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Supplemental Groundwater Investigation Report

**Operable Unit No. 10
Site 35 - Camp Geiger Area Fuel Farm
Marine Corps Base
Camp Lejeune, North Carolina**

**Volume III of III
Appendices**



Prepared For:

**Department of the Navy
Atlantic Division
Naval Facilities
Engineering Command
Norfolk, Virginia**

Under the

LANTDIV CLEAN Program

**Comprehensive Long-Term
Environmental Action Navy**

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STATISTICAL SUMMARY
GROUNDWATER
INORGANICS (SUMMER 1995)
SITE 35, CAMP GEIGER AREA FUEL FARM
SUPPLEMENTAL GROUNDWATER INVESTIGATION - CTO 0232
MCB, CAMP LEJEUNE, NORTH CAROLINA

	NORMAL ARITHMETIC MEAN	NORMAL STANDARD DEVIATION	NORMAL UPPER 95% CONFIDENCE INTERVAL	LOG ARITHMETIC MEAN	LOG STANDARD DEVIATION	LOG UPPER 95% CONFIDENCE INTERVAL
METALS (ug/L)						
Aluminum	106.62	146.63	163.30	3.75	1.41	368.59
Antimony	10.50	2.24	11.36	2.34	0.15	11.17
Arsenic	3.09	3.76	4.54	0.56	1.03	6.24
Barium	25.72	25.29	35.49	2.92	0.76	38.13
Calcium	88467.00	38989.85	103541.11	11.17	0.87	174898.67
Cobalt	3.31	3.72	4.74	0.77	0.89	5.46
Iron	5208.77	9943.48	9053.08	7.03	1.89	49006.41
Lead	2.74	4.37	4.43	0.13	1.22	5.78
Magnesium	2977.00	1031.67	3375.86	7.94	0.35	3494.99
Manganese	50.52	61.89	74.44	3.50	0.87	81.10
Potassium	1715.05	1046.90	2119.80	7.29	0.56	2264.91
Selenium	1.43	0.55	1.64	0.31	0.27	1.59
Silver	1.50	2.21	2.35	0.12	0.53	1.70
Sodium	10677.00	7167.85	13448.21	9.14	0.50	13281.06
Thallium	2.50	2.28	3.38	0.28	1.27	8.39
Vanadium	1.63	2.03	2.41	0.20	0.61	2.02
Zinc	9.90	6.61	12.45	2.09	0.67	14.41

APPENDIX Q
CDI RISK CALCULATIONS

APPENDIX Q.1
RI GROUNDWATER RISK CALCULATIONS

GROUNDWATER INGESTION EXPOSURE ASSESSMENT (revised 01/09)
 OPERABLE UNIT NO. 10 (SITE 38)
 REMEDIAL INVESTIGATION CTO-0233
 MOB CAMP LEJUNE, NORTH CAROLINA
 FUTURE PERIODICAL CHILD

Intake from drinking water is calculated as follows:

$$\text{Intake (mg/kg-day)} = C \cdot \text{IR} \cdot \text{EF} \cdot \text{ED} / \text{BW} \cdot \text{AT} \cdot \text{AT}_{\text{nc}} \cdot \text{DY}$$

$$\text{Risk} = \text{Intake} \cdot \text{CSF} \text{ or } \text{RFD}$$

Where:

- C = contaminant concentration in water (mg/l)
- IR = child daily water ingestion rate (L/day)
- EF = child exposure frequency (days/yr)
- ED = child exposure duration (yr)
- BW = child body weight (kg)
- AT = averaging time for carcinogen (yr)
- AT_{nc} = averaging time for noncarcinogen (yr)
- DY = days per year (days/yr)
- CSF = cancer slope factor (mg/kg-day)⁻¹
- RFD = reference dose (mg/kg-day)

INPUTS

1
300
6
15
70
6
365
specific
specific

Note: Results are scenario and site specific

Contaminant	Concentration Carcinogen (mg/l)	Exposure Rate (L/day) Child	Exposure Frequency (days/yr) Child	Exposure Duration (year) Child	Body Weight (kg) Child	Average Cont. Time (years)	Days per year (day/yr)	Carc. Dose (mg/kg-day) Child	Carc. Factor (mg/kg-day) ⁻¹	Carcinogenic Risk Child	Percent Carcinogens Risk Child
1,1-Dichloroethene	0.007	1	360	6	15	70	300	7.80E-03	6.00E-01	4.68E-05	0.000
1,1,2-Dichloroethene	0.075	1	360	6	15	70	300	6.30E-03	6.00E-01	3.78E-05	0.000
1,1,2,2-Tetrachloroethene	0.178	1	360	6	15	70	300	9.84E-04	6.00E-01	5.90E-06	0.000
1,1-Dichloroethane	0.008	1	360	6	15	70	300	6.30E-04	6.00E-01	3.78E-06	0.000
1,1,1-Trichloroethane	0.002	1	360	6	15	70	300	2.80E-04	6.00E-01	1.68E-06	0.000
1,1,2-Trichloroethane	0.9	1	360	6	15	70	300	4.80E-03	1.10E-02	5.28E-05	2.700
Benzene	0.064	1	360	6	15	70	300	4.81E-04	8.00E-02	3.84E-05	0.007
Toluene	0.068	1	360	6	15	70	300	3.11E-04	6.00E-01	1.86E-05	0.000
Xylenes	0.3477	1	360	6	15	70	300	1.36E-03	6.00E-01	8.16E-05	0.000
Dibenzofuran	0.001	1	360	6	15	70	300	3.60E-05	6.00E-01	2.16E-06	0.000
Naphthalene	0.068	1	360	6	15	70	300	3.78E-04	6.00E-01	2.26E-05	0.000
2-Methylnaphthalene	0.003	1	360	6	15	70	300	4.42E-04	6.00E-01	2.65E-05	0.000
Phenanthrene	0.003	1	360	6	15	70	300	6.30E-05	6.00E-01	3.78E-06	0.000
Benzo[a]P	3.8E-05	1	360	6	15	70	300	1.87E-07	6.00E-01	1.12E-07	0.000
Fluoranthene	1.2E-05	1	360	6	15	70	300	7.12E-08	4.00E+00	2.84E-07	0.016
Acenaphthene	0.004	1	360	6	15	70	300	1.80E-04	6.00E-01	1.08E-05	0.000
Acenaphthylene	0.003	1	360	6	15	70	300	3.30E-04	1.70E+00	5.61E-04	20.007
Benzo[b]P	2.3	1	360	6	15	70	300	1.26E-03	6.00E-01	7.56E-05	0.000
Benz[a]P	0.001	1	360	6	15	70	300	3.12E-04	4.00E+00	1.24E-03	87.180
Cobalt	0.1182	1	360	6	15	70	300	6.48E-04	6.00E-01	3.88E-05	0.000
Chromium	1.54	1	360	6	15	70	300	6.48E-03	6.00E-01	3.88E-04	0.000
Caesium	0.0414	1	360	6	15	70	300	3.37E-04	6.00E-01	2.02E-05	0.000
Lead	0.0403	1	360	6	15	70	300	2.81E-04	6.00E-01	1.68E-05	0.000
Mercury	0.7879	1	360	6	15	70	300	4.32E-03	6.00E-01	2.59E-04	0.000
Nickel	0.300	1	360	6	15	70	300	1.81E-03	6.00E-01	1.08E-04	0.000
Silver	0.0028	1	360	6	15	70	300	1.82E-05	6.00E-01	1.09E-05	0.000
Thallium	0.0028	1	360	6	15	70	300	1.82E-05	6.00E-01	1.09E-05	0.000
Vanadium	0.888	1	360	6	15	70	300	4.80E-03	6.00E-01	2.88E-04	0.000
Zinc	1.86	1	360	6	15	70	300	1.01E-02	6.00E-01	6.06E-04	0.000
TOTAL										2.00E-03	100.000

Contaminant	Concentration Noncarcinogen (mg/l)	Exposure Rate (L/day) Child	Exposure Frequency (days/yr) Child	Exposure Duration (year) Child	Body Weight (kg) Child	Average Cont. Time (years)	Days per year (day/yr)	Noncarc. Dose (mg/kg-day) Child	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogens Risk Child
1,1-Dichloroethene	0.007	1	360	6	15	70	300	7.80E-03	6.00E-03	1.30E-01	0.02
1,1,2-Dichloroethene	0.075	1	360	6	15	70	300	6.30E-03	1.00E-02	6.30E+00	618
1,1,2,2-Tetrachloroethene	0.178	1	360	6	15	70	300	1.13E-02	6.00E-02	6.03E-01	6.88
1,1-Dichloroethane	0.008	1	360	6	15	70	300	6.48E-03	1.00E-02	6.48E-01	6.88
1,1,1-Trichloroethane	0.002	1	360	6	15	70	300	2.82E-03	6.00E-03	6.82E-01	6.88
1,1,2-Trichloroethane	0.9	1	360	6	15	70	300	6.78E-02	6.00E-03	8.88E+00	8.48
Benzene	0.064	1	360	6	15	70	300	6.30E-03	3.00E-04	1.70E+01	17.74
Toluene	0.068	1	360	6	15	70	300	3.63E-03	8.00E-01	1.82E-02	0.02
Xylenes	0.3477	1	360	6	15	70	300	1.80E-02	8.00E+00	7.50E-03	0.01
Dibenzofuran	0.001	1	360	6	15	70	300	4.54E-04	4.00E-03	1.13E-01	0.11
Naphthalene	0.068	1	360	6	15	70	300	4.32E-03	6.00E-03	0.72E+00	0.00
2-Methylnaphthalene	0.003	1	360	6	15	70	300	6.18E-03	6.00E-03	1.03E+00	0.00
Phenanthrene	0.003	1	360	6	15	70	300	6.14E-04	6.00E-03	1.02E-01	0.00
Benzo[a]P	3.8E-05	1	360	6	15	70	300	2.32E-08	6.00E-03	1.80E-03	0.00
Fluoranthene	1.2E-05	1	360	6	15	70	300	6.71E-07	6.00E-04	1.80E-03	0.00
Acenaphthene	0.004	1	360	6	15	70	300	2.17E-03	4.00E-04	6.43E+00	6.38
Acenaphthylene	0.003	1	360	6	15	70	300	3.87E-03	3.00E-04	1.28E+01	12.70
Benzo[b]P	2.3	1	360	6	15	70	300	1.47E-01	7.00E-02	2.10E+00	2.08
Benz[a]P	0.001	1	360	6	15	70	300	3.68E-03	6.00E-03	7.30E-01	0.72
Cobalt	0.1182	1	360	6	15	70	300	7.80E-03	6.00E-02	1.30E-01	0.12
Chromium	1.54	1	360	6	15	70	300	6.48E-02	6.00E-02	1.07E+01	18.40
Caesium	0.0414	1	360	6	15	70	300	2.80E-03	6.00E-04	6.00E+00	6.24
Lead	0.0403	1	360	6	15	70	300	2.80E-03	6.00E-04	6.00E+00	6.24
Mercury	0.7879	1	360	6	15	70	300	6.04E-03	6.00E-03	1.01E+01	8.97
Nickel	0.300	1	360	6	15	70	300	1.87E-02	2.00E-02	6.37E-01	0.60
Silver	0.0028	1	360	6	15	70	300	1.70E-04	6.00E-03	3.50E-02	0.04
Thallium	0.0028	1	360	6	15	70	300	1.70E-04	6.00E-03	3.50E-02	0.04
Vanadium	0.888	1	360	6	15	70	300	6.80E-02	7.00E-03	8.00E+00	8.01
Zinc	1.86	1	360	6	15	70	300	1.18E-01	3.00E-01	3.94E-01	0.39
TOTAL										100.00	100.000

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
 OPERABLE UNIT NO. 10 (SITE 38)
 REMEDIAL INVESTIGATION QTD-0232
 MCB CAMP LEJEUNE, NORTH CAROLINA
 FUTURE RESIDENTIAL ADULT

Risk from drinking water is calculated as follows:

$$\text{Risk (mg/kg-day)} = C \cdot Pw \cdot EF \cdot ED \cdot BW \cdot AT \text{ or } ATc \cdot DF$$

$$\text{Risk} = \text{Intake} \cdot CSF \text{ or } RfD$$

Where:

C = contaminant concentration in water (mg/l)	INPUTS
Pw = adult daily water ingestion rate (L/Day)	2
EF = adult exposure frequency (days/yr)	365
ED = adult exposure duration (yr)	30
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	30
ATn = averaging time for noncarcinogen (yr)	365
DF = days per year (days/yr)	365
CSF = cancer slope factor (mg/kg-day) ⁻¹	specific
RfD = reference dose (mg/kg-day)	specific

Note: Inputs are scenario and site specific

Contaminant	Concentration (mg/l)	Ingestion Rate (L/day) Adult	Exposure Frequency (days/year) Adult	Exposure Duration (year) Adult	Body Weight (kg) Adult	Average Time (years)	Days per year (day/yr)	CRF Dose (mg/kg-day) Adult	CSF Factor (mg/kg-day) ⁻¹	Carcinogenic Risk Adult	PCDFs Carcinogenic Risk Adult
1,1-Dichloroethene	0.027	2	365	30	70	30	365	3.17E-03	5.00E-01	1.58E-05	0.443
1,1,2-Dichloroethene	0.973	2	365	30	70	30	365	1.14E-02			
1,1,2,2-Tetrachloroethene	0.178	2	365	30	70	30	365	8.07E-03			
Ethylbenzene	0.098	2	365	30	70	30	365	1.12E-03			
Amyl tertiary butyl ether	0.082	2	365	30	70	30	365	8.11E-04			
1,1-Dichloroethene	0.8	2	365	30	70	30	365	1.08E-02	1.10E-02	1.18E-04	2.708
Benzene	0.0841	2	365	30	70	30	365	8.87E-04	2.80E-02	2.86E-05	0.897
Toluene	0.0598	2	365	30	70	30	365	6.87E-04			
Xylenes total	0.247	2	365	30	70	30	365	2.82E-03			
1,2-Dichloroethene	0.0271	2	365	30	70	30	365	8.34E-04			
1,4-Dichloroethene	0.0285	2	365	30	70	30	365	8.04E-04			
1,1,1-Trichloroethene	0.0208	2	365	30	70	30	365	6.48E-04			
1,1,2-Trichloroethene	0.0208	2	365	30	70	30	365	1.12E-04			
1,2-Dichloroethene	2.4E-05	2	365	30	70	30	365	4.82E-07			
Heptachlor	1.2E-05	2	365	30	70	30	365	1.82E-07	4.80E+00	8.87E-07	0.018
Heptachlor Epoxide	0.0102	2	365	30	70	30	365	1.23E-04			
Heptachlor Chloride	0.0208	2	365	30	70	30	365	7.12E-04	1.78E+00	1.26E-03	28.007
Endrin	8.3	2	365	30	70	30	365	8.70E-03			
Dieldrin	0.0271	2	365	30	70	30	365	8.70E-04	4.32E+00	2.86E-03	87.189
Dibromodibutene	1.54	2	365	30	70	30	365	1.81E-02			
Cadmium	0.0414	2	365	30	70	30	365	4.88E-04			
Cobalt	0.1182	2	365	30	70	30	365	1.28E-03			
Lead	0.0403	2	365	30	70	30	365	4.72E-04			
Manganese	0.7878	2	365	30	70	30	365	8.28E-03			
Nickel	0.2833	2	365	30	70	30	365	3.44E-03			
Silver	0.0208	2	365	30	70	30	365	3.28E-04			
Thallium	0.0208	2	365	30	70	30	365	3.28E-04			
Vanadium	0.888	2	365	30	70	30	365	1.04E-02			
Zinc	1.86	2	365	30	70	30	365	8.17E-03			

