100						
EPA 8260B	Acetonitrile	mg/kg	5	<5						
EPA 8260B	Acrolein	mg/kg	0.1	<0.100						
EPA 8260B	Acrylonitrile	mg/kg	0.1	<0.100						
EPA 8260B	Benzene	mg/kg	0.005	0.038	0.0392	0.0263	0.0496	0.0302	0.0457	Pass
EPA 8260B	Benzyl Chloride	mg/kg	0.5	<0.5						
EPA 8260B	Bromodichloromethane	mg/kg	0.005	0.051	0.0455	0.0358	0.0574	0.0394	0.0538	Pass
EPA 8260B	Bromoform	mg/kg	0.005	0.16	0.126	0.0981	0.165	0.109	0.154	Warning
EPA 8260B	Bromomethane	mg/kg	0.02	<0.02						
EPA 8260B	Carbon Disulfide	mg/kg	0.05	<0.05						
EPA 8260B	Carbon Tetrachloride	mg/kg	0.005	0.085	0.08	0.0497	0.105	0.0589	0.0955	Pass
EPA 8260B	Chlorobenzene	mg/kg	0.005	0.087	0.0899	0.0673	0.111	0.0747	0.104	Pass
EPA 8260B	Chloroethane	mg/kg	0.02	<0.02						
EPA 8260B	Chloroform	mg/kg	0.005	0.048	0.0466	0.0344	0.0569	0.0382	0.0531	Pass
EPA 8260B	Chloromethane	mg/kg	0.02	<0.02						

lentifier: L-QA-11-SO
ted Analysis: E8260
rix: soil (Soil 24)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 8260B	Chloroprene	mg/kg	5							
EPA 8260B	cis-1,2-Dichloroethene	mg/kg	0.005							
EPA 8260B	cis-1,3-Dichloropropene	mg/kg	0.005							
EPA 8260B	Dibromochloromethane	mg/kg	0.005	0.062	0.058	0.0448	0.0705	0.0486	0.0861	Pass
EPA 8260B	Dichlorodifluoromethane	mg/kg	0.01							
EPA 8260B	Ethanol	mg/kg								
EPA 8260B	Ethylbenzene	mg/kg	0.005	0.065	0.0612	0.0474	0.075	0.052	0.0704	Pass
EPA 8260B	Freon 113	mg/kg	0.01							
EPA 8260B	Methylene Chloride	mg/kg	0.03	0.042	0.0394	0.0231	0.0522	0.028	0.0474	Pass
EPA 8260B	Pyridine	mg/kg	2							
EPA 8260B	Styrene	mg/kg	0.005							
EPA 8260B	Tetrachloroethene	mg/kg	0.005	0.059	0.0569	0.0412	0.072	0.0464	0.0669	Pass
EPA 8260B	Toluene	mg/kg	0.005	0.18	0.168	0.109	0.209	0.125	0.193	Pass
EPA 8260B	Total Xylene Isomers	mg/kg	0.005	0.12	0.116	0.0787	0.152	0.091	0.14	Pass
EPA 8260B	trans-1,2-Dichloroethene	mg/kg	0.005							
EPA 8260B	trans-1,3-Dichloropropene	mg/kg	0.005							
EPA 8260B	Trichloroethene	mg/kg	0.005	0.11	0.11	0.0787	0.188	0.0844	0.127	Pass
EPA 8260B	Trichlorofluoromethane	mg/kg	0.005							
EPA 8260B	Vinyl Acetate	mg/kg	0.05							
EPA 8260B	Vinyl Chloride	mg/kg	0.005							

Preaward Performance Evaluation Sample Results
for Caltest Analytical Laboratory
March 1999

Sample Identifier: L-QA-12-SO
Requested Analysis: E8082_B
Matrix: soil (Soil 24)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 8082	Arochlor-1016	mg/kg	13							
EPA 8082	Arochlor-1221	mg/kg	13							
EPA 8082	Arochlor-1232	mg/kg	13							
EPA 8082	Arochlor-1242	mg/kg	13							
EPA 8082	Arochlor-1248	mg/kg	13							
EPA 8082	Arochlor-1254	mg/kg	13							
EPA 8082	Arochlor-1260	mg/kg	13	20.6	21.1	6.53	29.8	10.4	25.9	Pass

Preaward Performance Evaluation Sample Results
for Caltest Analytical Laboratory
March 1999

Sample Identifier: L-QA-13-SO
Requested Analysis: TTLCMETALS
Matrix: soil (Soil 24)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 6010	Antimony	mg/kg	2.0	21.5	85.2	DL	73.7	5.87	60.2	Pass
EPA 6010	Arsenic	mg/kg	0.8	91.3	107	71.2	117	78.7	109	Pass
EPA 6010	Barium	mg/kg	5.0	301	1110	222	487	258	401	Pass
EPA 6010	Beryllium	mg/kg	0.5	39.4	47.6	33.7	51.7	36.7	48.7	Pass
EPA 6010	Cadmium	mg/kg	1.0	90	107	75.1	119	82.5	112	Pass
EPA 6010	Chromium	mg/kg	5.0	43.1	79.4	30.2	61.7	85.5	56.5	Warning
EPA 6010	Cobalt	mg/kg	5.0	110	131	85.4	154	97.7	143	Pass
EPA 6010	Copper	mg/kg	5.0	145	166	126	168	133	161	Pass
EPA 6010	Lead	mg/kg	10.0	121	158	92.6	177	107	163	Pass
EPA 7470	Mercury	mg/kg	0.4	2.04	3.25	0.979	3.36	1.38	2.97	Pass
EPA 6010	Molybdenum	mg/kg	5.0	37.2	44.6	26.7	54.1	31.3	49.6	Pass
EPA 6010	Nickel	mg/kg	10.0	126	157	124	152	128	147	Warning
EPA 6010	Selenium	mg/kg	2.5	93.6	110	64.9	127	75.3	117	Pass
EPA 6010	Silver	mg/kg	2.5							
EPA 6010	Thallium	mg/kg	25.0	45.8	81.3	11.9	79.5	23.2	68.3	Pass
EPA 6010	Vanadium	mg/kg	5.0	56.2	97.9	38.6	91.6	47.4	82.8	Pass
EPA 6010	Zinc	mg/kg	5.0	67.7	112	58.1	93.9	62.4	87.6	Pass

Preaward Performance Evaluation Sample Results
for Caltest Analytical Laboratory
March 1999

Sample Identifier: L-QA-14-SO
Requested Analysis: E335.2
Matrix: soil (Soil 24)

Method	Analyte	Units	Lab Reporting Limit	Reported Value	ERA Certified Value	Lower Acceptance Limit	Upper Acceptance Limit	Lower Warning Limit	Upper Warning Limit	"Score"
EPA 9010	Cyanide	mg/kg	1	92.8	100	37.8	127	52.7	112	Pass

Caltest Performance Study
Samples submitted to Caltest on 5/14/99

Sample ID	Parameter	Laboratory Result	True Result	Percent Recovery	Acceptance Limit
QA381	Ammonia as N	2.09 mg/L	2.20 mg/L	95	80-120
QA381	Nitrate +Nitrite as N	2.80 mg/L	2.60 mg/L	108	80-120
QA381	Ortho-Phosphate	3.12 mg/L	3.20 mg/L	98	80-120
QA381	Total Phosphate	3.13 mg/L	3.20 mg/L	98	80-120
QA381	Total Kjeldahl N	2.11 mg/L	2.20 mg/L	96	80-120
QA382	Chloride	74 mg/L	77 mg/L	96	80-120
QA382	Total Dissolved Solids	570 mg/L	546 mg/L	104	80-120
QA382	Sulfate	190 mg/L	210 mg/L	90	80-120
QA383	Boron	9.4 mg/L	10 mg/L	94	80-120
QA383	Calcium	39 mg/L	40 mg/L	98	80-120
QA383	Magnesium	20 mg/L	20 mg/L	100	80-120
QA383	Potassium	10 mg/L	10 mg/L	100	80-120
QA383	Sodium	58 mg/L	60 mg/L	97	80-120

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InterLaB Proficiency Testing Program
by Environmental Resource Associates

DMR QA-19 Performance Evaluation

Report Issue date: 12/20/99

Total Reported Analytes:	28
Acceptable Analytes:	26
InterLaB Score:	92.9%
Overall Assessment:	Very Good

ENVIRONMENTAL
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December 20, 1999

Carmelita Liveros
Caltest Analytical Laboratory
1885 North Kelly Road
Napa, CA 94558

Dear Carmelita Liveros :

Enclosed is the ERA final statistical summary for the InterLaB™ DMR QA-19 Proficiency Testing (PT) Program. ERA's format for the InterLaB DMR QA statistical summary is based on the USEPA's National Standards for Water Proficiency Testing Studies Criteria Document, December 1998. This concludes the DMR QA-19 study.

ERA recommends that your lab demonstrates corrective action for any parameter that is reported as a "Check for Error" or "Not Acceptable". Corrective action is demonstrated by identifying root causes of error, alleviating the error, and successfully analyzing a Quality Control Standard. An excellent way to demonstrate the effectiveness of your corrective action is to participate in the next ERA InterLaB WatR™ Pollution round robin study. For your convenience ERA has an InterLaB WatR™ Pollution round robin study scheduled to begin shipping the second week of every month. If you would like to place an order for the next available study, please contact me at 1-800-372-0122.

Thank you for your participation in the InterLaB™ DMR QA-19 Performance Evaluation Program. If you have any questions, please do not hesitate to call Roland P. Bruggeman, InterLaB™ Chemist, or me.

Sincerely,

Shawn Kassner
InterLaB™ Administrator

attachments
smk

5540 MARSHALL STREET, ARVADA, COLORADO 80002
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DMR QA-19 Definitions & Study

ERA Laboratory Code: C0535-01 EPA ID: CA00112 State ID: NA Report Issued: 12/20/99

InterLaB™ DMR QA Definitions:

The **Reported Value** is the value that the laboratory reported to ERA.

The **ERA Assigned Value** is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation as applicable. A parameter not added to the standard is given an **Assigned Value** of **"Zero"** per the guidelines contained in the EPA's National Standards for Water Proficiency Testing Criteria Document, December 1998 as applicable.

The **Acceptance Limits** and **Warning Limits** are established per the guidelines contained in the EPA's National Standards for Water Proficiency Testing Criteria Document, December 1998 as applicable.

The **Performance Evaluation:**

Acceptable = Reported Value falls within the Acceptance Limits.

Not Acceptable = Reported Value falls outside the Acceptance Limits.

Check for Error = Reported Value falls within the Acceptance Limits and outside of the Warning Limits.

No Evaluation = Reported Values that can not be evaluated.

The **Method Description** is the method the laboratory reported to ERA.

D.L. equals the Detection Limit.

InterLaB™ DMR QA Study Discussion:

ERA DMR QA Proficiency Testing Study 19 has been reviewed by ERA Senior Management and certified compliant with the requirements of the USEPA's National Standards for Water Proficiency Testing Studies Criteria Document, December 1998, and those contained in the National Institute for Standards and Technologies Handbooks 150 and 150-19.

Per the requirements of the USEPA's Criteria Document and the NIST NVLAP Handbooks, the DMR QA-19 results were examined for any study anomalies. A full review of all homogeneity, stability, and accuracy verification data was completed. All analytical verification data for all analytes in the WP55 standards met the acceptance criteria contained in the US EPA's National Criteria Document for Water Proficiency Testing Studies, December 1998, and the National Voluntary Laboratory Accreditation Program, Handbook 150-19 for Chemical Calibration for Providers of Proficiency Testing, June 1999.

The data submitted by participating laboratories was also examined for study anomalies. Based upon ERA's review of the data, no study anomolies were found and all Acceptance Limits for the InterLaB™ DMR QA-19 study were calculated based on the US EPA's National Criteria Document for Water Proficiency Testing Studies, December 1998, as applicable.