Contaminant	Concentration (mg/l)	Ingestion Rate (L/day) Adult	Exposure Frequency (days/year) Adult	Exposure Duration (year) Adult	Body Weight (kg) Adult	Average Time (years)	Days per year (day/yr)	CRF Dose (mg/kg-day) Adult	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	PCDFs Noncarcinogenic Risk Adult
1,1-Dichloroethene	0.027	2	365	30	70	30	365	3.17E-03	5.00E-01	6.34E-03	0.022
1,1,2-Dichloroethene	0.973	2	365	30	70	30	365	8.87E-04	1.00E-02	2.87E+00	8.18
1,1,2,2-Tetrachloroethene	0.178	2	365	30	70	30	365	4.82E-03	5.00E-02	2.41E-01	0.86
Ethylbenzene	0.098	2	365	30	70	30	365	2.82E-03	1.00E-01	2.82E-02	0.08
Amyl tertiary butyl ether	0.082	2	365	30	70	30	365	1.42E-03	5.00E-03	2.85E-01	0.88
1,1-Dichloroethene	0.8	2	365	30	70	30	365	2.47E-02	6.00E-02	4.11E+00	8.48
Benzene	0.0841	2	365	30	70	30	365	2.30E-03	3.00E-04	7.88E+00	17.74
Toluene	0.0598	2	365	30	70	30	365	1.88E-03	3.00E-01	7.98E-03	0.02
Xylenes	0.2477	2	365	30	70	30	365	8.79E-03	3.00E+00	3.33E-03	0.01
1,2-Dichloroethene	0.0271	2	365	30	70	30	365	1.88E-04	4.00E-03	4.88E-02	0.11
1,4-Dichloroethene	0.0285	2	365	30	70	30	365	1.88E-03			
1,1,1-Trichloroethene	0.0208	2	365	30	70	30	365	2.21E-03			
1,1,2-Trichloroethene	0.0208	2	365	30	70	30	365	2.83E-04			
1,2-Dichloroethene	2.4E-05	2	365	30	70	30	365	8.82E-07			
Heptachlor	1.2E-05	2	365	30	70	30	365	3.88E-07	5.00E-04	7.12E-04	0.00
Heptachlor Epoxide	0.0104	2	365	30	70	30	365	8.32E-04	4.00E-04	2.32E+00	5.38
Heptachlor Chloride	0.0208	2	365	30	70	30	365	1.88E-03	3.00E-04	6.82E+00	12.78
Endrin	8.3	2	365	30	70	30	365	8.30E-02	7.00E-02	8.00E-01	2.08
Dieldrin	0.0271	2	365	30	70	30	365	1.88E-03	5.00E-03	3.13E-01	0.72
Dibromodibutene	1.54	2	365	30	70	30	365	4.22E-02	5.00E-03	8.44E+00	18.48
Cadmium	0.0414	2	365	30	70	30	365	1.13E-03	8.00E-04	2.27E+00	5.94
Cobalt	0.1182	2	365	30	70	30	365	3.24E-03	5.00E-02	5.40E-02	0.12
Lead	0.0403	2	365	30	70	30	365	1.12E-03			
Manganese	0.7878	2	365	30	70	30	365	8.18E-03	5.00E-03	4.30E+00	9.87
Nickel	0.2833	2	365	30	70	30	365	8.04E-03	3.00E-02	4.02E-01	0.93
Silver	0.0208	2	365	30	70	30	365	7.87E-04	5.00E-03	1.82E-02	0.04
Thallium	0.0208	2	365	30	70	30	365	7.87E-04			
Vanadium	0.888	2	365	30	70	30	365	2.43E-02	7.00E-03	3.47E+00	8.01
Zinc	1.86	2	365	30	70	30	365	8.07E-02	3.00E-01	1.88E-01	0.30

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
 OPERABLE UNIT NO.10 (SITE 38)
 REMEDIAL INVESTIGATION CTO-0002
 MCS CAMP LEELINE, NORTH CAROLINA
 FUTURE RESIDENTIAL ADULT

Dermal Contact from groundwater is calculated as follows:

$$\text{Risk (mg/kg-day)} = \text{CW} \cdot \text{SA} \cdot \text{PC} \cdot \text{ET} \cdot \text{EF} \cdot \text{ED} \cdot \text{CF} / \text{BW} \cdot \text{Ate or ATrc} \cdot \text{DT}$$

Risk = Intake * CSF or POD

Where:

CW = contaminant concentration in water (mg/l)
 SA = adult skin surface available for contact (cm²)
 PC = contaminant specific dermal permeability (cm/hr)
 ET = adult exposure time (hours/day)
 EF = adult exposure frequency (days/yr)
 ED = adult exposure duration (years)
 CF = volumetric conversion factor for water (1 liter/1000 cm³)
 BW = adult body weight (kg)
 ATe = averaging time for carcinogen (yr)
 ATrc = averaging time for noncarcinogen (yr)
 DT = days per year (days)

INPUTS

3000
 5000
 0.25
 360
 360
 0.001
 70
 70
 30
 365

Note: Inputs are site and scenario specific

Contaminant	Concentration Carcinogen (mg/l)	Surface Area (cm ²) Adult	Dermal Permeability (cm/hr)	Exposure Time (hours/day) Adult	Exposure Frequency (days/yr) Adult	Exposure Duration (years) Adult	Volumetric Conversion (L/kg)	Body Weight (kg) Adult	Average Cars Time (years)	Days per Year (days)	Carc. Dose (mg/kg-day) Adult	Expos. Factor (mg/kg-day)-1	Carcinogenic Risk Adult	Percent Carcinogenic Risk Adult
1,1-Dichloroethene	0.027	3000	1.00E-03	0.25	360	30	0.001	70	70	365	1.70E-08	6.00E-01	6.70E-07	0.00
1,1,2-Dichloroethene	0.070	3000	1.00E-03	0.25	360	30	0.001	70	70	365	6.00E-08	6.00E-01	6.00E-07	0.00
1,1,2,2-Tetrachloroethene	0.178	3000	1.00E-03	0.25	360	30	0.001	70	70	365	1.59E-08	6.00E-01	9.54E-08	0.00
1,2-Dichloroethene	0.058	3000	1.00E-03	0.25	360	30	0.001	70	70	365	4.91E-08	6.00E-01	2.94E-07	0.00
Airylethylbenzyl ether	0.028	3000	1.00E-03	0.25	360	30	0.001	70	70	365	1.78E-08	6.00E-01	1.07E-07	0.00
Acrylonitrile	0.9	3000	1.00E-03	0.25	360	30	0.001	70	70	365	6.39E-04	1.10E-02	7.00E-08	36.39
Benzene	0.041	3000	1.00E-03	0.25	360	30	0.001	70	70	365	2.84E-08	2.80E-02	6.30E-08	0.41
Chloroform	0.058	3000	1.00E-03	0.25	360	30	0.001	70	70	365	4.00E-08	6.00E-01	2.40E-07	0.00
Cyrene	0.2477	3000	1.00E-03	0.25	360	30	0.001	70	70	365	8.30E-08	6.00E-01	5.00E-07	0.00
Dibenzofuran	0.0071	3000	1.00E-03	0.25	360	30	0.001	70	70	365	2.10E-09	6.00E-01	1.26E-08	0.00
Dibenzophenone	0.0086	3000	1.00E-03	0.25	360	30	0.001	70	70	365	2.40E-09	6.00E-01	1.44E-08	0.00
1,4-Dichlorobenzene	0.0608	3000	1.00E-03	0.25	360	30	0.001	70	70	365	2.71E-08	6.00E-01	1.62E-07	0.00
Hexachlorocyclopentadiene	0.0098	3000	1.00E-03	0.25	360	30	0.001	70	70	365	3.24E-09	6.00E-01	1.94E-08	0.00
Hexachlorocyclopentadiene	3.8E-06	3000	1.00E-03	0.25	360	30	0.001	70	70	365	1.32E-08	6.00E-01	7.92E-08	0.00
Hexachlorocyclopentadiene	1.3E-06	3000	1.00E-03	0.25	360	30	0.001	70	70	365	4.90E-09	4.80E+00	4.10E-08	0.21
Hexachlorocyclopentadiene	0.004	3000	1.00E-03	0.25	360	30	0.001	70	70	365	2.41E-08	6.00E-01	1.44E-07	0.00
Hexachlorocyclopentadiene	0.0608	3000	1.00E-03	0.25	360	30	0.001	70	70	365	2.00E-08	1.70E+00	3.40E-08	18.00
Hexachlorocyclopentadiene	2.3	3000	1.00E-03	0.25	360	30	0.001	70	70	365	1.60E-03	6.00E-01	9.60E-03	0.00
Hexachlorocyclopentadiene	0.0671	3000	1.00E-03	0.25	360	30	0.001	70	70	365	1.80E-08	4.30E+00	6.30E-08	41.88
Hexachlorocyclopentadiene	0.1182	3000	1.00E-03	0.25	360	30	0.001	70	70	365	3.90E-08	6.00E-01	2.34E-07	0.00
Hexachlorocyclopentadiene	1.4	3000	1.00E-03	0.25	360	30	0.001	70	70	365	1.00E-03	6.00E-01	6.00E-03	0.00
Hexachlorocyclopentadiene	0.0414	3000	1.00E-03	0.25	360	30	0.001	70	70	365	1.40E-08	6.00E-01	8.40E-08	0.00
Hexachlorocyclopentadiene	0.0402	3000	1.00E-03	0.25	360	30	0.001	70	70	365	2.80E-08	6.00E-01	1.68E-07	0.00
Hexachlorocyclopentadiene	0.7878	3000	1.00E-03	0.25	360	30	0.001	70	70	365	2.80E-05	6.00E-01	1.68E-04	0.00
Hexachlorocyclopentadiene	0.2823	3000	1.00E-03	0.25	360	30	0.001	70	70	365	1.00E-04	6.00E-01	6.00E-05	0.00
Hexachlorocyclopentadiene	0.0028	3000	1.00E-03	0.25	360	30	0.001	70	70	365	8.40E-09	6.00E-01	5.04E-08	0.00
Hexachlorocyclopentadiene	0.0028	3000	1.00E-03	0.25	360	30	0.001	70	70	365	1.80E-08	6.00E-01	1.08E-07	0.00
Hexachlorocyclopentadiene	0.888	3000	1.00E-03	0.25	360	30	0.001	70	70	365	2.80E-05	6.00E-01	1.68E-04	0.00
Hexachlorocyclopentadiene	1.88	3000	1.00E-03	0.25	360	30	0.001	70	70	365	6.90E-05	6.00E-01	4.14E-04	0.00

Contaminant	Concentration Noncarcinogen (mg/l)	Surface Area (cm ²) Adult	Dermal Permeability (cm/hr)	Exposure Time (hours/day) Adult	Exposure Frequency (days/yr) Adult	Exposure Duration (years) Adult	Volumetric Conversion (L/kg)	Body Weight (kg) Adult	Average Noncars Time (years)	Days per Year (days)	Noncars Dose (mg/kg-day) Adult	Noncars Dose (mg/kg-day)	Noncars Risk Adult	Percent Noncarcinogenic Risk Adult
1,1-Dichloroethene	0.027	3000	1.00E-03	0.25	360	30	0.001	70	30	365	3.40E-08	6.00E-04	2.04E-07	0.00
1,1,2-Dichloroethene	0.070	3000	1.00E-03	0.25	360	30	0.001	70	30	365	1.10E-04	1.00E-02	1.10E-02	1.18
1,1,2,2-Tetrachloroethene	0.178	3000	1.00E-03	0.25	360	30	0.001	70	30	365	1.30E-04	2.00E-02	6.00E-03	0.68
1,2-Dichloroethene	0.058	3000	1.00E-03	0.25	360	30	0.001	70	30	365	1.17E-08	1.00E-01	1.17E-04	0.01
Airylethylbenzyl ether	0.028	3000	1.00E-03	0.25	360	30	0.001	70	30	365	4.10E-08	6.00E-03	6.10E-03	0.60
Acrylonitrile	0.9	3000	1.00E-03	0.25	360	30	0.001	70	30	365	6.39E-04	6.00E-03	9.74E-01	98.34
Benzene	0.041	3000	1.00E-03	0.25	360	30	0.001	70	30	365	1.20E-08	3.00E-04	3.60E-08	0.34
Chloroform	0.058	3000	1.00E-03	0.25	360	30	0.001	70	30	365	2.01E-04	2.00E-04	1.01E-03	0.10
Cyrene	0.2477	3000	1.00E-03	0.25	360	30	0.001	70	30	365	3.00E-08	2.00E+00	1.81E-08	0.00
Dibenzofuran	0.0071	3000	1.00E-03	0.25	360	30	0.001	70	30	365	2.80E-09	4.00E-03	6.90E-03	0.61
Dibenzophenone	0.0086	3000	1.00E-03	0.25	360	30	0.001	70	30	365	4.30E-04	6.00E-03	2.58E-03	0.25
1,4-Dichlorobenzene	0.0608	3000	1.00E-03	0.25	360	30	0.001	70	30	365	4.20E-04	6.00E-03	2.52E-03	0.24
Hexachlorocyclopentadiene	0.0098	3000	1.00E-03	0.25	360	30	0.001	70	30	365	7.80E-07	6.00E-03	4.68E-06	0.46
Hexachlorocyclopentadiene	3.8E-06	3000	1.00E-03	0.25	360	30	0.001	70	30	365	2.84E-03	6.00E-04	1.70E-02	1.62
Hexachlorocyclopentadiene	0.004	3000	1.00E-03	0.25	360	30	0.001	70	30	365	1.00E-09	6.00E-04	6.00E-09	0.00
Hexachlorocyclopentadiene	0.0608	3000	1.00E-03	0.25	360	30	0.001	70	30	365	2.80E-08	4.00E-04	7.00E-03	0.66
Hexachlorocyclopentadiene	2.3	3000	1.00E-03	0.25	360	30	0.001	70	30	365	4.77E-08	3.00E-04	1.39E-02	1.36
Hexachlorocyclopentadiene	0.0671	3000	1.00E-03	0.25	360	30	0.001	70	30	365	1.81E-04	7.00E-02	3.80E-02	0.38
Hexachlorocyclopentadiene	0.1182	3000	1.00E-03	0.25	360	30	0.001	70	30	365	4.80E-08	6.00E-03	8.00E-04	0.08
Hexachlorocyclopentadiene	1.4	3000	1.00E-03	0.25	360	30	0.001	70	30	365	1.01E-08	6.00E-03	1.80E-04	0.02
Hexachlorocyclopentadiene	0.0414	3000	1.00E-03	0.25	360	30	0.001	70	30	365	1.20E-08	6.00E-03	1.80E-04	0.02
Hexachlorocyclopentadiene	0.0402	3000	1.00E-03	0.25	360	30	0.001	70	30	365	2.20E-08	6.00E-03	3.30E-04	0.33
Hexachlorocyclopentadiene	0.7878	3000	1.00E-03	0.25	360	30	0.001	70	30	365	2.17E-05	6.00E-04	6.00E-04	0.64
Hexachlorocyclopentadiene	0.2823	3000	1.00E-03	0.25	360	30	0.001	70	30	365	6.21E-08	6.00E-03	1.24E-02	1.21
Hexachlorocyclopentadiene	0.0028	3000	1.00E-03	0.25	360	30	0.001	70	30	365	2.31E-05	2.00E-03	1.10E-03	0.11
Hexachlorocyclopentadiene	0.0028	3000	1.00E-03	0.25	360	30	0.001	70	30	365	2.21E-07	6.00E-03	4.41E-08	0.00
Hexachlorocyclopentadiene	0.888	3000	1.00E-03	0.25	360	30	0.001	70	30	365	2.81E-07	6.00E-03	8.87E-03	0.87
Hexachlorocyclopentadiene	1.88	3000	1.00E-03	0.25	360	30	0.001	70	30	365	6.90E-06	7.00E-03	6.87E-04	0.07