If you have any questions regarding DMR QA-19 study, please contact Shawn Kassner, InterLaB™ Program Coordinator, or Roland P. Bruggeman, InterLaB™ Chemist, at 1-800-372-0122.

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ENVIRONMENTAL RESOURCE ASSOCIATES

DMR QA-19 Inorganic Final Report

ERA Laboratory Code: C0535-01 **EPA ID: CA00112** **State ID: NA** **Report Issued: 12/20/99**

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
pH	pH	S.U.		5.30	5.19 - 5.41	5.23 - 5.37		
	pH (a)	S.U.		8.30	8.06 - 8.54	8.14 - 8.46		
Hardness	Total Suspended Solids	mg/l		58.8	44.8 - 63.2	47.9 - 60.2		
	Total Suspended Solids (a)	mg/l	69.5	73.6	56.7 - 79.4	60.5 - 75.6	Acceptable	160.2
Demand	BOD	mg/l	40.7	37.4	18.6 - 56.1	24.9 - 49.9	Acceptable	405.1
	CBOD	mg/l	36.6	32.2	14.4 - 50.0	20.4 - 44.1	Acceptable	405.1
	COD	mg/l	57.5	60.2	41.9 - 73.6	47.2 - 68.3	Acceptable	410.4
	TOC	mg/l	22.1	23.8	19.8 - 27.7	21.1 - 26.4	Acceptable	415.1
Nutrients - Simple	Ammonia as N	mg/l	17.3	18.5	14.4 - 22.4	15.7 - 21.1	Acceptable	350.2
	Nitrate as N	mg/l	13.6	13.0	10.3 - 15.4	11.1 - 14.6	Acceptable	300.0
	Ortho-phosphate as P	mg/l	5.00	5.07	4.33 - 5.85	4.59 - 5.60	Acceptable	365.2
Nutrients - Complex	Total phosphorus as P	mg/l	4.18	4.18	3.18 - 4.91	3.46 - 4.62	Acceptable	365.2
	Total kjeldahl nitrogen	mg/l	8.38	8.37	5.91 - 10.6	6.70 - 9.86	Acceptable	351.3
Cyanide	Cyanide, total	mg/l	0.870	0.852	0.593 - 1.09	0.676 - 1.01	Acceptable	335.2
Phenolics	Phenolics, total	mg/l	0.0712	0.999	0.549 - 1.45	0.699 - 1.30	Not Acceptable	420.2
Grease & Oil	(gravimetric)	mg/l	46.6	49.7	33.6 - 55.8	37.3 - 52.1	Acceptable	1664
TRC	Total Residual Chlorine	mg/l	1.12	1.17	0.916 - 1.42	1.00 - 1.34	Acceptable	330.3

ENVIRONMENTAL RESOURCE ASSOCIATES

DMR QA-19 Inorganic Final Report

ERA Laboratory Code: C0535-01 **EPA ID: CA00112** **State ID: NA** **Report Issued: 12/20/99**

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Trace Metals	Aluminum	µg/l	1480	1660	1420 - 1890	1500 - 1810	Check for Error	200.7
	Arsenic	µg/l	335	350	292 - 411	312 - 391	Acceptable	200.7
	Cadmium	µg/l	520	542	463 - 615	488 - 590	Acceptable	200.7
	Chromium	µg/l	325	334	290 - 379	305 - 364	Acceptable	200.7
	Cobalt	µg/l	84.5	88.8	76.5 - 101	80.5 - 96.5	Acceptable	200.7
	Copper	µg/l	451	476	431 - 523	447 - 508	Acceptable	200.7
	Iron	µg/l	1780	1820	1610 - 2050	1690 - 1980	Acceptable	200.7
	Lead	µg/l	216	226	193 - 259	204 - 248	Acceptable	200.7
	Manganese	µg/l	224	234	209 - 260	217 - 251	Acceptable	200.7
	Nickel	µg/l	989	1030	932 - 1150	969 - 1110	Acceptable	200.7
	Selenium	µg/l	401	421	332 - 488	358 - 462	Acceptable	200.7
	Vanadium	µg/l	222	228	203 - 249	211 - 242	Acceptable	200.7
	Zinc	µg/l	635	643	568 - 724	594 - 698	Acceptable	200.7
Mercury	Mercury	µg/l	21.8	25.5	19.2 - 31.7	21.3 - 29.6	Acceptable	245.2

ENVIRONMENTAL RESOURCE ASSOCIATES®

DMR QA-19 Score and Overall

ERA Laboratory Code: C0535-01 **EPA ID: CA00112** **State ID: NA** **Report Issued: 12/20/99**

Number of Acceptable Analytes	Number of Reported Analytes	InterLaB™ Score	Overall Assessment
26	28	92.9%	Very Good

Scoring Definitions:

- The **Number of Acceptable Analytes** is equal to any reported values that resulted in an "Acceptable" performance evaluation for the laboratory. An acceptable performance evaluation falls with in the Warning Limits.

- The **Number of Reported Analytes** is equal to any evaluated values reported during this study.

- The **InterLaB™ Score** is equal to the sum of the Number of Acceptable Analytes divided by the total Number of Reported Analytes.

- The **Overall Assessment:**
  Excellent = InterLaB™ Score falls within 95.0% and 100%.
  Very Good = InterLaB™ Score falls within 85.0% and 94.9%.
  Good = InterLaB™ Score falls within 75.0% and 84.9%.
  Acceptable = InterLaB™ Score falls within 65.0% and 74.9%.
  Needs Improvement = InterLaB™ Score is equal to or below 64.9%.

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InterLaBWatR Supply Proficiency Testing Program
by Environmental Resource Associates

WS-42 Performance Evaluation

Report Issue date: 03/30/00

Total Reported Analytes:	100
Acceptable Analytes:	71
InterLaB Score:	71.0%
Overall Assessment:	Acceptable

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The Industry Standard™

March 30, 2000

Carmelita P. Liveros
Caltest Analytical Laboratory
1885 North Kelly Road
Napa, CA 94558

Dear Carmelita P. Liveros :

Enclosed is ERA's final statistical summary for the InterLaB WatR™ Supply WS-42 Proficiency Testing (PT) Program. ERA's format for the InterLaB WatR™ Supply statistical summary is based on the USEPA's National Standards for Water Proficiency Testing Studies Criteria Document, December 1998. The opening date of the InterLaB WatR™ Supply WS-42 study was 01/11/00 and the closing date was 02/25/00. This concludes the WS-42 study.

Your requested final report for WS-42 has not been sent to the State of California. ERA is currently compiling your results to the evaluation criteria required by the State of California. The final report you have received does not contain the California evaluation criteria. A final report for the State of California will be mailed to both you and the State of California prior to the deadline for the submittal.

Thank you for your participation in the InterLaB WatR™ Supply WS-42 Performance Evaluation Program. If you have any questions, please do not hesitate to call Roland P. Bruggeman, InterLaB™ Chemist, or me at 1-800-372-0122.

Sincerely,

Shawn Kassner
InterLaB™ Administrator

attachments
smk

ENVIRONMENTAL
RESOURCE ASSOCIATES®
The Industry Standard™

March 30, 2000

Carmelita P. Liveros
Caltest Analytical Laboratory
1885 North Kelly Road
Napa, CA 94558

Dear Carmelita P. Liveros :

I would like to introduce myself; I am Curtis J. Wood, Quality Assurance Manager for ERA. I have been a chemist at ERA for eleven years and have experience in every aspect of ERA's PT programs. My job is to ensure that our PT programs meet all USEPA, State, NELAC and NIST NVLAP technical and program requirements as well as those of our ISO 9001 Registered Quality System. In addition, I believe a critical aspect of overall quality is responsive and professional customer service.

Over the past month we have conducted an extensive review of all aspects of our InterLaB™ program. I am sure you can appreciate that complying with the myriad of federal and state requirements presents a significant challenge. Our review as well as our policy of making our PT programs compliant with imminent new requirements caused us to make some changes effective with the WS42 reports. We apologize for the delay that these changes caused.

Many of our customers have noticed a number of changes in the design of our PT standards and in the evaluation of their perceived performance compared to past USEPA WS PT programs. The USEPA 'Criteria Document' published December 30, 1998 includes a number of sample design requirements different than historically followed by EPA. However, the area of most significant change is in the data evaluation protocols that must now be followed. Data submitted by laboratories for some analytes previously judged to be acceptable are sometimes now being judged to be unacceptable. If you ever have any questions about the efficacy of any of ERA's PT standards or our correct use of the required data evaluation protocols please do not hesitate to call me.

Thank you for participating in ERA's WS42 WatR™ Supply Proficiency Testing study. All aspects of the WS42 study, from standard manufacture to final report generation, were completed by ERA in accordance with the "National Standards for Water Proficiency Testing Studies Criteria Document", USEPA December 30, 1998. ERA has reviewed all of the data that is contained in this report and has made every possible effort to make it complete, accurate and compliant. However, if you find anything in this report that you feel is incomplete or inaccurate or have any quality related issues, please call me directly at 1-800-372-0122.

Sincerely,

Curtis J. Wood

Curtis J. Wood
Quality Assurance Manager

- Study Discussion Concerning WS42 Unregulated Volatiles: Dichlorodifluoromethane

During the review of the WS42 study data, ERA observed a failure rate of 53.3% for the compound dichlorodifluoromethane in the WS Unregulated Volatiles standard. As we believe this failure rate is very high, we carefully reviewed all data related to proving the efficacy of the standard including manufacturing and internal analytical verification data for both accuracy and homogeneity. ERA's analytical verification of the accuracy of this standard involved analysis against standards from three independent sources. Our review of this data confirmed that the standard meets all requirements contained within the USEPA National Criteria Document for Water Proficiency Testing Studies as well as NIST NVLAP criteria to be judged 'fit for use'.

The mean recovery for all laboratories reporting data for dichlorodifluoromethane was 120%. The WS42 study data for dichlorodifluoromethane indicates a bimodal distribution based on the analytical methods reported. Laboratories reporting 502 GC methodologies had a statistically lower mean recovery than laboratories reporting 524 GC/MS methodologies, 113% and 131%, respectively. Per the USEPA Criteria Document, the acceptance limit for this compound is ±20% of the assigned value when the concentration is equal to or greater than 10.0 µg/l as was the case for WS42 and ±40% of the assigned value when the concentration is below 10.0 µg/l. USEPA and NIST NVLAP criteria require that this analyte be manufactured at concentrations both above and below 10.0 µg/l randomly assigned in each study.

We have reviewed our historical data for this analyte and not surprisingly have found that the failure rate is considerably higher when the 20% window is used. In 1999, ERA conducted five studies with dichlorodifluoromethane at less than 10.0 µg/l evaluated against ±40% limits. These studies had a mean failure rate of 31.4%. In 1999 ERA also conducted seven studies with dichlorodifluoromethane at greater than 10.0 µg/l evaluated against ±20% limits. These studies had a mean failure rate of 54.0% which closely matches the WS42 failure rate for this analyte.

To the best of our knowledge, USEPA did not add dichlorordifluoromethane to any past WS studies and therefore no historical failure rate data is available for comparison. Obviously, this USEPA acceptance criteria is not based on historical data from PT studies. The high failure rate, especially for PT standard concentrations above 10.0 µg/l, causes us to question the appropriateness of the acceptance limits provided in the USEPA Criteria Document. ERA has previously reported and will continue to communicate this seeming disparity in failure rates to USEPA. When reviewing each laboratory's performance evaluation for this analyte one must take the above information into consideration.

- Study Discussion Concerning WS42 Nutrients: ortho-Phosphate as P

During the review of the WS42 study data, ERA observed a failure rate of 38.2% for ortho-Phosphate as P in the WP Nutrients standard. As we believe this failure rate is very high, we carefully reviewed all data related to proving the efficacy of the standard including manufacturing and internal analytical verification data for both accuracy and homogeneity. Our review of the data confirmed that the standard meets all requirements contained within the USEPA Criteria Document as well as NIST NVLAP criteria to be judged 'fit for use'.

The WS42 study data indicated a normal distribution around the USEPA estimated mean calculated from ERA's assigned value. The acceptance limits for this analyte are calculated using the regression equations found in the USEPA Criteria Document. The average failure rate for ortho-Phosphate as P in ERA's last seven PT studies is 27.2%. The range of failure rates for these ERA studies is 16.7% to 40.5%. USEPA reported a historical failure rate of 21.8% for five of its WS studies. The range of failure rates for the USEPA studies is not available.

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WS-42 Definitions & Study Discussion

ERA Laboratory Code: C0535-01 EPA ID: CA00112 State ID: 1664 Report Issued: 03/30/00

InterLaB WatR™ SupplyDefinitions:

The **Reported Value** is the value that the laboratory reported to ERA.

The **ERA Assigned Value** is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation as applicable. A parameter not added to the standard is given an **Assigned Value** of **"Zero"** per the guidelines contained in the EPA's National Standards for Water Proficiency Testing Criteria Document, December 1998 as applicable.

The **Acceptance Limits** are established per the guidelines contained in the EPA's National Standards for Water Proficiency Testing Criteria Document, December 1998 as applicable.

The **Performance Evaluation:**

Acceptable = Reported Value falls within the Acceptance Limits.

Not Acceptable = Reported Value falls outside the Acceptance Limits.

No Evaluation = Reported Values that can not be evaluated.

The **Method Description** is the method the laboratory reported to ERA.

D.L. equals the Detection Limit.

InterLaB WatR™ Supply Study Discussion:

ERA WatR™ Supply Proficiency Testing Study 42 has been reviewed by ERA Senior Management and certified compliant with the requirements of the USEPA's National Standards for Water Proficiency Testing Studies Criteria Document, December 1998, and those contained in the National Institute for Standards and Technologies Handbooks 150 and 150-19.

Per the requirements of the USEPA's Criteria Document and the NIST NVLAP Handbooks, the WatR™ Supply 42 (WS 42) results were examined for any study anomalies. A full review of all homogeneity, stability, and accuracy verification data was completed. All analytical verification data for all analytes in the WS 42 standards met the acceptance criteria contained in the US EPA's National Criteria Document for Water Proficiency Testing Studies, December 1998, and the National Voluntary Laboratory Accreditation Program, Handbook 150-19 for Chemical Calibration for Providers of Proficiency Testing, June 1999.

The data submitted by participating laboratories was also examined for study anomalies. There were two anomalies found during the review of the study data. These anomalies are listed on the next page.

If you have any questions regarding WatR™ Supply Study WS 42, please contact Shawn Kassner, InterLaB™ Program Coordinator, or Roland P. Bruggeman, InterLaB™ Chemist, at 1-800-372-0122.

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WS-42 Final Report

ERA Laboratory Code: C0535-01 **EPA ID: CA00112** **State ID: 1664** **Report Issued: 03/30/00**

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
Metals	Aluminum	µg/l	1380	676	520 - 854	Not Acceptable	EPA200.7
	Antimony	µg/l	51.4	26.2	18.3 - 34.1	Not Acceptable	EPA200.7
	Arsenic	µg/l	66.2	32.4	28.3 - 36.3	Not Acceptable	EPA200.7
	Barium	µg/l	1840	970	825 - 1120	Not Acceptable	EPA200.7
	Beryllium	µg/l	7.55	3.55	3.02 - 4.08	Not Acceptable	EPA200.7
	Boron	µg/l	1340	653	611 - 717	Not Acceptable	EPA200.7
	Cadmium	µg/l	25.4	13.7	11.0 - 16.4	Not Acceptable	EPA200.7
	Calcium (mg/L)	mg/l	164	85.7	73.6 - 99.8	Not Acceptable	EPA200.7
	Chromium	µg/l	312	154	131 - 177	Not Acceptable	EPA200.7
	Copper	µg/l	2330	1200	1080 - 1320	Not Acceptable	EPA200.7
	Iron	µg/l	616	302	235 - 367	Not Acceptable	EPA200.7
	Lead	µg/l	145	75.6	52.9 - 98.3	Not Acceptable	EPA200.7
	Manganese	µg/l	296	150	138 - 158	Not Acceptable	EPA200.7
	Molybdenum	µg/l	250	127	107 - 146	Not Acceptable	EPA200.7
	Nickel	µg/l	102	48.9	41.6 - 56.2	Not Acceptable	EPA200.7
	Selenium	µg/l	62.4	33.4	26.7 - 40.1	Not Acceptable	EPA200.7
	Silver	µg/l	41.6	21.0	16.7 - 24.7	Not Acceptable	EPA200.7
	Thallium	µg/l	18.9	8.12	5.68 - 10.6	Not Acceptable	EPA200.7
	Zinc	µg/l	1200	646	592 - 695	Not Acceptable	EPA200.7
	Ca Hardness as CaCO3	mg/l	410	214	201 - 228	Not Acceptable	EPA200.7
Mercury	Mercury	µg/l	6.60	7.31	5.12 - 9.50	Acceptable	EPA245.2
Titration Hardness	Ca Hardness as CaCO3	mg/l	184	182	171 - 195	Acceptable	EPA160.1
	Ca Hardness as CaCO3 (a)	mg/l		182	171 - 195		

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ENVIRONMENTAL RESOURCE ASSOCIATES®

WS-42 Final Report

ERA Laboratory Code: C0535-01 EPA ID: CA00112 State ID: 1664 Report Issued: 03/30/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
Regulated Volatiles	Benzene	µg/l	2.91	3.36	2.02 - 4.70	Acceptable	EPA524.2
	Carbon tetrachloride	µg/l	8.62	9.55	5.73 - 13.4	Acceptable	EPA524.2
	Chlorobenzene	µg/l	30.7	35.9	28.7 - 43.1	Acceptable	EPA524.2
	1,2-Dichlorobenzene	µg/l	15.3	17.2	13.8 - 20.6	Acceptable	EPA524.2
	1,4-Dichlorobenzene	µg/l	7.36	8.38	5.03 - 11.7	Acceptable	EPA524.2
	1,2-Dichloroethane	µg/l	8.30	8.73	5.24 - 12.2	Acceptable	EPA524.2
	1,1-Dichloroethylene	µg/l	18.9	19.2	15.4 - 23.0	Acceptable	EPA524.2
	cis-1,2-Dichloroethylene	µg/l	18.6	20.5	16.4 - 24.6	Acceptable	EPA524.2
	trans-1,2-Dichloroethylene	µg/l	23.4	27.0	21.6 - 32.4	Acceptable	EPA524.2
	1,2-Dichloropropane	µg/l	12.4	13.7	11.0 - 16.4	Acceptable	EPA524.2
	Ethylbenzene	µg/l	12.9	14.8	11.8 - 17.8	Acceptable	EPA524.2
	Methylene chloride	µg/l	8.80	9.85	5.91 - 13.8	Acceptable	EPA524.2
	Styrene	µg/l	14.1	16.3	13.0 - 19.6	Acceptable	EPA524.2
	Tetrachloroethylene	µg/l	14.0	17.9	14.3 - 21.5	Not Acceptable	EPA524.2
	Toluene	µg/l	11.4	13.4	10.7 - 16.1	Acceptable	EPA524.2
	1,2,4-Trichlorobenzene	µg/l	6.61	9.33	5.60 - 13.1	Acceptable	EPA524.2
	1,1,1-Trichloroethane	µg/l	4.77	5.42	3.25 - 7.59	Acceptable	EPA524.2
	1,1,2-Trichloroethane	µg/l	4.78	5.95	3.57 - 8.33	Acceptable	EPA524.2
	Trichloroethylene	µg/l	10.1	12.9	10.3 - 15.5	Not Acceptable	EPA524.2
	Vinyl chloride	µg/l	27.0	19.4	11.6 - 27.2	Acceptable	EPA524.2
	Xylenes, total	µg/l	26.7	30.3	24.3 - 36.4	Acceptable	EPA524.2
Halomethanes	Bromodichloromethane	µg/l	30.6	29.9	23.9 - 35.9	Acceptable	EPA524.2
	Bromoform	µg/l	14.6	13.7	11.0 - 16.4	Acceptable	EPA524.2
	Chlorodibromomethane	µg/l	31.8	33.2	26.6 - 39.8	Acceptable	EPA524.2
	Chloroform	µg/l	43.0	40.3	32.2 - 48.4	Acceptable	EPA524.2
	Total Trihalomethanes	µg/l	120	117	93.7 - 141	Acceptable	EPA524.2

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WS-42 Final Report

ERA Laboratory Code: C0535-01 **EPA ID: CA00112** **State ID: 1664** **Report Issued: 03/30/00**

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
Regulated Pesticides	Alachlor	µg/l		12.3	6.77 - 17.8		
	Aldrin	µg/l		1.72	0.730 - 2.16		
	Atrazine	µg/l	23.2	25.6	14.1 - 37.1	Acceptable	EPA507
	Bromacil	µg/l	0.00	< 0.100		Acceptable	EPA507
	Butachlor	µg/l	23.4	26.0	8.00 - 39.2	Acceptable	EPA507
	Dieldrin	µg/l		2.38	1.66 - 2.98		
	Endrin	µg/l		1.68	1.18 - 2.18		
	Heptachlor	µg/l		3.05	1.68 - 4.42		
	Heptachlor epoxide	µg/l		1.52	0.836 - 2.20		
	Hexachlorobenzene	µg/l		1.85	0.846 - 2.37		
	Hexachlorocyclopentadiene	µg/l		1.60	0.130 - 2.05		
	gamma-BHC (Lindane)	µg/l		1.22	0.671 - 1.77		
	Methoxychlor	µg/l		58.9	32.4 - 85.4		
	Metolachlor	µg/l	26.4	28.6	8.02 - 48.0	Acceptable	EPA507
	Metribuzin	µg/l	0.00	< 0.100		Acceptable	EPA507
	Propachlor	µg/l	1.38	1.59	0.881 - 2.35	Acceptable	EPA507
	Simazine	µg/l	26.7	30.4	6.74 - 42.6	Acceptable	EPA507
	Trifluralin	µg/l	1.89	2.36	0.995 - 3.02	Acceptable	EPA507
Toxaphene	Toxaphene	µg/l		7.71	4.24 - 11.2		
Chlordane	Chlordane, technical	µg/l		9.26	5.09 - 13.4		
EDB/DBCP	Dibromochloropropane	µg/l	0.788	0.832	0.499 - 1.16	Acceptable	EPA504
	Ethylene Dibromide (EDB)	µg/l	1.14	1.40	0.840 - 1.96	Acceptable	EPA504
PCB's as DCB	PCB as Decachlorobiphenyl	µg/l		4.03	D.L. - 8.06		
	PCB Aroclor Identity			1248	1248		