GROUNDWATER NORMAL CONTACT EXPOSURE ASSESSMENT
 OPERABLE UNIT #416 SITE ON
 FEDERAL INVESTIGATION (FOI)-0000
 MOB CAMP LEBLANC, NORTH CAROLINA
 FUTURE RESIDENTIAL CHILD

Dermal Contact from groundwater is estimated as follows:

$$\text{Inkx} (\text{mg/kg-dy}) = \text{CW} * \text{SA} * \text{PC} * \text{ET} * \text{EF} * \text{ED} * \text{CF} / \text{BW} * \text{ATC} \text{ or } \text{ATNE} * \text{DT}$$

Risk = Inkx * CSF or P/D

- Where:
 CW = contaminant concentration in water (mg/l)
 SA = child skin surface available for contact (m²)
 PC = contaminant specific dermal permeability (cm/hr)
 ET = child exposure time (hours/day)
 EF = child exposure frequency (days/yr)
 ED = child exposure duration (years)
 CF = volumetric conversion factor for water (1 liter/1000 cm³)
 BW = child body weight (kg)
 ATC = averaging time for carcinogen (yr)
 ATNE = averaging time for noncarcinogen (yr)
 DT = days per year (days)

INPUTS

- 10000
 Specific
 0.26
 350
 6
 0.001
 16
 70
 6
 365

Note: Inputs are site and scenario specific

Contaminant	Concentration Carbonogen (mg/l)	Soil Area Area (m ²) Child	Dermal Permeability (cm/hr)	Exposure Time (hours/day) Child	Exposure Frequency (days/yr) Child	Exposure Duration (years) Child	Volumetric Conversion (L/m ³)	Body Weight (kg) Child	Average Carc Time (years)	Days per Year (days)	Carc Dose (mg/kg-dy) Child	Soil Factor (mg/kg-dy) ⁻¹	Carcinogenic Risk Child	Percent Carcinogenic Risk Child
1,1-Dichloroethene	0.027	10000	1.0E-02	0.26	350	6	0.001	16	70	350	6.0E-04	1.0E-01	3.0E-07	0.04
1,1,2-Dichloroethene	0.973	10000	1.0E-02	0.26	350	6	0.001	16	70	350	2.0E-04			
1,1,2,2-Tetrachloroethene	0.176	10000	1.0E-02	0.26	350	6	0.001	16	70	350	6.0E-06			
Ethylbenzene	0.026	10000	1.0E-02	0.26	350	6	0.001	16	70	350	3.7E-06			
Methyl tertiary butyl ether	0.082	10000	1.0E-02	0.26	350	6	0.001	16	70	350	1.8E-06			
Trichloroethene	0.9	10000	1.0E-02	0.26	350	6	0.001	16	70	350	3.0E-04	1.1E-02	3.0E-06	2.71
Benzene	0.0841	10000	1.0E-02	0.26	350	6	0.001	16	70	350	8.4E-06	3.0E-02	7.0E-07	0.07
Toluene	0.0568	10000	1.0E-02	0.26	350	6	0.001	16	70	350	1.8E-06			
Xylenes	0.9477	10000	1.0E-02	0.26	350	6	0.001	16	70	350	7.1E-06			
Chlorobenzene	0.0071	10000	1.0E-02	0.26	350	6	0.001	16	70	350	6.04E-06			
Naphthalene	0.0086	10000	1.0E-02	0.26	350	6	0.001	16	70	350	1.87E-06			
Methylnaphthalene	0.0008	10000	1.0E-02	0.26	350	6	0.001	16	70	350	3.3E-06			
Phenanthrene	0.0038	10000	1.0E-02	0.26	350	6	0.001	16	70	350	3.7E-06			
Benzo(a)P	3.8E-05	10000	1.0E-02	0.26	350	6	0.001	16	70	350	1.04E-06			
Hexachloro	1.3E-05	10000	1.0E-02	0.26	350	6	0.001	16	70	350	3.74E-06	4.0E+00	1.4E-06	0.02
Hexachloro	0.004	10000	1.0E-02	0.26	350	6	0.001	16	70	350	8.7E-06			
Hexachloro	0.0008	10000	1.0E-02	0.26	350	6	0.001	16	70	350	1.74E-06	1.7E+00	3.0E-06	26.04
Hexachloro	0.3	10000	1.0E-02	0.26	350	6	0.001	16	70	350	6.0E-04			
Hexachloro	0.0071	10000	1.0E-02	0.26	350	6	0.001	16	70	350	1.84E-06	4.3E+00	7.0E-06	67.23
Hexachloro	0.1182	10000	1.0E-02	0.26	350	6	0.001	16	70	350	3.4E-06			
Hexachloro	1.84	10000	1.0E-02	0.26	350	6	0.001	16	70	350	4.4E-04			
Hexachloro	0.0414	10000	1.0E-02	0.26	350	6	0.001	16	70	350	1.1E-06			
Hexachloro	0.0402	10000	1.0E-02	0.26	350	6	0.001	16	70	350	1.1E-06			
Hexachloro	0.7679	10000	1.0E-02	0.26	350	6	0.001	16	70	350	3.7E-06			
Hexachloro	0.3803	10000	1.0E-02	0.26	350	6	0.001	16	70	350	8.44E-06			
Hexachloro	0.0038	10000	1.0E-02	0.26	350	6	0.001	16	70	350	8.0E-07			
Hexachloro	0.0038	10000	1.0E-02	0.26	350	6	0.001	16	70	350	3.84E-06			
Hexachloro	0.886	10000	1.0E-02	0.26	350	6	0.001	16	70	350	1.31E-06			
Hexachloro	1.86	10000	1.0E-02	0.26	350	6	0.001	16	70	350	2.0E-06			
TOTAL													1.0E-04	100.00

Contaminant	Concentration Noncarcinogen (mg/l)	Soil Area Area (m ²) Child	Dermal Permeability (cm/hr)	Exposure Time (hours/day) Child	Exposure Frequency (days/yr) Child	Exposure Duration (years) Child	Volumetric Conversion (L/m ³)	Body Weight (kg) Child	Average Noncarc Time (years)	Days per Year (days)	Noncarc Dose (mg/kg-dy) Child	Reference Dose (mg/kg-dy) ⁻¹	Noncarc Risk Child	Percent Noncarcinogenic Risk Child
1,1-Dichloroethene	0.027	10000	1.0E-02	0.26	350	6	0.001	16	6	350	6.0E-04	1.0E-02	1.0E-04	0.04
1,1,2-Dichloroethene	0.973	10000	1.0E-02	0.26	350	6	0.001	16	6	350	2.41E-04	1.0E-02	2.41E-02	1.18
1,1,2,2-Tetrachloroethene	0.176	10000	1.0E-02	0.26	350	6	0.001	16	6	350	3.81E-04	2.0E-02	1.91E-02	0.88
Ethylbenzene	0.026	10000	1.0E-02	0.26	350	6	0.001	16	6	350	3.0E-06	1.0E-01	3.0E-04	0.01
Methyl tertiary butyl ether	0.082	10000	1.0E-02	0.26	350	6	0.001	16	6	350	6.31E-06	6.0E-03	1.0E-02	0.80
Trichloroethene	0.9	10000	1.0E-02	0.26	350	6	0.001	16	6	350	1.0E-02	6.0E-03	1.7E+00	85.04
Benzene	0.0841	10000	1.0E-02	0.26	350	6	0.001	16	6	350	3.0E-06	3.0E-04	6.04E-02	3.34
Toluene	0.0568	10000	1.0E-02	0.26	350	6	0.001	16	6	350	4.0E-04	1.0E-01	3.04E-02	3.10
Xylenes	0.9477	10000	1.0E-02	0.26	350	6	0.001	16	6	350	8.1E-06	2.0E+00	3.0E-05	0.03
Chlorobenzene	0.0071	10000	1.0E-02	0.26	350	6	0.001	16	6	350	5.11E-06	4.0E-03	1.2E-02	0.81
Naphthalene	0.0086	10000	1.0E-02	0.26	350	6	0.001	16	6	350	6.7E-04			
Methylnaphthalene	0.0008	10000	1.0E-02	0.26	350	6	0.001	16	6	350	6.8E-04			
Phenanthrene	0.0038	10000	1.0E-02	0.26	350	6	0.001	16	6	350	1.8E-06			
Benzo(a)P	3.8E-05	10000	1.0E-02	0.26	350	6	0.001	16	6	350	6.7E-06			
Hexachloro	1.3E-05	10000	1.0E-02	0.26	350	6	0.001	16	6	350	3.0E-04	6.0E-04	4.1E-06	0.03
Hexachloro	0.004	10000	1.0E-02	0.26	350	6	0.001	16	6	350	6.4E-06	4.0E-04	1.3E-02	0.86
Hexachloro	0.0008	10000	1.0E-02	0.26	350	6	0.001	16	6	350	8.8E-06	3.0E-04	3.0E-02	1.86
Hexachloro	0.3	10000	1.0E-02	0.26	350	6	0.001	16	6	350	3.8E-04	7.0E-02	6.0E-02	0.28
Hexachloro	0.0071	10000	1.0E-02	0.26	350	6	0.001	16	6	350	8.1E-06	6.0E-03	1.8E-02	0.08
Hexachloro	0.1182	10000	1.0E-02	0.26	350	6	0.001	16	6	350	1.8E-06	6.0E-02	3.1E-04	0.02
Hexachloro	1.84	10000	1.0E-02	0.26	350	6	0.001	16	6	350	3.4E-04	6.0E-03	4.8E-02	3.37
Hexachloro	0.0414	10000	1.0E-02	0.26	350	6	0.001	16	6	350	6.6E-06	6.0E-04	1.3E-02	0.84
Hexachloro	0.0402	10000	1.0E-02	0.26	350	6	0.001	16	6	350	6.44E-06			
Hexachloro	0.7679	10000	1.0E-02	0.26	350	6	0.001	16	6	350	1.3E-04	6.0E-03	3.6E-02	1.21
Hexachloro	0.3803	10000	1.0E-02	0.26	350	6	0.001	16	6	350	4.8E-06	3.0E-02	3.34E-02	0.11
Hexachloro	0.0038	10000	1.0E-02	0.26	350	6	0.001	16	6	350	4.47E-07	6.0E-03	8.8E-06	0.03
Hexachloro	0.0038	10000	1.0E-02	0.26	350	6	0.001	16	6	350	4.47E-07			
Hexachloro	0.886	10000	1.0E-02	0.26	350	6	0.001	16	6	350	1.4E-04	7.0E-03	3.0E-02	0.87
Hexachloro	1.86	10000	1.0E-02	0.26	350	6	0.001	16	6	350	3.0E-04	3.0E-01	9.0E-04	0.02
TOTAL													2.0E-03	100.00

VOLATILE INHALATION EXPOSURE ASSESSMENT
OPERABLE UNIT NO.10 (SITE 35)
REMEDIAL INVESTIGATION CTO-0232
MCB CAMP LEJEUNE, NORTH CAROLINA
FUTURE RESIDENTIAL ADULTS AND CHILD

PURPOSE: TO ESTABLISH AIR CONCENTRATIONS OF VOLATILE ORGANIC CONSTITUENTS (VOCs) ASSOCIATED WITH SHOWERING
AND THE SUBSEQUENT FUTURE HYPOTHETICAL INHALATION EXPOSURE OF ADULTS AND ADOLESCENTS.

PERTINANT EQUATIONS:

$$C_s = C_{inf} [1 + (1/(kts)) (exp(-kts) - 1)]$$

where:

C_s = SHOWER AIR CONCENTRATION (mg/m^3)

C_{inf} = ASYMPTOTIC CONCENTRATION IN AIR (mg/m^3)

t_s = SHOWERING TIME (min)

k = RATE CONSTANT (min^{-1})

$$C_{inf} = [(E)(F_w)(C_w/1000)]/F_a$$

where:

E = THE EFFICIENCY OF RELEASE - WATER TO AIR

F_w = THE FLOW RATE OF WATER IN THE SHOWER (L/min)

C_w = CONSTITUENT CONCENTRATION IN SHOWER WATER (ug/L)

F_a = FLOW RATE OF AIR IN THE SHOWER (m^3/min)

$$k = F_a/V_b$$

where:

V_b = THE VOLUME OF AN AVERAGE BATHROOM (m^3)

$$E_i = (E_{tce})(H_i)/(H_{tce})$$

where:

E_i = THE RELATIVE EFFICIENCY OF RELEASE OF CHEMICAL I vs. TCE

E_{tce} = THE EFFICIENCY OF RELEASE OF TCE

H_i = THE HENRY'S CONSTANT FOR CHEMICAL I ($m^3 atm/mol$)

H_{tce} = THE HENRY'S CONSTANT FOR TCE ($m^3 atm/mol$)

$$CDI = (C_s)(IR)(ET)(EF)(ED)(1.0) / (BW)(AT)$$

where:

IR = The inhalation rate (m^3/hr)

ET = The exposure time (hrs/d)

EF = Exposure frequency (d/yr)

ED = Exposure duration (yrs)

1.0 = Absorbed fraction

BW = Body weight (Kg)

AT = The averaging time (d)

$$ICR = CDI * CSF$$

where:

CSF = The carcinogenic slope factor ($Kg^{-1}d$)

$$HI = CDI / RfC$$

where:

RfC = The reference concentration (mg/Kg^d)

ADULT AND CHILD EXPOSURE TO VOCs WHILE SHOWERING

CONSTITUENTS	Etce	Htce	HI
		(m ³ atm/mol)	(m ³ atm/mol)
1,1-dichloroethene	0.6	9.10E-03	1.90E-01
trichloroethene	0.6	9.10E-03	9.10E-03
benzene	0.6	9.10E-03	5.50E-03
toluene	0.6	9.10E-03	6.60E-03
ethylbenzene	0.6	9.10E-03	6.60E-03
methyl tertiary butyl ether *	0.6	9.10E-03	5.90E-03
heptachlor	0.6	9.10E-03	6.60E-03

CONSTITUENTS	IR*	IR	ET	EF
	(m ³ /hr)	(m ³ /hr)	(hrs/d)	(d/yr)
1,1-dichloroethene	0.39	0.83	0.25	350
trichloroethene	0.39	0.83	0.25	350
benzene	0.39	0.83	0.25	350
toluene	0.39	0.83	0.25	350
ethylbenzene	0.39	0.83	0.25	350
methyl tertiary butyl ether *	0.39	0.83	0.25	350
heptachlor	0.39	0.83	0.25	350