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WS-42 Final Report

ERA Laboratory Code: C0535-01 EPA ID: CA00112 State ID: 1664 Report Issued: 03/30/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
Regulated Herbicides	Aciflurofen	µg/l		16.6	0.930 - 28.7		
	Bentazon	µg/l		< 0.100			
	Chloramben	µg/l		< 0.100			
	2,4-D	µg/l		63.1	31.6 - 94.7		
	2,4-DB	µg/l		< 0.100			
	DCPA	µg/l		< 0.100			
	Dalapon	µg/l		62.5	D.L. - 87.5		
	Dicamba	µg/l		43.8	11.8 - 61.0		
	3,5-Dichlorobenzoic acid	µg/l		< 0.100			
	Dichlorprop	µg/l		20.1	11.1 - 29.1		
	Dinoseb	µg/l		29.3	0.809 - 44.0		
	5-Hydroxydicamba	µg/l		< 0.100			
	4-Nitrophenol	µg/l		< 0.100			
	Pentachlorophenol	µg/l		20.1	10.1 - 30.2		
	Picloram	µg/l		35.9	0.183 - 49.1		
	2,4,5-T	µg/l		9.02	4.29 - 13.5		
	2,4,5-TP (Silvex)	µg/l		27.3	13.7 - 41.0		
Carbamate / Carbamoxyloxime Pesticides	Aldicarb	µg/l		20.5	15.2 - 25.5		
	Aldicarb sulfone	µg/l		19.2	15.9 - 22.9		
	Aldicarb sulfoxide	µg/l		16.6	11.7 - 20.3		
	Baygon	µg/l		58.5	44.7 - 74.3		
	Carbaryl	µg/l		42.6	17.0 - 65.8		
	Carbofuran	µg/l		22.6	12.4 - 32.8		
	3-Hydroxycarbofuran	µg/l		< 5.00			
	Methiocarb	µg/l		< 5.00			
	Methomyl	µg/l		87.3	69.5 - 102		
	Oxamyl	µg/l		38.4	29.4 - 46.2		
Haloacetic Acids	Bromoacetic acid	µg/l		14.2	5.91 - 20.0		
	Bromochloroacetic acid	µg/l		12.4	5.93 - 17.3		
	Chloroacetic acid	µg/l		12.3	3.66 - 18.9		
	Dibromoacetic acid	µg/l		12.2	5.52 - 16.8		
	Dichloroacetic acid	µg/l		31.7	15.0 - 35.9		
	Trichloroacetic acid	µg/l		23.6	9.97 - 30.6		
Chloral Hydrate	Chloral Hydrate	µg/l		27.8	6.45 - 44.4		

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WS-42 Score and Overall Assessment

ERA Laboratory Code: C0535-01 **EPA ID: CA00112** **State ID: 1664** **Report Issued: 03/30/00**

Number of Acceptable Analytes	Number of Reported Analytes	InterLaB™ Score	Overall Assessment
71	100	71.0%	Acceptable

Scoring Definitions:

- The **Number of Acceptable Analytes** is equal to any reported values that resulted in an "Acceptable" performance evaluation for the laboratory. An acceptable performance evaluation falls with in the Acceptance Limits.
- The **Number of Reported Analytes** is equal to any evaluated values reported during this study.
- The **InterLaB™ Score** is equal to the sum of the Number of Acceptable Analytes divided by the total Number of Reported Analytes.
- The **Overall Assessment:**
  Excellent = InterLaB™ Score falls within 95.0% and 100%.
  Very Good = InterLaB™ Score falls within 85.0% and 94.9%.
  Good = InterLaB™ Score falls within 75.0% and 84.9%.
  Acceptalbe = InterLaB™ Score falls within 65.0% and 74.9%.
  Needs Improvement = InterLaB™ Score is equal to or below 64.9%.
- Note: WS MicrobE™ is not included in the Score and Overall Assessment. A Total Evaluation for the WS Coliforms is included on each MicrobE™ Final Report.

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ENVIRONMENTAL RESOURCE ASSOCIATES®

WS-42 Final Report

ERA Laboratory Code: C0535-01A EPA ID: CA00112 State ID: 1664 Report Issued: 03/30/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
pH	pH	S.U.		9.40	8.46 - 10.3		
Inorganics	Bromide	mg/l		0.346	0.297 - 0.401		
	Chloride	mg/l	6.15	5.47	4.09 - 7.39	Acceptable	SM4110B
	Conductivity (µmhos)	µmhos	670	666	557 - 758	Acceptable	SM2510B
	Fluoride	mg/l	5.30	5.47	4.92 - 6.02	Acceptable	SM4110B
	Nitrate as N	mg/l	6.86	6.65	5.99 - 7.32	Acceptable	SM4110B
	Potassium	mg/l	37.2	32.8	26.4 - 38.3	Acceptable	SM3120B
	Sulfate	mg/l	114	124	112 - 136	Acceptable	SM4110B
Total Dissolved Solids (TDS Only)	Total dissolved solids	mg/l	222	209	141 - 277	Acceptable	SM2540C
Alkalinity & Sodium	Alkalinity (as CaCO3)	mg/l	40.0	43.8	41.6 - 49.2	Not Acceptable	SM2320B
	Sodium	mg/l	138	19.7	18.3 - 21.7	Not Acceptable	SM3120B
Turbidity	Turbidity	NTU		3.20	2.78 - 3.88		
Residual Chlorine	Free residual chlorine	mg/l		2.75	2.33 - 3.17		
	Total residual chlorine	mg/l		2.88	2.27 - 3.49		
Nitrite	Nitrite as N	mg/l	1.80	1.77	1.50 - 2.04	Acceptable	SM4500NO2B
Nutrients	ortho-Phosphate as P	mg/l	0.867	0.922	0.848 - 0.980	Acceptable	SM4500PE
Cyanide	Cyanide	mg/l	0.401	0.415	0.311 - 0.519	Acceptable	SM4500CNE
TOC	Total organic carbon	mg/l		2.38	2.07 - 2.84		
Chlorite	Chlorite	µg/l		336	237 - 497		
Bromate & Chlorate	Bromate	µg/l		27.0	10.6 - 43.8		
	Chlorate	µg/l		52.1	40.4 - 68.5		

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WS-42 Score and Overall Assessment

ERA Laboratory Code: C0535-01A EPA ID: CA00112 State ID: 1664 Report Issued: 03/30/00

Number of Acceptable Analytes	Number of Reported Analytes	InterLaB™ Score	Overall Assessment
11	33	33.3%	Needs Improvement

Scoring Definitions:

- The **Number of Acceptable Analytes** is equal to any reported values that resulted in an "Acceptable" performance evaluation for the laboratory. An acceptable performance evaluation falls with in the Acceptance Limits.
- The **Number of Reported Analytes** is equal to any evaluated values reported during this study.
- The **InterLaB™ Score** is equal to the sum of the Number of Acceptable Analytes divided by the total Number of Reported Analytes.
- The **Overall Assessment:**
  Excellent = InterLaB™ Score falls within 95.0% and 100%.
  Very Good = InterLaB™ Score falls within 85.0% and 94.9%.
  Good = InterLaB™ Score falls within 75.0% and 84.9%.
  Acceptalbe = InterLaB™ Score falls within 65.0% and 74.9%.
  Needs Improvement = InterLaB™ Score is equal to or below 64.9%.
- Note: WS MicrobE™ is not included in the Score and Overall Assessment. A Total Evaluation for the WS Coliforms is included on each MicrobE™ Final Report.

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ENVIRONMENTAL RESOURCE ASSOCIATES®

WS-42 Final Report

ERA Laboratory Code: C0535-01B EPA ID: CA00112 State ID: 1664 Report Issued: 03/30/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
pH	pH	S.U.		9.40	8.46 - 10.3		
Inorganics	Bromide	mg/l		0.346	0.297 - 0.401		
	Chloride	mg/l		5.47	4.09 - 7.39		
	Conductivity (µmhos)	µmhos		666	557 - 758		
	Fluoride	mg/l	5.85	5.47	4.92 - 6.02	Acceptable	SM4500FC
	Nitrate as N	mg/l	6.86	6.65	5.99 - 7.32	Acceptable	EPA300.0
	Potassium	mg/l	37.2	32.8	26.4 - 38.3	Acceptable	EPA6010
	Sulfate	mg/l		124	112 - 136		
Total Dissolved Solids (TDS Only)	Total dissolved solids	mg/l		209	141 - 277		
Alkalinity & Sodium	Alkalinity (as CaCO3)	mg/l		43.8	41.6 - 49.2		
	Sodium	mg/l	138	19.7	18.3 - 21.7	Not Acceptable	EPA6010
Turbidity	Turbidity	NTU		3.20	2.78 - 3.88		
Residual Chlorine	Free residual chlorine	mg/l		2.75	2.33 - 3.17		
	Total residual chlorine	mg/l		2.88	2.27 - 3.49		
Nitrite	Nitrite as N	mg/l		1.77	1.50 - 2.04		
Nutrients	ortho-Phosphate as P	mg/l		0.922	0.848 - 0.980		
Cyanide	Cyanide	mg/l		0.415	0.311 - 0.519		
TOC	Total organic carbon	mg/l		2.38	2.07 - 2.84		
Chlorite	Chlorite	µg/l		336	237 - 497		
Bromate & Chlorate	Bromate	µg/l		27.0	10.6 - 43.8		
	Chlorate	µg/l		52.1	40.4 - 68.5		

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WS-42 Score and Overall Assessment

ERA Laboratory Code: C0535-01B EPA ID: CA00112 State ID: 1664 Report Issued: 03/30/00

Number of Acceptable Analytes	Number of Reported Analytes	InterLaB™ Score	Overall Assessment
3	24	12.5%	Needs Improvement

Scoring Definitions:

- The **Number of Acceptable Analytes** is equal to any reported values that resulted in an "Acceptable" performance evaluation for the laboratory. An acceptable performance evaluation falls with in the Acceptance Limits.
- The **Number of Reported Analytes** is equal to any evaluated values reported during this study.
- The **InterLaB™ Score** is equal to the sum of the Number of Acceptable Analytes divided by the total Number of Reported Analytes.
- The **Overall Assessment:**
  Excellent = InterLaB™ Score falls within 95.0% and 100%.
  Very Good = InterLaB™ Score falls within 85.0% and 94.9%.
  Good = InterLaB™ Score falls within 75.0% and 84.9%.
  Acceptalbe = InterLaB™ Score falls within 65.0% and 74.9%.
  Needs Improvement = InterLaB™ Score is equal to or below 64.9%.
- Note: WS MicrobE™ is not included in the Score and Overall Assessment. A Total Evaluation for the WS Coliforms is included on each MicrobE™ Final Report.

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WS-42 Final Report

ERA Laboratory Code: C0535-01C EPA ID: CA00112 State ID: 1664 Report Issued: 03/30/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
Metals	Aluminum	µg/l		676	520 - 854		
	Antimony	µg/l	47.2	26.2	18.3 - 34.1	Not Acceptable	EPA200.9
	Arsenic	µg/l	62.7	32.4	28.3 - 36.3	Not Acceptable	EPA200.9
	Barium	µg/l		970	825 - 1120		
	Beryllium	µg/l	7.59	3.55	3.02 - 4.08	Not Acceptable	EPA200.9
	Boron	µg/l		653	611 - 717		
	Cadmium	µg/l	25.3	13.7	11.0 - 16.4	Not Acceptable	EPA200.9
	Calcium (mg/L)	mg/l		85.7	73.6 - 99.8		
	Chromium	µg/l	309	154	131 - 177	Not Acceptable	EPA200.9
	Copper	µg/l	2140	1200	1080 - 1320	Not Acceptable	EPA200.9
	Iron	µg/l		302	235 - 367		
	Lead	µg/l	149	75.6	52.9 - 98.3	Not Acceptable	EPA200.9
	Manganese	µg/l		150	138 - 158		
	Molybdenum	µg/l		127	107 - 146		
	Nickel	µg/l	95.7	48.9	41.6 - 56.2	Not Acceptable	EPA200.9
	Selenium	µg/l	67.6	33.4	26.7 - 40.1	Not Acceptable	EPA200.9
	Silver	µg/l	41.1	21.0	16.7 - 24.7	Not Acceptable	EPA200.9
	Thallium	µg/l	13.8	8.12	5.68 - 10.6	Not Acceptable	EPA200.9
	Zinc	µg/l		646	592 - 695		
	Ca Hardness as CaCO3	mg/l		214	201 - 228		
Mercury	Mercury	µg/l		7.31	5.12 - 9.50		
Titration Hardness	Ca Hardness as CaCO3	mg/l		182	171 - 195		
	Ca Hardness as CaCO3 (a)	mg/l		182	171 - 195		

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WS-42 Final Report

ERA Laboratory Code: C0535-01D EPA ID: CA00112 State ID: 1664 Report Issued: 03/30/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Performance Evaluation	Method Description
Metals	Aluminum	µg/l		676	520 - 854		
	Antimony	µg/l		26.2	18.3 - 34.1		
	Arsenic	µg/l	64.5	32.4	28.3 - 36.3	Not Acceptable	EPA206.3
	Barium	µg/l		970	825 - 1120		
	Beryllium	µg/l		3.55	3.02 - 4.08		
	Boron	µg/l		653	611 - 717		
	Cadmium	µg/l		13.7	11.0 - 16.4		
	Calcium (mg/L)	mg/l		85.7	73.6 - 99.8		
	Chromium	µg/l		154	131 - 177		
	Copper	µg/l		1200	1080 - 1320		
	Iron	µg/l		302	235 - 367		
	Lead	µg/l		75.6	52.9 - 98.3		
	Manganese	µg/l		150	138 - 158		
	Molybdenum	µg/l		127	107 - 146		
	Nickel	µg/l		48.9	41.6 - 56.2		
	Selenium	µg/l	57.8	33.4	26.7 - 40.1	Not Acceptable	EPA270.3
	Silver	µg/l		21.0	16.7 - 24.7		
	Thallium	µg/l		8.12	5.68 - 10.6		
	Zinc	µg/l		646	592 - 695		
	Ca Hardness as CaCO3	mg/l		214	201 - 228		
Mercury	Mercury	µg/l		7.31	5.12 - 9.50		
Titration Hardness	Ca Hardness as CaCO3	mg/l		182	171 - 195		
	Ca Hardness as CaCO3 (a)	mg/l		182	171 - 195		

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WS-42 Score and Overall Assessment

ERA Laboratory Code: C0535-01D EPA ID: CA00112 State ID: 1664 Report Issued: 03/30/00

Number of Acceptable Analytes	Number of Reported Analytes	InterLaB™ Score	Overall Assessment
0	2	0.0%	Needs Improvement

Scoring Definitions:

- The **Number of Acceptable Analytes** is equal to any reported values that resulted in an "Acceptable" performance evaluation for the laboratory. An acceptable performance evaluation falls with in the Acceptance Limits.
- The **Number of Reported Analytes** is equal to any evaluated values reported during this study.
- The **InterLaB™ Score** is equal to the sum of the Number of Acceptable Analytes divided by the total Number of Reported Analytes.
- The **Overall Assessment:**
  Excellent = InterLaB™ Score falls within 95.0% and 100%.
  Very Good = InterLaB™ Score falls within 85.0% and 94.9%.
  Good = InterLaB™ Score falls within 75.0% and 84.9%.
  Acceptalbe = InterLaB™ Score falls within 65.0% and 74.9%.
  Needs Improvement = InterLaB™ Score is equal to or below 64.9%.
- Note: WS MicrobE™ is not included in the Score and Overall Assessment. A Total Evaluation for the WS Coliforms is included on each MicrobE™ Final Report.

Caltest Analytical Laboratory
EPA code: CA00112

CORRECTIVE ACTION REPORT
FOR ERA InterLab WatR™ Supply WS-42

METALS

The trace metals results were evaluated " not acceptable". Since all results were twice as high, a review of the sample preparation procedure was performed with the analyst who prepared the PE sample. The sample for trace metals analysis was prepared incorrectly. The WS and WP PE sample were prepared at the same time using WP sample preparation instruction. The analyst took 5mLs of sample diluted to 500 mLs instead of 5mLs to 1000 mLs which is according to WS prep instruction. All samples were within acceptance limits after dividing the results by 2 (see table below).

Analyte	Reported Value divided by two	True Value	Acceptance Limits	
Al	690 ug/L	676 ug/L	520 – 854	Accept.
Sb	25.7 ug/L	26.2 ug/L	18.3 – 34.1	Accept.
As	33.1 ug/L	32.4 ug/L	28.3 – 36.3	Accept.
Ba	920 ug/L	970 ug/L	825 – 1120	Accept.
Be	3.78 ug/L	3.55 ug/L	3.02 – 4.08	Accept.
B	670 ug/L	653 ug/L	611 – 717	Accept.
Cd	12.7 ug/L	13.7 ug/L	11.0 – 16.4	Accept.
Ca	82.0 mg/L	85.7 mg/L	73.6 – 99.8	Accept.
Cr	156 ug/L	154 ug/L	131 – 177	Accept.
Cu	1165 ug/L	1200 ug/L	1080 – 1320	Accept.
Fe	308 ug/L	302 ug/L	235 – 367	Accept.
Pb	72.5 ug/L	75.6 ug/L	52.9 – 98.3	Accept.
Mn	148 ug/L	150 ug/L	138 – 158	Accept.
Mo	125 ug/L	127 ug/L	107 – 146	Accept.
Ni	51 ug/L	48.9 ug/L	41.6 – 56.2	Accept.
Se	31.2 ug/L	33.4 ug/L	26.7 – 40.1	Accept.
Ag	20.8 ug/L	21.0 ug/L	16.7 – 24.7	Accept.
Tl	9.45 ug/L	8.12 ug/L	5.68 – 10.6	Accept.
Zn	600 ug/L	412 ug/L	592 – 695	Accept.

Corrective Action: A memo regarding sample preparation and documentation was distributed to the analyst and is now being implemented. All data must be reviewed following Doc.#: Q-DATA-002 (Data Review SOP). WS-42 PE sample was reprepped and analyzed with acceptable results.

Parameter	Reported Value	True Value:	Acceptance Limits
Alkalinity	40.0	43.8	41.6 – 49.2

The analytical and quality control measurements and calculations were reviewed and found to be acceptable. The measured result was within 91.3% of the true result which is within Caltest's QC criteria (80-120%) for this procedure. A new 0.02N H2SO4 titrant was purchsed and WS-42 PE sample was reanalyzed. The result was 46.0 mg/L which is within ERA's acceptance limits.

524.2 UNREGULATED COMPOUNDS

Compound	Reported Value	True Value	Acceptance Limits
Bromomethane	2.44	8.72	5.23 - 12.2
Chloroethane	26.0	15.4	12.3 – 18.5
Chloromethane	2.21	ZERO	
Dichlorodifluormethane	40.0	10.7	8.56 – 12.8
c-1,2 Dichloropropene	8.09	10.9	8.72 – 13.1
123 Trichloropropane	2.50	ZERO	

The instrument was found to have been tuned correctly, and preceeded a passing calibration. However this was a new instrument, and it exhibited instability and needed constant re-calibration. After many hours of deliberation with the manufacturer, Caltest concluded that the application for volatiles analyses could not be conducted in the manner we needed it to perform. The newer and more sensative detector could not accommodate the amount of water vapor being delivered. We have since re-configured this instrument to semivolatile analyses.

ENVIRONMENTAL
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The Industry Standard™

March 17, 2000

Fred Choske
State of California
Environmental Laboratory Accreditation Program
California Department of Health Services
2151 Berkeley Way, Annex 2
Berkeley, CA 94704

Dear Fred:

On March 09, 2000, Caltest Analytical Laboratory located in Napa, California, participated in ERA's QuiK™ Response Performance Evaluation Program. The following results were reported to ERA by Caltest Analytical Laboratory for the PE standard, lot 03090002. The Certified Values and the QuiK™ Response Acceptance Limits were not available to Caltest Analytical Laboratory. This report will be released to Caltest Analytical Laboratory.

If you have any questions, please contact Shawn Kassner, InterLaB™ Administrator, or me at 1-800-372-0122.

Sincerely,

Roland P. Bruggeman
InterLaB™ Chemist

rpb
attachments

ENVIRONMENTAL RESOURCE ASSOCIATES®
The Industry Standard™

QuiK™ Response PE Standards
State of California

Final Report

PotableWatR™ Inorganics

Customer: Caltest Analytical Laboratory
Lot Number: 03090002
State ID Number: CA00112/1664

Parameter	Units	Reported Value	Certified Value	QuiK™ Response Limits		Comment
sodium	mg/l	75.6	76.6	69.2	84.8	Acceptable

Method: SM3120B

Results reported by: Carmenita P. Oliveros Caltest Analytical Laboratory

Date of Report: 3/17/00

ENVIRONMENTAL RESOURCE ASSOCIATES®
The Industry Standard™

QuiK™ Response PE Standards
State of California

Final Report

PotableWatR™ Inorganics

Customer: Caltest Analytical Laboratory
Lot Number: 03090002
State ID Number: CA00112/1664

Parameter	Units	Reported Value	Certified Value	QuiK™ Response Limits		Comment
sodium	mg/l	75.6	76.6	69.2	84.8	Acceptable

Method: EPA 200.7

Results reported by: Carmelita P. Oliveros - Caltest Analytical Laboratory

Date of Report: 3/17/00

InterLaBWatR Pollution Proficiency Testing Program
by Environmental Resource Associates

WP-60 Performance Evaluation

Report Issue date: 3/28/00

Total Reported Analytes:	164
Acceptable Analytes:	151
InterLaB Score:	92.1%
Overall Assessment:	Very Good

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RESOURCE ASSOCIATES®
The Industry Standard™

March 28, 2000

Carmellta Oliveros
Caltest Analytical Laboratory
1885 North Kelly Road
Napa, CA 94558

Dear Carmellta Oliveros :

Enclosed is the ERA final statistical summary for the InterLaB WatR™ Pollution WP-60 Proficiency Testing (PT) Program. ERA's format for the InterLaB WatR™ Pollution statistical summary is based on the USEPA's National Standards for Water Proficiency Testing Studies Criteria Document, December 1998. The opening date of the InterLaB WatR™ Pollution WP-60 study was 01/10/00 and the closing date was 02/24/00. This concludes the WP-60 study.

Your requested final report for WP-60 has not been sent to the State of California. ERA is currently compiling your results to the evaluation criteria required by the State of California. The final report you have received does not contain the California evaluation criteria. A final report for the State of California will be mailed to both you and the State of California prior to the deadline for the submittal.

ERA recommends that your lab demonstrates corrective action for any parameter that is reported as a "Check for Error" or "Not Acceptable". Corrective action is demonstrated by identifying root causes of error, alleviating the error, and successfully analyzing a Quality Control Standard. An excellent way to demonstrate the effectiveness of your corrective action is to participate in the next ERA InterLaB WatR™ Pollution round robin study. For your convenience ERA has an InterLaB WatR™ Pollution round robin study scheduled to begin shipping the second week of every month. If you would like to place an order for the next available study, please contact me at 1-800-372-0122.

Thank you for your participation in the InterLaB WatR™ Pollution, WP-60, Performance Evaluation Program. If you have any questions, please do not hesitate to call Roland P. Bruggeman, InterLaB™ Chemist, or me.

Sincerely,

Shawn Kassner
InterLaB™ Administrator

attachments
smk

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The Industry Standard™

March 28, 2000

Carmellta Oliveros
Caltest Analytical Laboratory
1885 North Kelly Road
Napa, CA 94558

Dear Carmellta Oliveros :

I would like to introduce myself; I am Curtis J. Wood, Quality Assurance Manager for ERA. I have been a chemist at ERA for eleven years and have experience in every aspect of ERA's PT programs. My job is to ensure that our PT programs meet all USEPA, State, NELAC and NIST NVLAP technical and program requirements as well as those of our ISO 9001 Registered Quality System. In addition, I believe a critical aspect of overall quality is responsive and professional customer service.

Over the past month we have conducted an extensive review of all aspects of our InterLaB™ program. I am sure you can appreciate that complying with the myriad of federal and state requirements presents a significant challenge. Our review as well as our policy of making our PT programs compliant with imminent new requirements caused us to make some changes effective with the WP60 reports. We apologize for the delay that these changes caused.

Many of our customers have noticed a number of changes in the design of our PT standards and in the evaluation of their perceived performance compared to past USEPA WP PT programs. The USEPA 'Criteria Document' published December 30, 1998 includes a number of sample design requirements different than historically followed by EPA. However, the area of most significant change is in the data evaluation protocols that must now be followed. Data submitted by laboratories for some analytes previously judged to be acceptable are sometimes now being judged to be unacceptable. If you ever have any questions about the efficacy of any of ERA's PT standards or our correct use of the required data evaluation protocols please do not hesitate to call me.