* Henry's Constant (HI) is derived using equation 5.6 of EPA 440/4-81-014

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ADULT AND CHILD EXPOSURE TO VOCs WHILE SHOWERING

=====

CONSTITUENTS	EI	Fa	Vb	k
		(m ³ /min)	(m ³)	(min ⁻¹)
1,1-dichloroethene	12.5275	2.4	12	0.2
trichloroethene	0.6000	2.4	12	0.2
benzene	0.3626	2.4	12	0.2
toluene	0.4352	2.4	12	0.2
ethylbenzene	0.4352	2.4	12	0.2
methyl tertiary butyl ether *	0.3890	2.4	12	0.2
heptachlor	0.4352	2.4	12	0.2

CONSTITUENTS	ED	ED*	BW	BW*
	(yrs)	(yrs)	(Kg)	(Kg)
1,1-dichloroethene	30	6	70	15
trichloroethene	30	6	70	15
benzene	30	6	70	15
toluene	30	6	70	15
ethylbenzene	30	6	70	15
methyl tertiary butyl ether *	30	6	70	15
heptachlor	30	6	70	15

* Henry's Constant (H) is derived using equation 5.6 of EPA 440/4-81-014

ADULT AND CHILD EXPOSURE TO VOCs WHILE SHOWERING

CONSTITUENTS	Ct	Fw	Cinf	ts
	(ug/L)	(L/min)	(mg/m ³)	(min)
1,1-dichloroethene	2.7	10	0.141	15
trichloroethene	900	10	2.250	15
benzene	84	10	0.127	15
toluene	58.8	10	0.103	15
ethylbenzene	98	10	0.174	15
methyl tertiary butyl ether *	52	10	0.084	15
heptachlor	0.013	10	0.000	15

CONSTITUENTS	AT- (CARC) (Kg)	AT (NCARC) (Kg)	AT* (NCARC) (Kg)	DOSE (CARC) (mg/Kg d)
1,1-dichloroethene	25550	10950	2190	1.17E-04
trichloroethene	25550	10950	2190	1.87E-03
benzene	25550	10950	2190	1.06E-04
toluene	25550	10950	2190	8.57E-05
ethylbenzene	25550	10950	2190	1.45E-04
methyl tertiary butyl ether *	25550	10950	2190	7.02E-05
heptachlor	25550	10950	2190	1.96E-08

* Henry's Constant (H_i) is derived using equation 5.6 of EPA 440/4-81-014

ADULT AND CHILD EXPOSURE TO VOCs WHILE SHOWERING

CONSTITUENTS

Cs

(mg/m³)

1,1-dichloroethene	0.09630
trichloroethene	1.53735
benzene	0.08672
toluene	0.07037
ethylbenzene	0.11893
methyl tertiary butyl ether *	0.05759
heptachlor	0.00002

CONSTITUENTS

DOSE (NCARC) (mg/Kg d)	DOSE* (CARC) (mg/Kg d)	DOSE* (NCARC) (mg/Kg d)	CSF (mg/Kg d) ⁻¹
------------------------------	------------------------------	-------------------------------	--------------------------------

1,1-dichloroethene	2.74E-04	5.14E-05	6.00E-04	0.17
trichloroethene	4.37E-03	8.21E-04	9.58E-03	
benzene	2.47E-04	4.63E-05	5.41E-04	0.029
toluene	2.00E-04	3.76E-05	4.39E-04	
ethylbenzene	3.38E-04	6.35E-05	7.41E-04	
methyl tertiary butyl ether *	1.64E-04	3.08E-05	3.59E-04	
heptachlor	4.58E-08	8.60E-09	1.00E-07	

* Henry's Constant (H) is derived using equation 5.6 of EPA 440/4-81-014

ADULT AND CHILD EXPOSURE TO VOCs WHILE SHOWERING

CONSTITUENTS

1,1-dichloroethene
 trichloroethene
 benzene
 toluene
 ethylbenzene
 methyl tertiary butyl ether *
 heptachlor

CONSTITUENTS

RIC ICR ICR* HI HI*
 (mg/Kg d)

CONSTITUENTS	RIC	ICR	ICR*	HI	HI*
1,1-dichloroethene		1.99E-05	8.75E-08	0.00000	0.00000
trichloroethene	0.008	0.00E+00	0.00E+00	0.00003	0.00008
benzene	0.008	3.08E-08	1.34E-08	0.00000	0.00000
toluene	0.114	0.00E+00	0.00E+00	0.00002	0.00005
ethylbenzene	0.288	0.00E+00	0.00E+00	0.00010	0.00021
methyl tertiary butyl ether *	0.857	0.00E+00	0.00E+00	0.00014	0.00031
heptachlor	4.53	0.00E+00	0.00E+00	0.00000	0.00000

2.3E-05 1.0E-05 2.9E-03 6.3E-04

* Henry's Constant (HI) is derived using equation 5.8 of EPA 440/4-81-014

APPENDIX Q.2
SGI GROUNDWATER RISK CALCULATIONS

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
 SITE 35-CAMP GEIGER AREA FUEL FARM
 SUPPLEMENTAL GROUNDWATER INVESTIGATION CTO-0232
 MCB CAMP LEJEUNE, NORTH CAROLINA
 FUTURE RESIDENTIAL CHILD

Intake from drinking water is calculated as follows:

$$\text{Intake (mg/kg-day)} = C \cdot \text{IRw} \cdot \text{EF} \cdot \text{ED} / \text{BW} \cdot \text{AT} \text{ or } \text{ATnc} \cdot \text{DY}$$

$$\text{Risk} = \text{Intake} \cdot \text{CSF} \text{ or } \text{RfD}$$

Where:	INPUTS
C = contaminant concentration in water (mg/l)	
IRw = child daily water ingestion rate (L/Day)	1
EF = child exposure frequency (days/yr)	350
ED = child exposure duration (yr)	6
BW = child body weight (kg)	15
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	6
DY = days per year (day/year)	365
CSF = cancer slope factor (mg/kg-day) ⁻¹	specific
RfD = reference dose (mg/kg-day)	specific

COPC	Concentration Carcinogen (mg/l)	Ingestion Rate (L/day) Child	Exposure Frequency (day/year) Child	Exposure Duration (year) Child	Body Weight (kg) Child	Average Carc Time (days)	Carc Dose (mg/kg-day) Child	Slope Factor (mg/kg-day) ⁻¹	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Child	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Child	Percent Noncarcinogenic Risk Child
Arsenic	0.006	1	350	6	15	25550	3.4E-05	1.5E+00	5.1E-05	100%	2190	4.0E-04	3.0E-04	1.3E+00	12%
Iron	40.400	1	350	6	15	25550	2.2E-01	0.0E+00	0.0E+00	0%	2190	2.6E+00	3.0E-01	8.6E+00	79%
Manganese	0.081	1	350	6	15	25550	4.4E-04	0.0E+00	0.0E+00	0%	2190	5.2E-03	2.3E-02	2.3E-01	2%
Thallium	0.001	1	350	6	15	25550	5.5E-08	0.0E+00	0.0E+00	0%	2190	6.4E-05	8.0E-05	8.0E-01	7%
TOTAL									5.1E-05					11.0	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
 SITE 35-CAMP GEIGER AREA FUEL FARM
 SUPPLEMENTAL GROUNDWATER INVESTIGATION CTO-0232
 MCB CAMP LEJEUNE, NORTH CAROLINA
 FUTURE RESIDENTIAL CHILD

Dermal Contact from groundwater is calculated as follows:

$$\text{Intake (mg/kg-day)} = \text{CW} * \text{SA} * \text{PC} * \text{ET} * \text{EF} * \text{ED} * \text{CF}/\text{BW} * \text{ATc} \text{ or } \text{ATnc} * \text{DY}$$

$$\text{Risk} = \text{Intake} * \text{CSF} \text{ or } \text{IRID}$$

Where:	INPUTS
CW = contaminant concentration in water (mg/l)	10000
SA = child skin surface available for contact (cm ²)	Specific
PC = contaminant specific dermal permeability (cm/hr)	0.25
ET = child exposure time (hours/day)	350
EF = child exposure frequency (days/yr)	6
ED = child exposure duration (years)	0.001
CF = volumetric conversion factor for water (1liter/1000 cm ³)	15
BW = child body weight (kg)	70
ATc = averaging time for carcinogen (yr)	6
ATnc = averaging time for noncarcinogen (yr)	365
DY = days per year (days)	

COPC	Concentration Carcinogen (mg/l)	Surface Area (cm ²) Child	Dermal Permeability (cm/hr)	Exposure Time (hours/day) Child	Exposure Frequency (days/yr) Child	Exposure Duration (years) Child	Volumetric Conversion (L/m ³)	Body Weight (kg) Child	Averaging Carc Time (days)	Carc Dose (mg/kg-day) Child	Dermal Adjust. Slope Factor (mg/kg-day) ⁻¹	Carcinogenic Risk Child	Percent Carcinogenic Risk Child	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Child	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarc Risk Child	Percent Noncarcinogeni Risk Child
Arsenic	0.006	10000	1.00E-03	0.25	350	6	0.001	15	25550	8.5E-08	7.5E+00	6.4E-07	100%	2190	1.0E-08	6.0E-05	1.7E-02	12%
Iron	40.400	10000	1.00E-03	0.25	350	6	0.001	15	25550	5.5E-04	0.0E+00	0.0E+00	0%	2190	8.5E-03	6.0E-02	1.1E-01	79%
Manganese	0.081	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.1E-08	0.0E+00	0.0E+00	0%	2190	1.3E-05	4.8E-03	2.8E-03	2%
Thallium	0.001	10000	1.00E-03	0.25	350	6	0.001	15	25550	1.4E-08	0.0E+00	0.0E+00	0%	2190	1.6E-07	1.6E-05	1.0E-02	7%
TOTAL												6.4E-07					1.4E-01	

GROUNDWATER INGESTION EXPOSURE ASSESSMENT
 SITE 35-CAMP GEIGER AREA FUEL FARM
 SUPPLEMENTAL GROUNDWATER INVESTIGATION CTO-0232
 MCB CAMP LEJEUNE, NORTH CAROLINA
 FUTURE RESIDENTIAL ADULT

Intake from drinking water is calculated as follows:

$$\text{Intake (mg/kg-day)} = C * IRw * EF * ED / BW * AT \text{ or } ATnc * DY$$

$$\text{Risk} = \text{Intake} * \text{CSF or /RfD}$$

Where:	INPUTS
C = contaminant concentration in water (mg/l)	
IRw = adult daily water ingestion rate (L/Day)	2
EF = adult exposure frequency (days/yr)	350
ED = adult exposure duration (yr)	30
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (day/year)	365
CSF = cancer slope factor (mg/kg-day) ⁻¹	specific
RfD = reference dose (mg/kg-day)	specific

Shallow Groundwater

COPC	Concentration (mg/l)	Ingestion Rate (L/day) Adult	Exposure Frequency (day/year) Adult	Exposure Duration (year) Adult	Body Weight (kg) Adult	Average Carc Tim (days)	Carc Dose (mg/kg-day) Adult	Slope Factor (mg/kg-day) ⁻¹	Carcinogenic Risk Adult	Percent Carcinogeni Risk Adult	Average Noncarc Time (days)	Noncarc Dose (mg/kg-day) Adult	Reference Dose (mg/kg-day)	Noncarcinogenic Risk Adult	Percent Noncarcinogenic Risk Adult
Arsenic	0.006	2	350	30	70	25550	7.3E-05	1.5E+00	1.1E-04	100%	10950	1.7E-04	3.0E-04	5.7E-01	12%
Iron	40.400	2	350	30	70	25550	4.7E-01	0.0E+00	0.0E+00	0%	10950	1.1E+00	3.0E-01	3.7E+00	79%
Manganese	0.081	2	350	30	70	25550	9.5E-04	0.0E+00	0.0E+00	0%	10950	2.2E-03	2.3E-02	9.7E-02	2%
Thallium	0.001	2	350	30	70	25550	1.2E-05	0.0E+00	0.0E+00	0%	10950	2.7E-05	8.0E-05	3.4E-01	7%
TOTAL									1.10E-04					4.70	

GROUNDWATER DERMAL CONTACT EXPOSURE ASSESSMENT
 SITE 35-CAMP GEIGER AREA FUEL FARM
 SUPPLEMENTAL GROUNDWATER INVESTIGATION CTO-0232
 MCB CAMP LEJELANE, NORTH CAROLINA
 FUTURE RESIDENTIAL ADULT

Dermal Contact from groundwater is calculated as follows:

$$\text{Intake (mg/kg-day)} = \text{CW} * \text{SA} * \text{PC} * \text{ET} * \text{EF} * \text{ED} * \text{CF/BW} * \text{ATc or ATnc} * \text{DY}$$

$$\text{Risk} = \text{Intake} * \text{CSF or RfD}$$

Where:	INPUTS
CW = contaminant concentration in water (mg/l)	23000
SA = adult skin surface available for contact (cm ²)	23000
PC = contaminant specific dermal permeability (cm/hr)	Specific
ET = adult exposure time (hours/day)	0.25
EF = adult exposure frequency (days/yr)	350
ED = adult exposure duration (years)	30
CF = volumetric conversion factor for water (1liter/1000 cm ³)	0.001
BW = adult body weight (kg)	70
ATc = averaging time for carcinogen (yr)	70
ATnc = averaging time for noncarcinogen (yr)	30
DY = days per year (days)	365

Note: Inputs are site and scenario specific

COPC	Concentration Carcinogen (mg/l)	Surface Area (cm ²) Adult	Dermal Permeability (cm/hr)	Exposure Time (hours/day) Adult	Exposure Frequency (days/yr) Adult	Exposure Duration (years) Adult	Volumetric Conversion (L/m ³)	Body Weight (kg) Adult	Averaging Carc Time (years)	Carc Dose (mg/kg-day) Adult	Dem. Adj. Slope Factor (mg/kg-day) ⁻¹	Carcinogenic Risk Adult	Percent Carcinogen Risk Adult	Average Noncarc Time (years)	Noncarc Dose (mg/kg-day) Adult	Dermal Adjust. Reference Dose (mg/kg-day)	Noncarc Risk Adult	Percent Noncarcinogenic Risk Adult
Arsenic	0.006	23000	1.00E-03	0.25	350	30	0.001	70	25550	2.1E-07	7.5E+00	1.8E-06	100%	10950	4.9E-07	6.0E-05	8.2E-03	12%
Iron	40.400	23000	1.00E-03	0.25	350	30	0.001	70	25550	1.4E-03	0.0E+00	0.0E+00	0%	10950	3.2E-03	6.0E-02	5.3E-02	79%
Manganese	0.081	23000	1.00E-03	0.25	350	30	0.001	70	25550	2.7E-06	0.0E+00	0.0E+00	0%	10950	8.4E-06	4.8E-03	1.4E-03	2%
Thallium	0.001	23000	1.00E-03	0.25	350	30	0.001	70	25550	3.4E-08	0.0E+00	0.0E+00	0%	10950	7.9E-08	1.6E-05	4.9E-03	7%
TOTAL												1.6E-06					6.8E-02	

APPENDIX R
DATA VALIDATION REPORT FOR ROUND THREE



HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

October 4, 1995

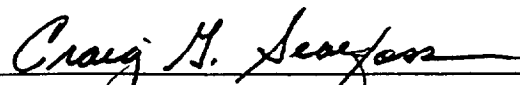
Prepared for
BAKER ENVIRONMENTAL, INC.
420 Rouser Road
Coraopolis, PA 15108

This Data Validation Report is a review of the analytical results of sampling conducted August 7 - 8, 1995 in support of the Camp Lejeune Project, Project 62470-323. There were eleven (11) soil samples with one (1) MS/MD pair which were received and analyzed by Incheape Testing Services - NDRC Laboratories in this analytical batch, **SDG# BK7350**.

Heartland ESI personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The CLP fractions have been validated utilizing: the "Laboratory Data Validation Functional Guidelines For Evaluating Organics Analysis", June, 1991; the "Laboratory Data Validation Functional Guidelines For Evaluating Inorganics Analysis", July, 1988; specific method requirements in SW-846; and ILM02.0; Region IV modifications; Level C requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**.

The release of this Data Validation Report is authorized by the following signature:



Eugene M. Watson, Vice President Heartland ESI

10-4-95.
Date

SDG# BK7350

SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>			<u>Analytical Fractions</u>			
<u>BAKER ID</u>	<u>NDRC ID</u>	<u>Matrix</u>	<u>TPH</u>	<u>DRO</u>	<u>HG</u>	<u>ZN</u>
351006	7350 1#CS	SOIL	X	X	X	X
351612	7350 2#CS	SOIL	X	X	X	X
352006	7350 3#CS	SOIL	X	X	X	X
352612	7350 4#CS	SOIL	X	X	X	X
367006	7350 5#CS	SOIL	X	X	X	X
367006MS	7350 5#CSMS	SOIL	X	X	X	X
367006MD	7350 5#CSMD	SOIL	X	X	X	X
367006D	7350 6#CS	SOIL	X	X	X	X
367612	7350 7#CS	SOIL	X	X	X	X
366006	7350 8#CS	SOIL	X	X	X	X
366612	7350 9#CS	SOIL	X	X	X	X
365006	7350 10#CS	SOIL	X	X	X	X
365612	7350 11#CS	SOIL	X	X	X	X
Total Number of Samples (Water/Soil)			0/13	0/13	0/13	0/13

MS - Matrix Spike

MD - Matrix Spike Duplicate/Matrix Duplicate

Individual fractions were reviewed as follows:

	<u>Primary</u>	<u>Secondary</u>
TPH - Total Petroleum Hydrocarbons, Gas (SW-846, 8015M)	Jackie Cleveland	Gene Watson
DRO - Total Petroleum Hydrocarbons, Diesel (SW-846, 8015M)	Jackie Cleveland	Gene Watson
HG - Mercury (ILM02.0)	Paul Humburg	J. Cleveland
ZN - Zinc (ILM02.0)	Paul Humburg	J. Cleveland

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT NARRATIVE

TPH Modified 8015 - Gasoline Range Organics

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

Lab # D95-7350

The validator has reviewed the data for these samples for the target Hydrocarbons using the requirements contained in SW-846 Method 8015, modified for Gasoline.

Holding Times

All holding times were met based on the information included in the data package. No qualifications were required.

Initial Calibration

The laboratory analyzed six (6) levels of calibration standard. The laboratory plotted area ratios (component area divided by the internal standard area) against the concentrations of three (3) ranges of gasoline (TPH1, TPH2, and TPH3). Linear regression curves were plotted and the origin was forced. All coefficients of determination were ≥ 0.995 . Each of the ranges was calculated as a separate entity and the total of the three (3) gives the gasoline concentration in each standard. Qualifications were not required.

Continuing Calibration

A mid-level standard was analyzed at appropriate intervals. The laboratory did not calculate %Ds. The reviewer calculated the %D values. All %Ds were within the SW-846 15% criteria. Retention time windows were not present for the surrogate compound. However, expected and delta retention times were present on the quantitation pages. The surrogate retention time was stable. The laboratory did not submit summary forms for the continuing calibrations. Qualifications were not required.

DATA ASSESSMENT NARRATIVE - Page 2

TPH-Modified 8015 - Gasoline

Blanks

The method blanks associated with the reported samples did not contain any contamination. No qualifications were required.

Surrogate Recoveries

The surrogate recoveries were within the QC limits in all the samples and blanks.

Matrix Spike\Matrix Spike Duplicate

The MS/MSD pair of sample 35-SD07-06-02 exhibited results which were not calculable due to the high native level of target compound in the sample. No qualifications were required.

Field Duplicates

There was no field duplicate pair identified.

Target Compound Identification

Positive results were reported in the samples. Quantitation calculations were verified. No qualifications were required.

Overall Assessment

The overall quality of the data package is good. The reported results are accepted as reported.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF TPH QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
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NO QUALIFICATIONS WERE REQUIRED

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier(s) used by the data validation firm
+ in the DL column denotes a positive result
_ in the DL column denotes a non-detect result

TPH - Modified 8015 - Diesel

DATA ASSESSMENT NARRATIVE

TPH Modified 8015 - Diesel Range Organics

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

Lab # D95-7350

The validator has reviewed the data for these samples for the target Hydrocarbons using the requirements contained in SW-846 Method 8015, modified for Diesel.

Holding Times

All holding times were met based on the information included in the data package. No qualifications were required.

Initial Calibration

The laboratory analyzed eleven (11) levels of calibration standard. Linear regression curves were plotted and the origin was forced. All coefficients of determination were ≥ 0.995 . Levels nine (9) through eleven (11) were analyzed after the samples to accommodate some results which were greater than the eight (8) level calibration curve. These results were plotted in the calibration curve and linearity was good. Qualifications were not required.

Continuing Calibration

A mid-level standard was analyzed at appropriate intervals. The laboratory calculated %Ds from the true standard value. All %Ds were within the SW-846 15% criteria. No qualifications were required. Retention time windows were not present for the surrogate compound. However, expected and delta retention times were present on the quantitation pages. The surrogate retention time was stable. The laboratory did not submit summary forms for the continuing calibrations. No qualifications were required.

DATA ASSESSMENT NARRATIVE - Page 2

TPH-Modified 8015 - Diesel

Blanks

The method blank associated with the reported samples did not contain any contamination. No qualifications were required.

Surrogate Recoveries

The surrogate recoveries were within the QC limits in all the samples and blanks.

Matrix Spike\Matrix Spike Duplicate

The MS/MSD pair of sample 35-SD01-06-02 exhibited acceptable recoveries and RPD based on the default limits applied by the reviewer. No qualifications were required.

Field Duplicates

There was no field duplicate pair identified.

Target Compound Identification

Positive results were reported in the samples. Quantitation calculations were verified. No qualifications were required.

Overall Assessment

The overall quality of the data package is good. The reported results are accepted as reported.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

- U** = Not detected
- J** = Estimated value
- UJ** = Reported quantitation limit is qualified as estimated
- R** = Result is rejected and unusable
- NJ** = Presumptive evidence for the presence of the material at an estimated value
- K** = Result is biased high
- L** = Result is biased low

METHOD BLANK QUALIFICATION CODES

- CRQL** = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
- U** = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
- No Action** = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF TPH QUALIFICATIONS

<u>SAMPLE ID</u> _____	<u>ANALYTE ID</u> _____	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
------------------------	-------------------------	-----------	-----------	-------------------------

NO QUALIFICATIONS WERE REQUIRED

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier(s) used by the data validation firm
+ in the DL column denotes a positive result
_ in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE
Mercury and Zinc

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations are recalculated by the reviewer. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from CTO-323, SDG# BK7350, the analysis of eleven (11) field soil samples and one Matrix Spike and Duplicate pair for Mercury and Zinc. Overall, the inorganic data quality was fair. All protocol requirements were followed with the exception of the following problems.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in Section 3 of the NEESA (20.2-047B) QA protocol.

Calibration

No deficiencies in this section.

Preparation and Field Blank

No deficiencies in this section.

Interferences

No significant interferences were observed.

Spike Recovery

No deficiencies in this section.

Duplicate

No deficiencies in this section.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
------------------	----------------	-----------	-----------	-------------------------

Data stands as reported without qualification.

DL - denotes laboratory qualifier/reported value
+ denotes positive values
U denotes non-detect values

QL - denotes data validation qualifier

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All soil samples	Zn.	+ /U	L/UL	1

DL - denotes laboratory qualifier/reported value
+ denotes positive values
U denotes non-detect values

QL - denotes data validation qualifier

ANNOTATED FORM 1s



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Environmental Laboratories

1089 E. Collins Blvd.
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Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-1
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD01-06-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 28-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	69 $\mu\text{g/Kg}$	< 69 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	88.4 %

Applicable results are reported on Dry Weight basis.

Handwritten: 08-10-1995



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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-2
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD01-612-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 28-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	61 $\mu\text{g/Kg}$	< 61 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	86.1 %

Applicable results are reported on Dry Weight basis.

Handwritten: 10/2/95



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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-3

REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD02-06-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 28-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	62 $\mu\text{g/Kg}$	< 62 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	104 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-4
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD02-612-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 28-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	137 $\mu\text{g/Kg}$	164 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	115 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-5

REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD07-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 9-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 28-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	182 $\mu\text{g/Kg}$	2280 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	87.1 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-6
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD07-06D-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 28-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	182 $\mu\text{g/Kg}$	2240 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	121 %

Applicable results are reported on Dry Weight basis.

Handwritten initials and date:
MC
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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-7
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD07-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 28-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	115 $\mu\text{g/Kg}$	< 115 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	111 %

Applicable results are reported on Dry Weight basis.

Handwritten: AC
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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-8
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD06-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 28-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	76 $\mu\text{g/Kg}$	99 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	98.1 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-9
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD06-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 9-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 28-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	62 $\mu\text{g/Kg}$	892 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	84.5 %

Applicable results are reported on Dry Weight basis.

DC
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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-10

REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD05-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 28-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	70 $\mu\text{g/Kg}$	102 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	126 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-11
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD05-612-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 28-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	66 $\mu\text{g/Kg}$	143 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	114 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-1
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD01-06-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 19-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	41.2 mg/Kg	< 41.2 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	93.6 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-2
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD01-612-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 19-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	36.7 mg/Kg	< 36.7 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	106 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-3

REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD02-06-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 19-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	37.4 mg/Kg	< 37.4 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	95.6 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-4
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD02-612-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 19-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	82.0 mg/Kg	104 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	105 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-5
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD07-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 19-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : ABS22-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	109 mg/Kg	708 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	96.4 %

Applicable results are reported on Dry Weight basis.

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Fax. 214-238-5592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-6
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD07-06D-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	109 mg/Kg	1140 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	94.8 %

Applicable results are reported on Dry Weight basis.

*QC
10/4/95*



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-7
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD07-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	68.8 mg/Kg	< 68.8 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	104 %

Applicable results are reported on Dry Weight basis.

gac
10/4/95



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-8

REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD06-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	45.9 mg/Kg	92.2 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	104 %

Applicable results are reported on Dry Weight basis.

DOC
10/4/95



Inchcape Testing Services

Environmental Laboratories

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Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-9

REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD06-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	37.4 mg/Kg	444 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	72.4 %

Applicable results are reported on Dry Weight basis.

JAC
10/4/95



Inchcape Testing Services

Environmental Laboratories

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Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-10
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD05-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	41.8 mg/Kg	< 41.8 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	107 %

Applicable results are reported on Dry Weight basis.

JAC
7/14/95



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5391
Fax. 214-238-5592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7350-11
REPORT DATE : 7-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 36-SD05-612-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	39.5 mg/Kg	64.5 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	105 %

Applicable results are reported on Dry Weight basis.

JCC
12/4/95



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

Diesel

REPORT DATE : 8-SEP-1995

REPORT NUMBER : D95-7350

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ATTENTION : Mr. Dan Bonk

LABORATORY QUALITY CONTROL REPORT

ANALYTE	Total Petroleum Hydrocarbon	Total Petroleum Hydrocarbon	Mercury	Zinc
BATCH NO.	AB522-15	28-080995	SCW-HG 37	SCW-162
LCS LOT NO.	AB409-64	AB214-540	AB300-17	590710
PREP METHOD	EPA 3550A	---	245.3 CLP-M	SCW 0-111-B-5a
PREPARED BY	CLT	---	CEL	A_O
ANALYSIS METHOD	EPA 8015M	EPA 5030/8015M	245.3 CLP-M	200.7 CLP-M
ANALYZED BY	T_L	S_S	MPE	JLV
UNITS	ug/Kg	ug/Kg	ug/Kg	ug/Kg
METHOD BLANK	< 10.0	<50.0	<0.10	<3.00
SPIKE LEVEL	250	---	1.00	100
MS RESULT	434	M	0.993	122
MS RECOVERY %	96.0	M	99.3	104
MSD RESULT	564	M	NR	NR
MSD RECOVERY %	143	M	NR	NR
MS/MSD RPO %	42.6	M	NR	NR
BS RESULT	NA	NA	NA	NA
BS RECOVERY %	NA	NA	NA	NA
BSD RESULT	NA	NA	NA	NA
BSD RECOVERY %	NA	NA	NA	NA
BS/BSD RPO %	NA	NA	NA	NA
DUPLICATE RPO %	NA	NA	NC	2.13
LCS LEVEL	83.3	500	1.00	100
LCS RESULT	67.1	576	0.941	95.2
LCS RECOVERY %	80.6	115	94.1	95.2
SPIKE SAMPLE ID	7350-5	7350-5	7350-5	7350-5
DUP SAMPLE ID	---	---	7350-5	7350-5

NA Not applicable
M Matrix interference with the surrogate and spike. LCS validates the batch.
NR Not Required
NC Not calculable

035A



Inchcape Testing Services

Environmental Laboratories

Gasoline

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5391
Fax. 214-238-5592

REPORT DATE : 8-SEP-1995

REPORT NUMBER : D95-7350

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ATTENTION : Mr. Dan Bonk

LABORATORY QUALITY CONTROL REPORT

ANALYTE	Total Petroleum Hydrocarbon	Total Petroleum Hydrocarbon	Mercury	Zinc
BATCH NO.	AB522-15	28-080995	SOW-HG 37	SOW-162
LCS LOT NO.	AB409-64	AB214-540	AB300-17	590710
PREP METHOD	EPA 3550A	---	245.3 CLP-M	SOW 0-111-B-5a
PREPARED BY	CLT	---	CEL	A_O
ANALYSIS METHOD	EPA 8015M	EPA 5030/8015M	245.3 CLP-M	200.7 CLP-M
ANALYZED BY	T_L	S_S	MPE	JLW
UNITS	mg/Kg	mg/Kg	mg/Kg	mg/Kg
METHOD BLANK	< 10.0	<50.0	<0.10	<3.00
SPIKE LEVEL	250	---	1.00	100
MS RESULT	434	M	0.993	122
MS RECOVERY %	96.0	M	99.3	104
MSD RESULT	564	M	NR	NR
MSD RECOVERY %	143	M	NR	NR
MS/MSD RPO %	42.6	M	NR	NR
BS RESULT	NA	NA	NA	NA
BS RECOVERY %	NA	NA	NA	NA
BSD RESULT	NA	NA	NA	NA
BSD RECOVERY %	NA	NA	NA	NA
BS/BSD RPO %	NA	NA	NA	NA
DUPLICATE RPO %	NA	NA	NC	2.13
LCS LEVEL	83.3	500	1.00	100
LCS RESULT	67.1	576	0.941	95.2
LCS RECOVERY %	80.6	115	94.1	95.2
SPIKE SAMPLE ID	7350-5	7350-5	7350-5	7350-5
DUP SAMPLE ID	---	---	7350-5	7350-5