Thank you for participating in ERA's WP60 WatR™ Pollution Proficiency Testing study. All aspects of the WP60 study, from standard manufacture to final report generation, were completed by ERA in accordance with the "National Standards for Water Proficiency Testing Studies Criteria Document", US EPA December 30, 1998. ERA has reviewed all of the data that is contained in this report and has made every possible effort to make it complete, accurate and compliant. However, if you find anything in this report that you feel is incomplete or inaccurate or have any quality related issues, please call me directly at 1-800-372-0122.

Sincerely,

Curtis J. Wood

Curtis J. Wood
Quality Assurance Manager

ENVIRONMENTAL RESOURCE ASSOCIATES®

WP-60 Definitions & Study Discussion

ERA Laboratory Code: C0535-01 EPA ID: CA00112 State ID: 1664 Report Issued: 03/28/00

InterLaB WatR™ Pollution Definitions:

The **Reported Value** is the value that the laboratory reported to ERA.

The **ERA Assigned Value** is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation as applicable. A parameter not added to the standard is given an **Assigned Value** of **"Zero"** per the guidelines contained in the EPA's National Standards for Water Proficiency Testing Criteria Document, December 1998 as applicable.

The **Acceptance Limits** and **Warning Limits** are established per the guidelines contained in the EPA's National Standards for Water Proficiency Testing Criteria Document, December 1998 as applicable.

The **Performance Evaluation:**

Acceptable = Reported Value falls within the Acceptance Limits.

Not Acceptable = Reported Value falls outside the Acceptance Limits.

Check for Error = Reported Value falls within the Acceptance Limits and outside of the Warning Limits.

No Evaluation = Reported Values that can not be evaluated.

The **Method Description** is the method the laboratory reported to ERA.

D.L. equals the Detection Limit.

InterLaB WatR™ Pollution Study Discussion:

ERA WatR™ Pollution Proficiency Testing Study 60 has been reviewed by ERA Senior Management and certified compliant with the requirements of the USEPA's National Standards for Water Proficiency Testing Studies Criteria Document, December 1998, and those contained in the National Institute for Standards and Technologies Handbooks 150 and 150-19.

Per the requirements of the USEPA's Criteria Document and the NIST NVLAP Handbooks, the WatR™ Pollution 60 (WP60) results were examined for any study anomalies. A full review of all homogeneity, stability, and accuracy verification data was completed. All analytical verification data for all analytes in the WP60 standards met the acceptance criteria contained in the US EPA's National Criteria Document for Water Proficiency Testing Studies, December 1998, and the National Voluntary Laboratory Accreditation Program, Handbook 150-19 for Chemical Calibration for Providers of Proficiency Testing, June 1999.

The data submitted by participating laboratories was also examined for study anomalies. Based upon ERA's review of the data, no study anomolies were found and all Acceptance Limits for the InterLaB WatR™ Pollution study, WP60, were calculated based on the US EPA's National Criteria Document for Water Proficiency Testing Studies, December 1998, as applicable.

If you have any questions regarding WatR™ Pollution Study, WP 60, please contact Shawn Kassner, InterLaB™ Program Coordinator, or Roland P. Bruggeman, InterLaB™ Chemist, at 1-800-372-0122.

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WP-60 Final Report

ERA Laboratory Code: C0535-01 **EPA ID: CA00112** **State ID: 1664** **Report Issued: 03/28/00**

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Minerals	Total Solids at 105°C	mg/l	256	244	166 - 310	190 - 286	Acceptable	EPA160.3
	Total Dissolved Solids	mg/l	147	228	168 - 288	188 - 268	Not Acceptable	EPA160.1
	Conductivity at 25°C	µmhos	320	315	291 - 339	299 - 331	Acceptable	EPA120.1
	Alkalinity as CaCO3	mg/l	60.0	55.3	49.2 - 61.7	51.3 - 59.6	Check for Error	EPA310.1
	Chloride	mg/l	34.4	39.5	34.8 - 43.6	36.3 - 42.2	Not Acceptable	EPA300.0
	Fluoride	mg/l	2.43	2.54	2.21 - 2.84	2.32 - 2.73	Acceptable	EPA300.0
	Potassium	mg/l	26.6	24.5	21.1 - 28.0	22.2 - 26.8	Acceptable	EPA200.7
	Sodium	mg/l	50.2	50.4	45.4 - 55.6	47.1 - 53.9	Acceptable	EPA200.7
	Sulfate	mg/l	21.2	23.7	18.7 - 28.1	20.2 - 26.6	Acceptable	EPA300.0
pH	pH	S.U.	8.81	9.00	8.73 - 9.27	8.82 - 9.18	Check for Error	EPA150.1
Hardness	Total Suspended Solids	mg/l	35.0	36.3	26.7 - 38.7	28.7 - 36.7	Acceptable	EPA160.2
	Calcium	mg/l	43.5	42.4	37.8 - 48.2	39.5 - 46.4	Acceptable	EPA200.7
	Magnesium	mg/l	30.1	29.8	26.1 - 33.4	27.3 - 32.2	Acceptable	EPA200.7
	Calcium hardness (CaCO3)	mg/l	109	106	83.8 - 128	91.2 - 121	Acceptable	EPA200.7
	Total Hardness (CaCO3)	mg/l	230	228	208 - 249	215 - 242	Acceptable	EPA200.7
Demand	BOD	mg/l	40.0	37.1	18.5 - 55.7	24.7 - 49.5	Acceptable	EPA405.1
	CBOD	mg/l	38.2	32.0	14.3 - 49.7	20.2 - 43.8	Acceptable	EPA405.1
	COD	mg/l	60.0	59.8	41.6 - 73.2	46.9 - 67.9	Acceptable	EPA410.4
	TOC	mg/l	22.6	23.6	19.6 - 27.5	20.9 - 26.2	Acceptable	EPA415.1
Nutrients - Simple	Ammonia as N	mg/l	1.35	1.30	0.926 - 1.69	1.05 - 1.56	Acceptable	EPA350.2
	Nitrate as N	mg/l	13.5	16.0	12.7 - 19.0	13.7 - 17.9	Check for Error	EPA300.0
	Ortho-phosphate as P	mg/l	3.20	3.31	2.82 - 3.83	2.99 - 3.66	Acceptable	EPA365.2
Nutrients - Complex	Total phosphorus as P	mg/l	4.18	4.34	3.30 - 5.09	3.60 - 4.79	Acceptable	EPA365.2
	Total kjeldahl nitrogen	mg/l	5.75	5.78	3.97 - 7.51	4.56 - 6.92	Acceptable	EPA351.3
Cyanide	Cyanide, total	mg/l	0.738	0.729	0.506 - 0.937	0.578 - 0.865	Acceptable	EPA335.2
Phenolics	Phenolics, total	mg/l	0.701	0.748	0.408 - 1.09	0.522 - 0.974	Acceptable	EPA420.2
Grease & Oil	Grease & Oil (Gravimetric)	mg/l	36.1	29.7	18.7 - 34.9	21.4 - 32.2	Not Acceptable	EPA1664
TRC	Total Residual Chlorine	mg/l	1.26	1.33	1.05 - 1.61	1.14 - 1.52	Acceptable	EPA330.3

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WP-60 Final Report

ERA Laboratory Code: C0535-01 **EPA ID: CA00112** **State ID: 1664** **Report Issued: 03/28/00**

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Volatiles	Acetone	µg/l		< 5.00				
	Acetonitrile	µg/l		< 5.00				
	Acrylonitrile	µg/l		< 5.00				
	Acrolein	µg/l		< 5.00				
	Benzene	µg/l	65.8	74.1	53.6 - 95.1	60.5 - 88.2	Acceptable	EPA602
	Bromodichloromethane	µg/l	9.62	11.7	8.04 - 15.5	9.27 - 14.2	Acceptable	EPA601
	Bromoform	µg/l	46.2	72.3	47.6 - 98.9	56.1 - 90.3	Not Acceptable	EPA601
	Bromomethane	µg/l	0.00	< 5.00			Acceptable	EPA601
	2-Butanone (MEK)	µg/l		< 5.00				
	Carbon disulfide	µg/l		< 5.00				
	Carbon tetrachloride	µg/l	22.2	23.9	15.0 - 33.8	18.1 - 30.6	Acceptable	EPA601
	Chlorobenzene	µg/l	68.0	76.2	53.4 - 97.2	60.7 - 89.9	Acceptable	EPA601
	Chlorodibromomethane	µg/l	17.6	17.9	11.8 - 23.7	13.8 - 21.7	Acceptable	EPA601
	Chloroethane	µg/l	0.00	< 5.00			Acceptable	EPA601
	2-Chloroethylvinylether	µg/l	0.00	< 5.00			Acceptable	EPA601
	Chloroform	µg/l	17.9	24.0	16.9 - 31.0	19.2 - 28.6	Check for Error	EPA601
	Chloromethane	µg/l	0.00	< 5.00			Acceptable	EPA601
	DBCP	µg/l		< 5.00				
	1,2-Dibromoethane (EDB)	µg/l	0.00	< 5.00			Acceptable	EPA601
	Dibromomethane	µg/l		< 5.00				
	1,2-Dichlorobenzene	µg/l	15.5	19.7	13.6 - 25.4	15.6 - 23.4	Check for Error	EPA601
	1,3-Dichlorobenzene	µg/l	29.3	35.9	25.3 - 44.9	28.5 - 41.6	Acceptable	EPA601
	1,4-Dichlorobenzene	µg/l	10.9	12.7	8.57 - 16.9	9.95 - 15.5	Acceptable	EPA601
	Dichlorodifluoromethane	µg/l	0.00	< 5.00			Acceptable	EPA601
	1,1-Dichloroethane	µg/l	0.00	< 5.00			Acceptable	EPA601
	1,2-Dichloroethane	µg/l	22.1	31.0	21.5 - 41.6	24.9 - 38.2	Check for Error	EPA601
	1,1-Dichloroethylene	µg/l	0.00	< 5.00			Acceptable	EPA601
	cis-1,2-Dichloroethylene	µg/l	30.6	46.4	19.8 - 72.1	28.5 - 63.4	Acceptable	EPA601
	trans-1,2-Dichloroethylene	µg/l	0.00	< 5.00			Acceptable	EPA601
	1,2-Dichloropropane	µg/l	29.6	35.2	22.3 - 47.3	26.4 - 43.2	Acceptable	EPA601
	cis-1,3-Dichloropropylene	µg/l	0.00	< 5.00			Acceptable	EPA601
	trans-1,3-Dichloropropylene	µg/l	0.00	< 5.00			Acceptable	EPA601
	Ethylbenzene	µg/l	22.6	24.6	16.6 - 32.0	19.2 - 29.4	Acceptable	EPA602
	2-Hexanone	µg/l		< 5.00				
	Methylene chloride	µg/l	48.0	65.7	41.5 - 90.2	49.6 - 82.1	Check for Error	EPA601
	MIBK	µg/l		78.5	30.0 - 122	45.4 - 107		
	Styrene	µg/l		< 5.00				
	1,1,1,2-Tetrachloroethane	µg/l		< 5.00				
	1,1,2,2-Tetrachloroethane	µg/l	0.00	< 5.00			Acceptable	EPA601
	Tetrachloroethylene	µg/l	64.2	73.4	48.6 - 93.8	56.1 - 86.2	Acceptable	EPA601
	Toluene	µg/l	39.0	42.2	30.3 - 52.8	34.0 - 49.0	Acceptable	EPA602
	1,1,1-Trichloroethane	µg/l	24.9	27.8	18.2 - 36.7	21.2 - 33.6	Acceptable	EPA601
	1,1,2-Trichloroethane	µg/l	0.00	< 5.00			Acceptable	EPA601
	Trichloroethylene	µg/l	20.5	23.3	15.2 - 30.3	17.7 - 27.8	Acceptable	EPA601
	Trichlorofluoromethane	µg/l	0.00	< 5.00			Acceptable	EPA601

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WP-60 Final Report

ERA Laboratory Code: C0535-01 EPA ID: CA00112 State ID: 1664 Report Issued: 03/28/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Pesticides	Aldrin	µg/l	1.93	2.72	0.696 - 3.68	1.19 - 3.18	Acceptable	EPA608
	alpha-BHC	µg/l	2.99	3.86	1.46 - 5.60	2.15 - 4.91	Acceptable	EPA608
	beta-BHC	µg/l	3.40	4.19	1.48 - 6.07	2.24 - 5.30	Acceptable	EPA608
	delta-BHC	µg/l	0.00	< 0.100			Acceptable	EPA608
	gamma-BHC(Lindane)	µg/l	0.00	< 0.100			Acceptable	EPA608
	alpha-Chlordane	µg/l	0.00	< 0.100			Acceptable	EPA608
	gamma-Chlordane	µg/l	3.80	4.51	2.40 - 5.97	2.97 - 5.40	Acceptable	EPA608
	4,4'-DDD	µg/l	1.55	1.76	0.856 - 2.46	1.12 - 2.20	Acceptable	EPA608
	4,4'-DDE	µg/l	0.594	0.702	0.324 - 0.956	0.429 - 0.851	Acceptable	EPA608
	4,4'-DDT	µg/l	1.18	1.32	0.589 - 1.81	0.792 - 1.61	Acceptable	EPA608
	Dieldrin	µg/l	3.21	3.82	1.97 - 5.27	2.52 - 4.72	Acceptable	EPA608
	Endrin	µg/l	1.79	2.19	1.01 - 3.20	1.37 - 2.83	Acceptable	EPA608
	Endrin aldehyde	µg/l	0.00	< 0.100			Acceptable	EPA608
	Endrin ketone	µg/l	0.00	< 0.100			Acceptable	EPA608
	Endosulfan I	µg/l	0.00	< 0.100			Acceptable	EPA608
	Endosulfan II	µg/l	0.00	< 0.100			Acceptable	EPA608
	Endosulfan sulfate	µg/l	0.00	< 0.100			Acceptable	EPA608
	Heptachlor	µg/l	1.75	2.24	0.592 - 3.12	1.01 - 2.70	Acceptable	EPA608
	Heptachlor epoxide	µg/l	0.557	0.667	0.337 - 0.861	0.425 - 0.774	Acceptable	EPA608
	Methoxychlor	µg/l	3.27	3.68	1.39 - 5.68	2.06 - 4.96	Acceptable	EPA608
	Toxaphene	µg/l	0.00	< 0.100			Acceptable	EPA608

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WP-60 Final Report

ERA Laboratory Code: C0535-01 **EPA ID: CA00112** **State ID: 1664** **Report Issued: 03/28/00**

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Base Neutrals	Acenaphthene	µg/l		< 10.0				
	Acenaphthylene	µg/l		< 10.0				
	Aniline	µg/l		< 10.0				
	Anthracene	µg/l	8.88	13.7	1.56 - 22.4	5.04 - 19.0	Acceptable	EPA625
	Benzidine	µg/l	0.00	< 10.0			Acceptable	EPA625
	Benzo(a)anthracene	µg/l	0.00	< 10.0			Acceptable	EPA625
	Benzo(b)fluoranthene	µg/l	0.00	< 10.0			Acceptable	EPA625
	Benzo(k)fluoranthene	µg/l	0.00	< 10.0			Acceptable	EPA625
	Benzo(g,h,i)perylene	µg/l	14.2	21.8	D.L. - 38.7	2.36 - 31.4	Acceptable	EPA625
	Benzo(a)pyrene	µg/l	0.00	< 10.0			Acceptable	EPA625
	Benzyl alcohol	µg/l		< 10.0				
	4-Bromophenyl-phenylether	µg/l	0.00	< 10.0			Acceptable	EPA625
	Butylbenzylphthalate	µg/l	0.00	< 10.0			Acceptable	EPA625
	Carbazole	µg/l		< 10.0				
	4-Chloroaniline	µg/l		< 10.0				
	bis(2-Chloroethoxy)methane	µg/l	0.00	< 10.0			Acceptable	EPA625
	bis(2-Chloroethyl)ether	µg/l	0.00	< 10.0			Acceptable	EPA625
	1-Chloronaphthalene	µg/l		< 10.0				
	2-Chloronaphthalene	µg/l	34.4	84.0	10.5 - 114	27.4 - 97.7	Acceptable	EPA625
	4-Chlorophenyl-phenylether	µg/l	0.00	< 10.0			Acceptable	EPA625
	2,2'-oxybis(1-chloropropane)	µg/l		< 10.0				
	Chrysene	µg/l	25.9	40.4	11.0 - 57.2	18.7 - 49.5	Acceptable	EPA625
	Dibenz(a,h)anthracene	µg/l	0.00	< 10.0			Acceptable	EPA625
	Dibenzofuran	µg/l	41.1	86.5	27.4 - 110	41.1 - 95.9	Acceptable	EPA625
	Di-n-butylphthalate	µg/l	0.00	< 10.0			Acceptable	EPA625
	1,2-Dichlorobenzene	µg/l	16.1	47.9	D.L. - 67.1	6.60 - 55.0	Acceptable	EPA625
	1,3-Dichlorobenzene	µg/l	0.00	< 10.0			Acceptable	EPA625
	1,4-Dichlorobenzene	µg/l	34.8	119	D.L. - 170	9.90 - 141	Acceptable	EPA625
	3,3'-Dichlorobenzidine	µg/l	0.00	< 10.0			Acceptable	EPA625
	Diethylphthalate	µg/l	57.7	96.5	D.L. - 149	23.1 - 124	Acceptable	EPA625
	Dimethylphthalate	µg/l	0.00	< 10.0			Acceptable	EPA625
	2,4-Dinitrotoluene	µg/l	36.7	60.7	14.3 - 81.2	25.4 - 70.0	Acceptable	EPA625
	2,6-Dinitrotoluene	µg/l	87.7	158	41.9 - 203	68.6 - 179	Acceptable	EPA625
	Di-n-octylphthalate	µg/l	0.00	< 10.0			Acceptable	EPA625
	bis(2-ethylhexyl)phthalate	µg/l	70.9	129	16.7 - 203	47.8 - 172	Acceptable	EPA625
	Fluoranthene	µg/l	0.00	< 10.0			Acceptable	EPA625
	Fluorene	µg/l	0.00	< 10.0			Acceptable	EPA625
	Hexachlorobenzene	µg/l	0.00	< 10.0			Acceptable	EPA625
	Hexachlorobutadiene	µg/l	0.00	< 10.0			Acceptable	EPA625
	Hexachlorocyclopentadiene	µg/l	0.00	< 10.0			Acceptable	EPA625
	Hexachloroethane	µg/l	25.0	95.2	D.L. - 156	D.L. - 123	Acceptable	EPA625
	Indeno(1,2,3-cd)pyrene	µg/l	0.00	< 10.0			Acceptable	EPA625
	Isophorone	µg/l	0.00	< 10.0			Acceptable	EPA625
	1-Methylnaphthalene	µg/l		< 10.0				
	2-Methylnaphthalene	µg/l		< 10.0				

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WP-60 Final Report

ERA Laboratory Code: C0535-01 EPA ID: CA00112 State ID: 1664 Report Issued: 03/28/00

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Acids	Benzoic acid	µg/l		< 10.0				
	4-Chloro-3-methylphenol	µg/l	66.3	138	40.3 - 184	64.2 - 160	Acceptable	EPA625
	2-Chlorophenol	µg/l	12.0	29.9	5.07 - 40.5	11.0 - 34.6	Acceptable	EPA625
	2,4-Dichlorophenol	µg/l	0.00	< 10.0			Acceptable	EPA625
	2,6-Dichlorophenol	µg/l		< 10.0				
	2,4-Dimethylphenol	µg/l	0.00	< 10.0			Acceptable	EPA625
	4,6-Dinitro-2-methylphenol	µg/l	0.00	< 10.0			Acceptable	EPA625
	2,4-Dinitrophenol	µg/l	0.00	< 10.0			Acceptable	EPA625
	2-Methylphenol	µg/l	30.2	80.2	7.60 - 110	22.2 - 92.8	Acceptable	EPA625
	3-Methylphenol	µg/l		< 10.0				
	4-Methylphenol	µg/l		< 10.0				
	2-Nitrophenol	µg/l	0.00	< 10.0			Acceptable	EPA625
	3-Nitrophenol	µg/l		< 10.0				
	4-Nitrophenol	µg/l	0.00	< 10.0			Acceptable	EPA625
	Pentachlorophenol	µg/l	75.5	134	10.1 - 200	41.7 - 168	Acceptable	EPA625
	Phenol	µg/l	15.2	71.7	D.L. - 111	D.L. - 88.7	Acceptable	EPA625
	2,4,5-Trichlorophenol	µg/l		< 10.0				
	2,4,6-Trichlorophenol	µg/l	54.4	120	30.3 - 160	51.8 - 138	Acceptable	EPA625

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Lab code: 200388-0

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WP-60 Score and Overall Assessment

ERA Laboratory Code: C0535-01 **EPA ID: CA00112** **State ID: 1664** **Report Issued: 03/28/00**

Number of Acceptable Analytes	Number of Reported Analytes	InterLaB™ Score	Overall Assessment
151	164	92.1%	Very Good

Scoring Definitions:

- The **Number of Acceptable Analytes** is equal to any reported values that resulted in an "Acceptable" performance evaluation for the laboratory. An acceptable performance evaluation falls with in the Warning Limits.

- The **Number of Reported Analytes** is equal to any evaluated values reported during this study.

- The **InterLaB™ Score** is equal to the sum of the Number of Acceptable Analytes divided by the total Number of Reported Analytes.

- The **Overall Assessment:**
  Excellent = InterLaB™ Score falls within 95.0% and 100%.
  Very Good = InterLaB™ Score falls within 85.0% and 94.9%.
  Good = InterLaB™ Score falls within 75.0% and 84.9%.
  Acceptable = InterLaB™ Score falls within 65.0% and 74.9%.
  Needs Improvement = InterLaB™ Score is equal to or below 64.9%.

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WP-60 Definitions & Study Discussion

ERA Laboratory Code: C0535-01A EPA ID: CA00112 State ID: 1664 **Report Issued: 03/28/00**

InterLaB WatR™ Pollution Definitions:

The **Reported Value** is the value that the laboratory reported to ERA.

The **ERA Assigned Value** is equal to 100% of the parameter present in the standard as determined by gravimetric and/or volumetric measurements made during standard preparation as applicable. A parameter not added to the standard is given an **Assigned Value** of **"Zero"** per the guidelines contained in the EPA's National Standards for Water Proficiency Testing Criteria Document, December 1998 as applicable.

The **Acceptance Limits** and **Warning Limits** are established per the guidelines contained in the EPA's National Standards for Water Proficiency Testing Criteria Document, December 1998 as applicable.

The **Performance Evaluation:**

Acceptable = Reported Value falls within the Acceptance Limits.

Not Acceptable = Reported Value falls outside the Acceptance Limits.

Check for Error = Reported Value falls within the Acceptance Limits and outside of the Warning Limits.

No Evaluation = Reported Values that can not be evaluated.

The **Method Description** is the method the laboratory reported to ERA.

D.L. equals the Detection Limit.

InterLaB WatR™ Pollution Study Discussion:

ERA WatR™ Pollution Proficiency Testing Study 60 has been reviewed by ERA Senior Management and certified compliant with the requirements of the USEPA's National Standards for Water Proficiency Testing Studies Criteria Document, December 1998, and those contained in the National Institute for Standards and Technologies Handbooks 150 and 150-19.