NA Not applicable
M Matrix interference with the surrogate and spike. LCS validates the batch.
NR Not Required
NC Not calculable

ENVIRCFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

351006

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Lab Sample ID: 7350_1#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 72.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.13	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	12.6			P
	Cyanide				

Handwritten: JBT
10/4/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

351612

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Lab Sample ID: 7350_2#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 81.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.12	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	4.1	B		P
	Cyanide				

VB
10/4/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

1
INORGANIC ANALYSIS DATA SHEET

352006

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Lab Sample ID: 7350_3#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 80.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.12	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	27.1			P
	Cyanide				

Handwritten: 10/7/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

INORGANIC ANALYSIS DATA SHEET

352612

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Lab Sample ID: 7350_4#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 36.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.26	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	62.1			P
	Cyanide				

JBA
10/4/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

1
INORGANIC ANALYSIS DATA SHEET

365006

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Lab Sample ID: 7350_10#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 71.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.13	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	28.4			P
	Cyanide				

J/BJT
10/7/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

1
INORGANIC ANALYSIS DATA SHEET

365612

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Lab Sample ID: 7350_11#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids:

76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.13	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	18.2			P
	Cyanide				

Handwritten notes:
7350
11#CS

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

1
INORGANIC ANALYSIS DATA SHEET

366006

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Lab Sample ID: 7350-8

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 65.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.16			AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	22.6			P
	Cyanide				

2/3 H
10/4/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

366612

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Lab Sample ID: 7350_9#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids:

80.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.16			AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	10.1			P
	Cyanide				

RBH
10/4/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

INORGANIC ANALYSIS DATA SHEET

367006

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Lab Sample ID: 7350_5#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 27.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.34	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	65.8			P
	Cyanide				

2/23/95
10/4/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

1
INORGANIC ANALYSIS DATA SHEET

36706D

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Lab Sample ID: 7350_6#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 27.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.34	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	94.5			P
	Cyanide				

Handwritten notes:
7/14
10/14

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

INORGANIC ANALYSIS DATA SHEET

367612

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Lab Sample ID: 7350_7#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 43.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.31			AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	2.2	U		P
	Cyanide				

RB
10/4/00

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

367006S

Name: Inchcape Testing Services Contract:

Lab Code: Case No.: SAS No.: SDG No.: BK7350

Matrix (soil/water): SOIL Level (low/med): LOW
% Solids for Sample: 27.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum							NR
Antimony							NR
Arsenic							NR
Barium							NR
Beryllium							NR
Cadmium							NR
Calcium							NR
Chromium							NR
Cobalt							NR
Copper							NR
Iron							NR
Lead							NR
Magnesium							NR
Manganese							NR
Mercury	75-125	3.6240	0.3443 U	3.63	99.8		AV
Nickel							NR
Potassium							NR
Selenium							NR
Silver							NR
Sodium							NR
Thallium							NR
Vanadium							NR
Zinc	75-125	444.1403	65.7865	361.35	104.7		P
Cyanide							NR

Comments:

ENVIROFORMS/INORGANIC CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

367006A

Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	Spike Added (SA)	%R	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury								NR
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide								NR

*1/3/84
10/4/82*

Comments:

ENVIROFORMS/INORGANIC CLP

6
DUPLICATES

SAMPLE NO.

367006D

Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Level (low/med): LOW

% Solids for Sample: 27.4

% Solids for Duplicate: 36.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury	0.3	0.3443	U	0.3650	U			AV
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc	14.3	65.7865		64.4182		2.1		P
Cyanide								

Handwritten signature and date: 10/14/12

ENVIROFORMS/INORGANIC CLP

9
ICP SERIAL DILUTIONS

SAMPLE NO.

367006L

Client Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7350

Matrix (soil/water): SOIL

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Difference	Q	M
		C		C			
Aluminum							
Antimony							
Arsenic							
Barium							
Beryllium							
Cadmium							
Calcium							
Chromium							
Cobalt							
Copper							
Iron							
Lead							
Magnesium							
Manganese							
Mercury							
Nickel							
Potassium							
Selenium							
Silver							
Sodium							
Thallium							
Vanadium							
Zinc		91.93		80.59 B	12.3		P

Handwritten signature and date: 10/4/95

DATA VALIDATION WORKSHEETS

Project: Baker CID323 Site: Lijeune
 Type of Review: Uersa D Case No.: D95-7350
 Laboratory: Inchcape Testing Method: 8015 - Gasoline
 Reviewer's Initials: JPC Completion Date: 10/4/95
 Number and Type Samples: 11 Soils

VOLATILE HOLDING TIMES

1. Were the holding times met for all volatile analyses? Yes No
2. If No, list affected samples, dates, and decisions.
 3-8/17-8/95 2-8/9, 8/10

Sample ID	Date Collected or VTSR	Analysis Date	DA	Reviewer Decision

Note: DA = The number of days analysis holding time is exceeded.

Analysis Hold Times may be determined from date of collection using the requirements of SW846 (14 days - waters or soils); or CLP requirement of 10 days from VTSR.

GC INITIAL CALIBRATION

Associated Samples and Blanks: all

A. Calibration

1. Date(s) of calibration: 7/10/95

File/STD ID: VOA 071095, 1, 1

File/STD ID: 3, 1

File/STD ID: 15, 1

File/STD ID: 7, 1

File/STD ID: 9, 1

↓
11, 1

2. Calibration Criteria

Briefly explain the criteria used by the laboratory for the initial calibration and provide an example calculation.

6 levels - Gas in 3 ranges

area ratio vs range conc. LR curve

$r^2 \geq 0.995$

TPH ₂ Gas		$r^2 = 0.998$
1 0.2257	3.94	$m = 3.19 \times 10^{-2}$ $b = 2.05 \times 10^{-1}$
2 1.347	39.4	
3 6.361	197	
4 13.896	394	
5 30.223	985	
6 51.062	1574	

%RSD = _____

* Note: The %RSD criteria for 8000 Series Methods is 20%.

GC CONTINUING CALIBRATION

A. Continuing Calibration

1. Continuing Calibration Criteria

Briefly explain the criteria used by the laboratory for the continuing calibration and provide an example calculation.

mid level @ acceptable intervals

%D NC by Lab - Reviewer checked & applied 15%D criteria

8/9/95 2249 LV 500.03 mg/kg

$$\%D = \frac{500 - 500.03}{500} (100\%) = 0.0067\% D$$

%D = _____

* The Continuing Calibration criteria for 8000 Series Methods is 15%D for the mid-level standard.

2. Were all of the method requirements met including daily Retention Time Windows, mid-level standard after each group of 10 samples?

Yes No

If no, list qualifications that are required.

Multi component compound - surrogates stable

GC CONTINUING CALIBRATION

3. Date of calibration: all CCV
File/STD ID: _____
Date of Initial Calibration: 7/10/95
Associated Samples and Blanks: all

4. Did all of the compounds meet the continuing calibration %D criteria?

Yes No

If no, list the affected samples, non compliant compounds and required qualifications.

Sample ID	Compound	%R or %D	Qualification

Comments: _____

METHOD BLANK/TRIP BLANK QUALIFICATION SUMMARY

1. Blank qualification guidelines:
 - a) If a compound is found in the blank but not in the sample, no action is taken.
 - b) Any compound detected in the sample, which was also detected in the associated blank, must be qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than five (5) times the blank concentration.
 - c) The reviewer should take note that the blank analysis may not involve the same weights, volumes or dilution factors as associated samples. These factors must be taken into consideration when applying the 5X criteria.
 - d) In addition, the reviewer must review the trip blanks and rinseate blanks (if they were submitted with the data package) and all associated samples. Apply the same data validation guidelines used in assessing the method blanks.
 - e) Qualification/Action codes:

U - The sample result is greater than the CRQL and less than five times (5X) the blank value. Cross out the "B" flag and qualify the sample result with a "U".

CRQL - The sample result is less than the CRQL and less than five times (5X) the blank value. Reject the sample result, cross out the "B" flag, and report the CRQL.

No Action - The sample result is greater than the CRQL and greater than five times (5X) the blank value.

METHOD BLANK SUMMARY

Blank ID: BLM File ID: VOA080995, 3, 1

Analysis date/time: 8/9/95 1811 Concentration units: $\mu\text{g/L}$, $\mu\text{g/Kg}$

Associated Samples: all

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

TRIP BLANK SUMMARY

Trip Blank ID: none File ID: _____

Analysis date/time: _____ Concentration units: $\mu\text{g/L}$

Associated Samples: _____

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

RINSEATE BLANK SUMMARY

Rinseate Blank ID: none File ID: _____

Analysis date/time: _____ Concentration units: µg/L

Associated Samples: _____

Blank analysis results:

Compound	Conc.	CBQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

SURROGATE RECOVERY SUMMARY

Matrix: Aqueous Non-aqueous

PROVIDE RECOVERY LIMITS:

Surrogate	Lower	Upper	
Fluorobenzene	NR	← →	default 50-150

1. Did all the surrogate recoveries for the blanks, QC samples, and field samples meet the acceptance criteria? Yes No
- If no, list all affected samples and their respective surrogate recoveries that are out of criteria.

Sample ID	%R	%R	QA Action

~~SEE 12/14/95~~

* D denotes that the surrogate was diluted out

Comments: _____

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY

Sample ID: 36-SD07-06-02 Matrix: soil

Associated Samples: all

1. Were the percent recoveries and RPDs within the advisory limits? *
Yes No

If no, list the non compliant MS/MSD information below.

Compound	%R Limits	%R	%R	%RPD Limits	%RPD	Action

* - denotes non-compliant % Recoveries or %RPD

Comments: * NC due to 4 native levels.

SAMPLE RESULT VERIFICATION

Matrix: Aqueous Non-aqueous

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Was the percent moisture reported when required? Yes No NR
in Solids data package
- 3. Was the data reported on a dry weight basis? Yes No NR
- 4. Did the GC chromatogram exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments and Calculation examples + results reported

TPH2 as Gas 750-5 LCS LV 221.58 ug/kg
6502282 = 7.1051 vs LR curve =
915161
216.407
%D = 2% D

Reviewer: Jacqueline A Cleveland

Date: 10/4/95

Project: Baker CTO-323 Site: Comp Levee
 Type of Review: DO NEESA D Case No.: D95-7350
 Laboratory: Inchcape Testing Method: Mod 8015 - Diesel
 Reviewer's Initials: JIC Completion Date: 10/4/95
 Number and Type Samples: Eleven Soils

VOLATILE HOLDING TIMES

1. Were the holding times met for all volatile analyses? Yes No
 2. If No, list affected samples, dates, and decisions.
3 - 8/7-8/95 e - 8/10/95 a - 8/19-20/95

Sample ID	Date Collected or VTSR	Analysis Date	DA	Reviewer Decision

Note: DA = The number of days analysis holding time is exceeded.

Analysis Hold Times may be determined from date of collection using the requirements of SW846 (14 days - waters or soils); or CLP requirement of 10 days from VTSR.

GC INITIAL CALIBRATION

Associated Samples and Blanks: all

A. Calibration

1. Date(s) of calibration: 4/12/95

File/STD ID: HP17041295B, 1, 1 - HP17041295B, 8, 1

File/STD ID: HP17042695, 1, 1

File/STD ID: HP17050395, 1, 1

File/STD ID: HP17050395, 2, 1

File/STD ID: _____

2. Calibration Criteria

Briefly explain the criteria used by the laboratory for the initial calibration and provide an example calculation.

8 levels of ical std analyzed - RFA calculated
12 curves plotted - forced thru zero
coefficient of deter > 0.995 Levels 9-11 analyzed
after samples - plotted in curve - linearity good
(accommodated 4 level diesel results)

Level 25 RF = 139920.4531
 $3498012 / 25 = 139920.48$ ✓

%RSD = _____

* Note: The %RSD criteria for 8000 Series Methods is 20%.

GC INITIAL CALIBRATION

3. Does the lowest concentration standard correspond to the reported detection limits for the associated samples ?

Yes No

If no, list qualifications that are required.

4. Did all of the compounds meet the initial calibration %RSD criteria?

$r^2 \geq 0.995$

Yes No

If no, list the affected samples, non compliant compounds and required qualifications.

Sample ID	Compound	%RSD	Qualification

Comments: _____

GC CONTINUING CALIBRATION

A. Continuing Calibration

1. Continuing Calibration Criteria

Briefly explain the criteria used by the laboratory for the continuing calibration and provide an example calculation.

mid-level analyzed @ appropriate intervals
%Ds weren't calculated - Reviewer calculated %Ds
from TV
8/20/95 0033

$$\frac{1000 - 999.22}{1000} (100\%) = 0.78\% D$$

%D = _____

* The Continuing Calibration criteria for 8000 Series Methods is 15%D for the mid-level standard.

2. Were all of the method requirements met including daily Retention Time Windows, mid-level standard after each group of 10 samples?

Yes No

If no, list qualifications that are required.

multi-component target compound
surrogates stable

GC CONTINUING CALIBRATION

3. Date of calibration: all CCAL

File/STD ID: _____

Date of Initial Calibration: 4/12-5/3/95

Associated Samples and Blanks: all

4. Did all of the compounds meet the continuing calibration %D criteria?

Yes No

If no, list the affected samples, non compliant compounds and required qualifications.

Sample ID	Compound	%R or %D	Qualification

Comments: _____

METHOD BLANK/TRIP BLANK QUALIFICATION SUMMARY

1. Blank qualification guidelines:

- a) If a compound is found in the blank but not in the sample, no action is taken.
- b) Any compound detected in the sample, which was also detected in the associated blank, must be qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than five (5) times the blank concentration.
- c) The reviewer should take note that the blank analysis may not involve the same weights, volumes or dilution factors as associated samples. These factors must be taken into consideration when applying the 5X criteria.
- d) In addition, the reviewer must review the trip blanks and rinseate blanks (if they were submitted with the data package) and all associated samples. Apply the same data validation guidelines used in assessing the method blanks.
- e) Qualification/Action codes:

U - The sample result is greater than the CRQL and less than five times (5X) the blank value. Cross out the "B" flag and qualify the sample result with a "U".

CRQL - The sample result is less than the CRQL and less than five times (5X) the blank value. Reject the sample result, cross out the "B" flag, and report the CRQL.

No Action - The sample result is greater than the CRQL and greater than five times (5X) the blank value.

METHOD BLANK SUMMARY

Blank ID: BIK 3015 AB522-15 File ID: illegible

Analysis date/time: 8/19/95 1942 Concentration units: µg/L, µg/Kg

Associated Samples: all

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

TRIP BLANK SUMMARY

Trip Blank ID: none File ID: _____

Analysis date/time: _____ Concentration units: $\mu\text{g/L}$

Associated Samples: _____

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

RINSEATE BLANK SUMMARY

Rinseate Blank ID: _____ File ID: _____

Analysis date/time: _____ Concentration units: $\mu\text{g/L}$

Associated Samples: _____

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

SURROGATE RECOVERY SUMMARY

Matrix: Aqueous Non-aqueous

PROVIDE RECOVERY LIMITS:

Surrogate	Lower	Upper
<u>triacontane</u>	<u>60</u>	<u>140</u>

1. Did all the surrogate recoveries for the blanks, QC samples, and field samples meet the acceptance criteria?

Yes No

If no, list all affected samples and their respective surrogate recoveries that are out of criteria.

Sample ID	%R	%R	QA Action
SEE 10/14/95			

* D denotes that the surrogate was diluted out

Comments: _____

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY

Sample ID: 35SD01-06-02 Matrix: soil

Associated Samples: all

1. Were the percent recoveries and RPDs within the advisory limits?

Yes No

If no, list the non compliant MS/MSD information below.

Compound	%R Limits	%R	%R	%RPD Limits	%RPD	Action

* - denotes non-compliant % Recoveries or %RPD

Comments: QC limits not present. Reviewer used

50-150 & SD.

SAMPLE RESULT VERIFICATION

Matrix: Aqueous Non-aqueous

1. Were the sample results reported within the calibration range? Yes No
2. Was the percent moisture reported when required? Yes No NR
3. Was the data reported on a dry weight basis? Yes No NR
in %solids data package
4. Did the GC chromatogram exhibit interferences, off scale peaks or elevated baseline? Yes No
5. Did the data contain elevated detection limits that could not be accounted for? Yes No
6. Were any computational or transcription errors found? Yes No

Specific Comments and Calculation examples + results reported

7250-5 LY. 708 mg/kg 27.4 solids
83040144 vs LR curve = $\frac{393 \text{ mg/kg}}{2} = \frac{196 \text{ mg/kg}}{.274}$
715 mg/kg ✓
%D = 99% D

Reviewer: Jacqueline A Cleveland

Date: 10/4/95



NEESA LEVEL D DATA DELIVERABLES
INORGANICS - PART I

Site Name: CTO-323

Client: Bunker

Location: _____
Analytical Fraction: Mercury and Zinc

Lab: Trucept

Reviewer: P. Humby

Date(s): 10/4/90

-
- A. Control Chart - results of the method blank spikes run with each batch of samples processed : Yes No NR
 - B. CLP Form 1s with associated sample results and CLP flagging system. All percent moistures for soils and discussion of sample type : Yes No NR
 - C. CLP Form 2s with Initial and continuing calibration standards (part 1 only) : Yes No NR
 - D. CLP Form 3s with prep and method blanks : Yes No NR
 - E. CLP Form 4s with Interference check sample data : Yes No NR
 - F. CLP Form 5s with Matrix spike recovery and the postdigestion spike recovery for ICP Metals. Only done if predigest spike recovery exceeds limits : Yes No NR
 - G. CLP Form 6s with Duplicate data results : Yes No NR
 - H. CLP Form 7s with LCS data results : Yes No NR
 - I. CLP Form 8s with GFAA standard addition data : Yes No NR
 - J. CLP Form 9s with Serial Dilution data results : Yes No NR



NEESA LEVEL D DATA DELIVERABLES
INORGANICS - PART II

- | | | | |
|----|--|---|----|
| K. | CLP-Form 10s with Instrument Detection Data | : <input checked="" type="radio"/> Yes <input type="radio"/> No | NR |
| L. | CLP Forms 11 and 12 with Quarterly Verification of Instrument Parameters | : <input checked="" type="radio"/> Yes <input type="radio"/> No | NR |
| M. | CLP Form 13s with Preparation Log data | : <input checked="" type="radio"/> Yes <input type="radio"/> No | NR |
| N. | CLP Form 14s with Run Log data | : <input checked="" type="radio"/> Yes <input type="radio"/> No | NR |



HEARTLAND ESI Form A

DATA DELIVERABLE REQUIREMENTS

A.	Permanently Bound	Yes	<input checked="" type="radio"/> No	NR
B.	Paginated	<input checked="" type="radio"/> Yes	No	NR
C.	Table of Contents	<input checked="" type="radio"/> Yes	No	NR
D.	Digestion Records(internal C-O-C)	<input checked="" type="radio"/> Yes	No	NR
E.	Chain-Of-Custody (external)	<input checked="" type="radio"/> Yes	No	NR
F.	Case Narrative			
1.	Sample list with Client and Lab IDs cross-referenced (copy attached)	<input checked="" type="radio"/> Yes	No	NR
2.	All Protocol deviations and QC problems noted	<input checked="" type="radio"/> Yes	No	NR
3.	Comments: _____			
G.	Uninitialed Strikeovers	Yes	<input checked="" type="radio"/> No	NR
H.	Legible Photocopies	<input checked="" type="radio"/> Yes	No	NR
I.	Consistent Dates	<input checked="" type="radio"/> Yes	No	NR
J.	Preparation Logs	<input checked="" type="radio"/> Yes	No	NR
K.	Instrument Run Logs	<input checked="" type="radio"/> Yes	No	NR
L.	Other Deviations or Comments: _____			



HEARTLAND ESI Form B

HOLDING TIMES FOR METALS

1. Was the holding time exceeded on any of the Metal Fractions

ICP/GFAA/FAA - Holding time of 6 months VTSR
Mercury - Holding time of 28 days VTSR
Cyanide - Holding time of 14 days VTSR

Yes

No (circled)

2. If yes, complete the following form for all samples that exceeding holding times.

Table with columns: Fraction, Sample ID, Matrix, VTSR, Date of Analysis, DA, QC Decision. Includes handwritten entry: Pb 10/4/94

Note: DA = The number of days holding time to analysis is exceeded.

- S = Non-aqueous
A = Aqueous
X = Air

QA Decision: Results > IDL - J - estimated

Results < IDL - R - rejected



HEARTLAND ESI Form C-1

INSTRUMENT CALIBRATION AND INITIAL CALIBRATION VERIFICATION (ICV)

Associated Samples All soil sample

- 1. a. Was the ICP instrument properly standardized? Yes No
If no, explain and list action. _____
- b. Was the furnace instrument properly standardized? If no, were the required standards analyzed immediately after the instrument calibration and results within 95-105% recovery? Yes No
Yes No NR
If no, explain and list action. _____
- c. Were the instruments for the analyses of Cyanide and Mercury properly standardized? Yes No
If no, explain and list action. _____
- 2. Was the ICV analyzed immediately after the system(s) were calibrated? Yes No
If no, explain and list action. _____
- 3. Was the ICV analyzed for every analyte? Yes No
If no, explain and list action. _____
- 4. Do all ICV analytes meet the QC requirements for % recovery? Yes No
If no, list affected analytes, their % recovery, and action for which:
 - a. % recovery is between 75-89% (CN, 70-84% or HG, 65-79%)



HEARTLAND ESI Form C-2

b. % recovery is between 111-125% (CN, 116-130% or HG, 121-135%) _____

c. % recovery is less than 75% or greater than 125% (CN, <70 or >130%, Hg <65 or >135) _____

5. a. Show calculation for the % recovery of one ICV analyte by ICP. Lab value 96.8%

$$\text{Zinc} \quad \frac{387}{400} \times 100 = 96.8\%$$

b. Show calculation for the % recovery of one ICV analyte by furnace AA. Lab value NR

c. Show calculation for the ICV % recovery of Mercury. Lab Value 97.2%

$$\frac{2.43}{2.50} \times 100 = 97.2\%$$

d. Show calculation for the ICV % recovery of Cyanide. Lab value NR

6. Specific comments: _____



HEARTLAND ESI Form D-1

CONTINUING CALIBRATION VERIFICATION (CCV)

Associated Samples All good sample

1. a. Was the CCV performed every two hours or at the 10% frequency? Yes No
If no, list action. _____

b. Was the CCV performed at the beginning and end of the sample analysis? Yes No
If no, list action. _____

2. Were the CCV standards analyzed for all analytes? Yes No
If no, list affected analytes, their associated samples and action. _____

3. Was the same concentration used for CCV throughout the analyses? Yes No
If no, list affected analytes, their associated samples and action. _____

4. Do all CCV analytes meet the QC requirements for % recovery? Yes No
If no, list affected analytes, their associated samples and action for which:

a. % recovery is between 75-89% (CN, 70-84% or Hg, 65-79%) _____

b. % recovery is between 111-125% (CN, 116-130% or Hg, 121-135%) _____

c. % recovery is less than 75% or greater than 125% (CN, <70 or >130%, Hg, <65 or >135%) _____



HEARTLAND ESI Form D-2

5. a. Show calculation for the % recovery of one CCV analyte analyzed by ICP. Lab value 93.82

$$\text{Zinc} \quad \frac{469}{500} \times 100 = 93.82$$

- b. Show calculation for the % recovery of one CCV analyte analyzed by furnace AA. Lab value NK

- c. Show calculation for the % recovery of one CCV analyte analyzed for Mercury. Lab value 99.36

$$\frac{2.98}{3.00} \times 100 = 99.33$$

- d. Show calculation for the % recovery of one CCV analyte for Cyanide. Lab value NK

6. Specific comments: _____



HEARTLAND ESI Form F

INITIAL & CONTINUING CALIBRATION BLANK

Associated Samples All soil sample

1. Were the initial calibration blanks analyzed for all analytes and run after the initial calibration verification? Yes No
If no, list affected analytes, and action. _____

2. Was the absolute value for all analytes in the initial calibration blank below the CRDL? Yes No
If no, list affected analytes and reject them. _____

3. Were the continuing calibration blanks analyzed for all analytes and run after the continuing calibration verification? Yes No
If no, list affected analytes, associated samples and action. _____

4. Was the frequency for the continuing calibration blanks correct? Yes No
If no, list affected analytes, associated samples and action. _____

5. Was the absolute value of all analytes for the continuing calibration blank below the CRDL? Yes No
If no, list affected analytes, associated samples and reject them. _____



HEARTLAND ESI Form G

PREPARATION BLANK SUMMARY

Sample Matrix: Soil Water Air Preparation Blank ID PB5
Units: mg/kg ug/l ug/m3

1. Did the frequency of the preparation blank analysis meet method requirements? Yes No
If no, explain and note action.

Analyte	Conc	<CRDL	Comments/Action
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	PB# 10/4/98
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:

Associated Samples All soil samples

CRDL Codes: Yes < CRDL
No > CRDL



HEARTLAND ESI Form H

ICP INTERFERENCE CHECK SAMPLE

Associated Samples All soil sample

1. Was an ICP interference check sample performed Yes No at the correct frequency? If no, note any deviations and action.

2. a. Were the interferences for solution A Yes No reported? If no, note deviations

b. Were the analytes and interferences for solution AB Yes No reported? If no, note deviations

3. Were the concentrations of Al, Ca, Fe and Mg in associated samples found to be significantly less than (i.e., <50%) their respective concentrations in solution A? If yes, no action is required.

4. Did all required analytes in solution AB meet the QC limit of 80-120%? Yes No

a. List any analytes and their % recovery which are greater than or equal to 30% but less than 80% and action.

b. List any analytes and their % recovery which are greater than 120% and action.

c. List any analytes and their % recovery which are less than 30% and action.

5. Show the calculation for % recovery for one analyte in solution AB. Lab value 87.3%

Zinc $\frac{873}{1000} \times 100 = 87.3\%$



HEARTLAND ESI Form I-2

6. Were outliers for % recovery flagged with the "N" qualifier?

Yes No

If no, list analytes not flagged. _____

7. a. Show calculation for % recovery for one analyte analyzed by ICP.

Lab value 104.7%
$$\frac{444 - 65.8}{361.4} \times 100 = 104.6\%$$

b. Show calculation for % recovery for one analyte analyzed by furnace AA.

Lab value NR

c. Show calculation for % recovery for Mercury.

Lab value 99.8%
$$\frac{3.62}{7.63} \times 100 = 99.7\%$$

d. Show calculation for % recovery for Cyanide.

Lab value NR



HEARTLAND ESI Form K-1

DUPLICATE ANALYSIS

Duplicate Analysis performed on sample 367006

Matrix: Soil Water Air
Units: mg/kg ug/l ug/m3
% Solids: 27.4

Associated Samples All soil sample

1. Were duplicate analyses performed at the correct frequency? Yes No
If no, note deviations and action. _____

2. Was duplicate analysis performed on a field sample? Yes No
If no, reject all associated samples.

3. Were two analytical methods used to obtain reported values for one analyte? Yes No
If yes,
a. List analytes _____

b. Were duplicate analysis performed using both methods for that analyte? Yes No
If no, reject affected samples which did not have duplicate analysis performed. _____

4. Is the laboratory using the correct control limit (i.e. +CRDL or 20% for water and 35% for soils criteria) to judge duplicate RPD results? Yes No
If no, note deviations. _____



HEARTLAND ESI Form K-2

5. Do all analytes meet these QC control limits? Yes No
If no, list the analytes outside the limits and qualify these analytes. _____

6. Were outliers correctly flagged with the "*" qualifier? Yes No
If no, list those analytes not correctly flagged. _____

7. a. Show calculation for RPD for one analyte analyzed by ICP. Lab value 2.12

Zinc
$$\frac{(65.8 - 64.4)}{(65.8 + 64.4)} \times 100 = 1.4$$
$$\frac{1.4}{65.1} \times 100 = 2.2\%$$

b. Show calculation for RPD for one analyte analyzed by furnace AA. Lab value NR

c. Show calculation for RPD for Mercury. Lab value NC

d. Show calculation for RPD for Cyanide. Lab value NR



HEARTLAND ESI Form L

LABORATORY CONTROL SAMPLE

Matrix: Soil Water Air
Units: mg/kg ug/l ugm3
%Solids _____

Associated Samples All soil samples

1. Was the laboratory control sample performed at the correct frequency? Yes No
If no, give action. _____

2. Do all analytes meet the QC limits of 80-120% (except Silver, Antimony, Mercury and Cyanide for aqueous samples) or within the control limits established by EPA for soils? Yes No
If no, list analytes, their recovery and action. _____

3. a. Show the calculation for % recovery for at least one analyte by ICP.

Zinc $\frac{95.2}{100.0} \times 100 = 95.2\%$ Lab value 95.2%

b. Show the calculation for % recovery for at least one analyte analyzed by furnace AA.

Lab value NR

c. Show the calculation for % recovery of Mercury (soil only).
Lab value 90%

$\frac{19}{1.0} \times 100 = 90\%$



HEARTLAND ESI Form N

SAMPLE RESULT VERIFICATION

Associated Samples All soil samples

1. Were all samples reported within the calibration range? Yes No
If no, list affected samples and action.

2. Was the % solids analysis performed for all nonaqueous samples? Yes No
If no, list affected samples and action.

3. Show calculation for % solids for one sample. Lab value 72.9%

4. Was the raw data free of any anomalies? Yes No
If no, list affected samples and action.

5. Was the data package free of any computational or transcriptional errors? Yes No
If no, list affected samples and action.