Per the requirements of the USEPA's Criteria Document and the NIST NVLAP Handbooks, the WatR™ Pollution 60 (WP60) results were examined for any study anomalies. A full review of all homogeneity, stability, and accuracy verification data was completed. All analytical verification data for all analytes in the WP60 standards met the acceptance criteria contained in the US EPA's National Criteria Document for Water Proficiency Testing Studies, December 1998, and the National Voluntary Laboratory Accreditation Program, Handbook 150-19 for Chemical Calibration for Providers of Proficiency Testing, June 1999.

The data submitted by participating laboratories was also examined for study anomalies. Based upon ERA's review of the data, no study anomolies were found and all Acceptance Limits for the InterLaB WatR™ Pollution study, WP60, were calculated based on the US EPA's National Criteria Document for Water Proficiency Testing Studies, December 1998, as applicable.

If you have any questions regarding WatR™ Pollution Study, WP 60, please contact Shawn Kassner, InterLaB™ Program Coordinator, or Roland P. Bruggeman, InterLaB™ Chemist, at 1-800-372-0122.

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ENVIRONMENTAL RESOURCE ASSOCIATES®

WP-60 Final Report

ERA Laboratory Code: C0535-01A EPA ID: CA00112 State ID: 1664 **Report Issued: 03/28/00**

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Minerals	Total Solids at 105°C	mg/l	256	244	166 - 310	190 - 286	Acceptable	SM2540B
	Total Dissolved Solids	mg/l	147	228	168 - 288	188 - 268	Not Acceptable	SM2540C
	Conductivity at 25°C	µmhos	320	315	291 - 339	299 - 331	Acceptable	SM2510B
	Alkalinity as CaCO3	mg/l	60.0	55.3	49.2 - 61.7	51.3 - 59.6	Check for Error	SM2320B
	Chloride	mg/l	35.5	39.5	34.8 - 43.6	36.3 - 42.2	Check for Error	SM4500C1-B
	Fluoride	mg/l	2.78	2.54	2.21 - 2.84	2.32 - 2.73	Check for Error	EPA340.2
	Potassium	mg/l	26.6	24.5	21.1 - 28.0	22.2 - 26.8	Acceptable	EPA6010
	Sodium	mg/l	50.2	50.4	45.4 - 55.6	47.1 - 53.9	Acceptable	EPA6010
	Sulfate	mg/l		23.7	18.7 - 28.1	20.2 - 26.6		
pH	pH	S.U.	8.81	9.00	8.73 - 9.27	8.82 - 9.18	Check for Error	SM4500H+B
Hardness	Total Suspended Solids	mg/l		36.3	26.7 - 38.7	28.7 - 36.7		
	Calcium	mg/l	43.5	42.4	37.8 - 48.2	39.5 - 46.4	Acceptable	EPA6010
	Magnesium	mg/l	30.1	29.8	26.1 - 33.4	27.3 - 32.2	Acceptable	EPA6010
	Calcium hardness (CaCO3)	mg/l	109	106	83.8 - 128	91.2 - 121	Acceptable	EPA6010CMC
	Total Hardness (CaCO3)	mg/l	230	228	208 - 249	215 - 242	Acceptable	EPA6010CALC
Demand	BOD	mg/l	40.0	37.1	18.5 - 55.7	24.7 - 49.5	Acceptable	SM5210B
	CBOD	mg/l	38.2	32.0	14.3 - 49.7	20.2 - 43.8	Acceptable	SM5210B
	COD	mg/l	60.0	59.8	41.6 - 73.2	46.9 - 67.9	Acceptable	SM5220D
	TOC	mg/l	22.6	23.6	19.6 - 27.5	20.9 - 26.2	Acceptable	SM5310C
Nutrients - Simple	Ammonia as N	mg/l	1.35	1.30	0.926 - 1.69	1.05 - 1.56	Acceptable	SM4500NH3-C
	Nitrate as N	mg/l	15.6	16.0	12.7 - 19.0	13.7 - 17.9	Acceptable	EPA353.2
	Ortho-phosphate as P	mg/l	3.20	3.31	2.82 - 3.83	2.99 - 3.66	Acceptable	SM4500P-E
Nutrients - Complex	Total phosphorus as P	mg/l	4.18	4.34	3.30 - 5.09	3.60 - 4.79	Acceptable	SM4500P-E
	Total kjeldahl nitrogen	mg/l	5.75	5.78	3.97 - 7.51	4.56 - 6.92	Acceptable	SM4500NH3-C
Cyanide	Cyanide, total	mg/l	0.738	0.729	0.506 - 0.937	0.578 - 0.865	Acceptable	SM4500CN-E
Phenolics	Phenolics, total	mg/l	0.698	0.748	0.408 - 1.09	0.522 - 0.974	Acceptable	EPA420.1
Grease & Oil	Grease & Oil (Gravimetric)	mg/l		29.7	18.7 - 34.9	21.4 - 32.2		
TRC	Total Residual Chlorine	mg/l		1.33	1.05 - 1.61	1.14 - 1.52		

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ERA Laboratory Code: C0535-01A EPA ID: CA00112 State ID: 1664 **Report Issued: 03/28/00**

ERA Standard	Analyte	Units	Reported Value	Assigned Value	Acceptance Limits	Warning Limits	Performance Evaluation	Method Description
Volatiles	Acetone	µg/l	0.00	< 5.00			Acceptable	EPA624
	Acetonitrile	µg/l	0.00	< 5.00			Acceptable	EPA624
	Acrylonitrile	µg/l	0.00	< 5.00			Acceptable	EPA624
	Acrolein	µg/l	0.00	< 5.00			Acceptable	EPA624
	Benzene	µg/l	69.1	74.1	53.6 - 95.1	60.5 - 88.2	Acceptable	EPA624
	Bromodichloromethane	µg/l	10.2	11.7	8.04 - 15.5	9.27 - 14.2	Acceptable	EPA624
	Bromoform	µg/l	67.2	72.3	47.6 - 98.9	56.1 - 90.3	Acceptable	EPA624
	Bromomethane	µg/l	0.00	< 5.00			Acceptable	EPA624
	2-Butanone (MEK)	µg/l	0.00	< 5.00			Acceptable	EPA624
	Carbon disulfide	µg/l	0.00	< 5.00			Acceptable	EPA624
	Carbon tetrachloride	µg/l	22.3	23.9	15.0 - 33.8	18.1 - 30.6	Acceptable	EPA624
	Chlorobenzene	µg/l	68.5	76.2	53.4 - 97.2	60.7 - 89.9	Acceptable	EPA624
	Chlorodibromomethane	µg/l	14.5	17.9	11.8 - 23.7	13.8 - 21.7	Acceptable	EPA624
	Chloroethane	µg/l	0.00	< 5.00			Acceptable	EPA624
	2-Chloroethylvinylether	µg/l	0.00	< 5.00			Acceptable	EPA624
	Chloroform	µg/l	21.6	24.0	16.9 - 31.0	19.2 - 28.6	Acceptable	EPA624
	Chloromethane	µg/l	0.00	< 5.00			Acceptable	EPA624
	DBCP	µg/l		< 5.00				
	1,2-Dibromoethane (EDB)	µg/l		< 5.00				
	Dibromomethane	µg/l		< 5.00				
	1,2-Dichlorobenzene	µg/l	17.7	19.7	13.6 - 25.4	15.6 - 23.4	Acceptable	EPA624
	1,3-Dichlorobenzene	µg/l	32.2	35.9	25.3 - 44.9	28.5 - 41.6	Acceptable	EPA624
	1,4-Dichlorobenzene	µg/l	11.2	12.7	8.57 - 16.9	9.95 - 15.5	Acceptable	EPA624
	Dichlorodifluoromethane	µg/l	0.00	< 5.00			Acceptable	EPA624
	1,1-Dichloroethane	µg/l	0.00	< 5.00			Acceptable	EPA624
	1,2-Dichloroethane	µg/l	31.4	31.0	21.5 - 41.6	24.9 - 38.2	Acceptable	EPA624
	1,1-Dichloroethylene	µg/l	0.00	< 5.00			Acceptable	EPA624
	cis-1,2-Dichloroethylene	µg/l	40.6	46.4	19.8 - 72.1	28.5 - 63.4	Acceptable	EPA624
	trans-1,2-Dichloroethylene	µg/l	0.00	< 5.00			Acceptable	EPA624
	1,2-Dichloropropane	µg/l	29.4	35.2	22.3 - 47.3	26.4 - 43.2	Acceptable	EPA624
	cis-1,3-Dichloropropylene	µg/l	0.00	< 5.00			Acceptable	EPA624
	trans-1,3-Dichloropropylene	µg/l	0.00	< 5.00			Acceptable	EPA624
	Ethylbenzene	µg/l	21.1	24.6	16.6 - 32.0	19.2 - 29.4	Acceptable	EPA624
	2-Hexanone	µg/l	0.00	< 5.00			Acceptable	EPA624
	Methylene chloride	µg/l	52.7	65.7	41.5 - 90.2	49.6 - 82.1	Acceptable	EPA624
	MIBK	µg/l	61.2	78.5	30.0 - 122	45.4 - 107	Acceptable	EPA624
	Styrene	µg/l	0.00	< 5.00			Acceptable	EPA624
	1,1,1,2-Tetrachloroethane	µg/l	0.00	< 5.00			Acceptable	EPA624
	1,1,2,2-Tetrachloroethane	µg/l	0.00	< 5.00			Acceptable	EPA624
	Tetrachloroethylene	µg/l	60.3	73.4	48.6 - 93.8	56.1 - 86.2	Acceptable	EPA624
	Toluene	µg/l	34.8	42.2	30.3 - 52.8	34.0 - 49.0	Acceptable	EPA624
	1,1,1-Trichloroethane	µg/l	23.9	27.8	18.2 - 36.7	21.2 - 33.6	Acceptable	EPA624
	1,1,2-Trichloroethane	µg/l	0.00	< 5.00			Acceptable	EPA624
	Trichloroethylene	µg/l	18.6	23.3	15.2 - 30.3	17.7 - 27.8	Acceptable	EPA624
	Trichlorofluoromethane	µg/l	0.00	< 5.00			Acceptable	EPA624

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Pesticides	Aldrin	µg/l		2.72	0.696 - 3.68	1.19 - 3.18		
	alpha-BHC	µg/l		3.86	1.46 - 5.60	2.15 - 4.91		
	beta-BHC	µg/l		4.19	1.48 - 6.07	2.24 - 5.30		
	delta-BHC	µg/l		< 0.100				
	gamma-BHC(Lindane)	µg/l		< 0.100				
	alpha-Chlordane	µg/l		< 0.100				
	gamma-Chlordane	µg/l		4.51	2.40 - 5.97	2.97 - 5.40		
	4,4'-DDD	µg/l		1.76	0.856 - 2.46	1.12 - 2.20		
	4,4'-DDE	µg/l		0.702	0.324 - 0.956	0.429 - 0.851		
	4,4'-DDT	µg/l		1.32	0.589 - 1.81	0.792 - 1.61		
	Dieldrin	µg/l		3.82	1.97 - 5.27	2.52 - 4.72		
	Endrin	µg/l		2.19	1.01 - 3.20	1.37 - 2.83		
	Endrin aldehyde	µg/l		< 0.100				
	Endrin ketone	µg/l		< 0.100				
	Endosulfan I	µg/l		< 0.100				
	Endosulfan II	µg/l		< 0.100				
	Endosulfan sulfate	µg/l		< 0.100				
	Heptachlor	µg/l		2.24	0.592 - 3.12	1.01 - 2.70		
	Heptachlor epoxide	µg/l		0.667	0.337 - 0.861	0.425 - 0.774		
	Methoxychlor	µg/l		3.68	1.39 - 5.68	2.06 - 4.96		
	Toxaphene	µg/l		< 0.100				

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