6. Verify that nonaqueous samples were reported on a dry weight basis by recalculating the results for one analyte in a sample. 351006 Lab value 12.6 mg/kg
7350 ±1CS

$$\text{Zinc } (9.20) \left(\frac{1}{.729} \right) = 12.6 \text{ mg/kg}$$



HEARTLAND ESI Form O

ICP SERIAL DILUTION

Serial Dilution performed on Sample 367006
Dilution Factor 1

Matrix: Soil Water Air
Units: mg/kg ug/l ug/m3

Associated Samples All soil sample

1. Was a serial dilution performed at the correct frequency? Yes No
If no, give action. _____

2. Was a field sample used for serial dilution? Yes No
If no, give action. _____

3. For all analytes greater than fifty times the IDL, was a serial dilution performed? Yes No
If no, list analytes and reject them. _____

4. a. For all analytes greater than ten times the IDL, did the the serial dilution analysis meet the QC limit of 10% D? Yes No
If no, list those analytes outside the limits and qualify them. _____

b. Show a calculation for % D for one analyte analyzed by ICP.
Lab Value 12.31

Zinc $\frac{1191.9 - 80.64}{91.9} \times 100 = 12.31$



HEARTLAND ESI Form P

QUARTERLY VERIFICATION OF INSTRUMENT PARAMETERS

1. Was the IDL analyzed and reported quarterly (every three calendar months) for each element on Form X.

Yes No

If no, explain and list action. _____

2. Was the IDL below the CRDL for each element?
If no, explain and list action.

Yes No

3. Was the ICP interelement correction factor analyzed and reported for each element on Form 11 and 12.

Yes No

If no, explain and list action. _____

4. Was the linear range analyzed and reported annually and quarterly respectively for each element on Form 11 and 12.

Yes No

If no, explain and list action. _____



HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

October 4, 1995

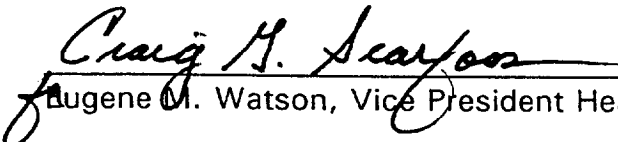
Prepared for
BAKER ENVIRONMENTAL, INC.
420 Rouser Road
Coraopolis, PA 15108

This Data Validation Report is a review of the analytical results of sampling conducted July 11, 1995 in support of the Camp Lejeune Project, Project 62470-323. There were eleven (11) soil samples with one (1) MS/MD pair which were received and analyzed by Inchcape Testing Services - NDRC Laboratories in this analytical batch, **SDG# BK7354**.

Heartland ESI personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The CLP fractions have been validated utilizing: the "Laboratory Data Validation Functional Guidelines For Evaluating Organics Analysis", June, 1991; the "Laboratory Data Validation Functional Guidelines For Evaluating Inorganics Analysis", July, 1988; specific method requirements in SW-846; and ILM02.0; Region IV modifications; Level C requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**.

The release of this Data Validation Report is authorized by the following signature:


Eugene M. Watson, Vice President Heartland ESI

10-4-95
Date

SDG# BK7354

SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>			<u>Analytical Fractions</u>			
<u>BAKER ID</u>	<u>NDRC ID</u>	<u>Matrix</u>	<u>TPH</u>	<u>DRO</u>	<u>HG</u>	<u>ZN</u>
357006	7354 1#CS	SOIL	X	X	X	X
357006MS	7354 1#CSMS	SOIL			X	
357006MD	7354 1#CSMD	SOIL			X	
35706D	7354 2#CS	SOIL	X	X	X	X
357612	7354 3#CS	SOIL	X	X	X	X
357612MS	7354 3#CSMS	SOIL				X
357612MD	7354 3#CSMD	SOIL				X
356006	7354 4#CS	SOIL	X	X	X	X
356612	7354 5#CS	SOIL	X	X	X	X
355006	7354 6#CS	SOIL	X	X	X	X
355612	7354 7#CS	SOIL	X	X	X	X
354006	7354 8#CS	SOIL	X	X	X	X
354612	7354 9#CS	SOIL	X	X	X	X
353006	7354 10#CS	SOIL	X	X	X	X
353612	7354 11#CS	SOIL	X	X	X	X
353612MS	7354 11#CSMS	SOIL	X			
353612MD	7354 11#CSMD	SOIL	X			
Total Number of Samples (Water/Soil)			0/13	0/11	0/13	0/13

MS - Matrix Spike

MD - Matrix Spike Duplicate/Matrix Duplicate

Individual fractions were reviewed as follows:

	<u>Primary</u>	<u>Secondary</u>
TPH - Total Petroleum Hydrocarbons, Gas (SW-846, 8015M)	Jackie Cleveland	Gene Watson
DRO - Total Petroleum Hydrocarbons, Diesel (SW-846, 8015M)	Jackie Cleveland	Gene Watson
HG - Mercury (ILM02.0)	Paul Humburg	J. Cleveland
ZN - Zinc (ILM02.0)	Paul Humburg	J. Cleveland

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT NARRATIVE

TPH Modified 8015 - Gasoline Range Organics

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

Lab # D95-7354

The validator has reviewed the data for these samples for the target Hydrocarbons using the requirements contained in SW-846 Method 8015, modified for Gasoline.

Holding Times

All holding times were met based on the information included in the data package. No qualifications were required.

Initial Calibration

The laboratory analyzed six (6) levels of calibration standard. The laboratory plotted area ratios (component area divided by the internal standard area) against the concentrations of three (3) ranges of gasoline (TPH1, TPH2, and TPH3). Linear regression curves were plotted and the origin was forced. All coefficients of determination were ≥ 0.995 . Each of the ranges was calculated as a separate entity and the total of the three (3) gives the gasoline concentration in each standard. Qualifications were not required.

Continuing Calibration

A mid-level standard was analyzed at appropriate intervals. The laboratory did not calculate %Ds. The reviewer calculated the %D values. All %Ds were not within the SW-846 15% criteria. Qualifications were required for the samples associated with one (1) of the non-compliant CCVs. Retention time windows were not present for the surrogate compound. However, expected and delta retention times were present on the quantitation pages. The surrogate retention time was stable. The laboratory did not submit summary forms for the continuing calibrations.

DATA ASSESSMENT NARRATIVE - Page 2

TPH-Modified 8015 - Gasoline

Continuing Calibrations, continued

Specific Finding

1. The CCV standard analyzed on 8/10/95 at 1507 exhibited a %D result greater than 15% but less than 50%. Positive results reported in the noted associated samples are qualified as estimated, J.

35-SD07-06-02

35-SD06-612-02

Blanks

The method blanks associated with the reported samples did not contain any contamination. No qualifications were required.

Surrogate Recoveries

The surrogate recoveries were within the QC limits in all the samples and blanks.

Matrix Spike\Matrix Spike Duplicate

The MS/MSD pair of sample 35-SD03-612-02 exhibited results deemed acceptable by the reviewer. The laboratory did not submit control limits. The reviewer applied default limits of 50% - 150% for recoveries and 50% for RPD. No qualifications were required.

Field Duplicates

There was no field duplicate pair identified.

Target Compound Identification

Positive results were reported in the samples. Quantitation calculations were verified. No qualifications were required.

Overall Assessment

The overall quality of the data package is good. The reported results are accepted as reported.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF TPH QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
35-SD07-06-02 35-SD06-612-02	TPH-gasoline	+	J	1

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier(s) used by the data validation firm
+ in the DL column denotes a positive result
_ in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE

TPH Modified 8015 - Diesel Range Organics

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

Lab # D95-7354

The validator has reviewed the data for these samples for the target Hydrocarbons using the requirements contained in SW-846 Method 8015, modified for Diesel.

Holding Times

All holding times were met based on the information included in the data package. No qualifications were required.

Initial Calibration

The laboratory analyzed eleven (11) levels of calibration standard. Linear regression curves were plotted and the origin was forced. All coefficients of determination were ≥ 0.995 . Levels nine (9) through eleven (11) were analyzed after the samples to accommodate some results which were greater than the eight (8) level calibration curve. These results were plotted in the calibration curve and linearity was good. Qualifications were not required.

Continuing Calibration

A mid-level standard was analyzed at appropriate intervals. The laboratory calculated %Ds from the true standard value. All %Ds were within the SW-846 15% criteria. No qualifications were required. Retention time windows were not present for the surrogate compound. However, expected and delta retention times were present on the quantitation pages. The surrogate retention time was stable. The laboratory did not submit summary forms for the continuing calibrations. No qualifications were required.

DATA ASSESSMENT NARRATIVE - Page 2

TPH-Modified 8015 - Diesel

Blanks

The method blanks associated with the reported samples did not contain any contamination. No qualifications were required.

Surrogate Recoveries

The surrogate recoveries were within the QC limits in all the samples and blanks.

Matrix Spike\Matrix Spike Duplicate

The MS/MSD pair submitted with the data was from a different case. No qualifications were required.

Field Duplicates

There was no field duplicate pair identified.

Target Compound Identification

Positive results were reported in the samples. Quantitation calculations were verified. No qualifications were required.

Overall Assessment

The overall quality of the data package is good. The reported results are accepted as reported.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

- U** = Not detected
- J** = Estimated value
- UJ** = Reported quantitation limit is qualified as estimated
- R** = Result is rejected and unusable
- NJ** = Presumptive evidence for the presence of the material at an estimated value
- K** = Result is biased high
- L** = Result is biased low

METHOD BLANK QUALIFICATION CODES

- CRQL** = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.
- U** = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.
- No Action** = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form 1s in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF TPH QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
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NO QUALIFICATIONS WERE REQUIRED

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier(s) used by the data validation firm
+ in the DL column denotes a positive result
_ in the DL column denotes a non-detect result

TPH - Modified 8015 - Diesel

DATA ASSESSMENT NARRATIVE
Mercury and Zinc

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations are recalculated by the reviewer. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from **CTO-323, SDG# BK7354**, the analysis of eleven (11) field soil samples and one Matrix Spike and Duplicate pair for Mercury and Zinc. Overall, the inorganic data quality was fair. All protocol requirements were followed with the exception of the following problems.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in Section 3 of the NEESA (20.2-047B) QA protocol.

Calibration

No deficiencies in this section.

Preparation and Field Blank

No deficiencies in this section.

Interferences

No significant interferences were observed.

Spike Recovery

No deficiencies in this section.

Duplicate

No deficiencies in this section.

Metals Data Assessment Narrative (continued - Page 2)

LCS

No deficiencies in this section.

Serial Dilution

No deficiencies in this section.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
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Data stands as reported without qualification.

DL - denotes laboratory qualifier/reported value
+ denotes positive values
U denotes non-detect values

QL - denotes data validation qualifier

ANNOTATED FORM IS



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-258-5591
Fax. 214-258-5592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-1

REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD07-06-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 48-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	97 $\mu\text{g/Kg}$	188 $\mu\text{g/Kg}$ J

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	128 %

Applicable results are reported on Dry Weight basis.

JAC
10/2/95



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-258-5591
Fax. 214-258-5592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-2
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD07-06D-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 48-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	90 $\mu\text{g/Kg}$	364 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	127 %

Applicable results are reported on Dry Weight basis.

guc
10/2/95



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-3

REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD07-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 5
METHOD FACTOR : 1
QC BATCH NO : 48-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	347 $\mu\text{g/Kg}$	1420 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	125 %

Applicable results are reported on Dry Weight basis.

28% moisture

*gac
10/2/95*

01625



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-258-3591
Fax. 214-258-3592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-4
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD06-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : LKD
ANALYZED ON : 15-AUG-1995
DILUTION FACTOR : 25
METHOD FACTOR : 1
QC BATCH NO : 48-081495

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	3670 $\mu\text{g/Kg}$	14200 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	109 %

Applicable results are reported on Dry Weight basis.

JAC
10/2/95



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-5

REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD06-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : LKD
ANALYZED ON : 11-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 48-081095

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	139 $\mu\text{g/Kg}$	1070 $\mu\text{g/Kg}$ J

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	128 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-6
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD05-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : LKD
ANALYZED ON : 11-AUG-1995
DILUTION FACTOR : 5
METHOD FACTOR : 1
QC BATCH NO : 48-081095

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	654 $\mu\text{g/Kg}$	5600 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	129 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-7
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD05-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 48-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	120 $\mu\text{g/Kg}$	3650 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	128 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-8

REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD04-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : LKD
ANALYZED ON : 14-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 48-081495

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	72 $\mu\text{g/Kg}$	2390 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	141 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-9

REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD04-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : LKD
ANALYZED ON : 11-AUG-1995
DILUTION FACTOR : 25
METHOD FACTOR : 1
QC BATCH NO : 48-081095

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	1850 $\mu\text{g/Kg}$	29700 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	95.6 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-10
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD03-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : LKD
ANALYZED ON : 11-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 48-081095

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	80 $\mu\text{g}/\text{Kg}$	759 $\mu\text{g}/\text{Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g}/\text{Kg}$	126 %

Applicable results are reported on Dry Weight basis.

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REPORT DATE : 8-SEP-1995

REPORT NUMBER : D95-7354

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ATTENTION : Mr. Dan Bonk

Gasoline 7354-11

LABORATORY QUALITY CONTROL REPORT

ANALYTE	Total Petroleum Hydrocarbon	Total Petroleum Hydrocarbon	Mercury	Zinc
BATCH NO.	48-080995	48-081095	SOW-HG 38	SOW-163
LCS LOT NO.	AB214-54D	AB214-54D	AB300-17	590710
PREP METHOD	---	---	245.3 CLP-M	SOW D-III-B-5a
PREPARED BY	---	---	CEL	A_0
ANALYSIS METHOD	EPA 5030/8015M	EPA 5030/8015M	245.3 CLP-M	200.7 CLP-M
ANALYZED BY	S_S	LKD	MPE	JLW
UNITS	µg/Kg	µg/Kg	mg/Kg	mg/Kg
METHOD BLANK	< 50.0	< 50.0	<0.10	<3.00
SPIKE LEVEL	500	500	1.00	100
MS RESULT	638	577	0.969	124
MS RECOVERY %	128	115	96.9	91.1
MSD RESULT	647	582	NR	NR
MSD RECOVERY %	129	116	NR	NR
MS/MSD RPD %	1.40	0.86	NR	NR
BS RESULT	NA	NA	NA	NA
BS RECOVERY %	NA	NA	NA	NA
BSD RESULT	NA	NA	NA	NA
BSD RECOVERY %	NA	NA	NA	NA
BS/BSD RPD %	NA	NA	NA	NA
DUPLICATE RPD %	NA	NA	NC	19.2
LCS LEVEL	500	500	1.00	100
LCS RESULT	523	581	0.950	93.3
LCS RECOVERY %	105	116	95.0	93.3
SPIKE SAMPLE ID	---	7354-11	7354-1	7354-3
DUP SAMPLE ID	---	---	7354-1	7354-3

NA Not applicable
NR Not Required
NC Not calculable



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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-11

REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD03-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : S S
ANALYZED ON : 10-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 48-080995

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	70 $\mu\text{g/Kg}$	< 70 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	123 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-1

REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD07-06-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 11-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : MTW
ANALYZED ON : 14-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 10
QC BATCH NO : AB522-25

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	195 mg/Kg	239 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacotane (SS)	100 mg/Kg	109 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-2

REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD07-06D-02
PROJECT : 62470-323
DATE SAMPLED : 8-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 11-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : MTW
ANALYZED ON : 14-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 10
QC BATCH NO : AB522-25

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	180 mg/Kg	< 180 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacantane (SS)	100 mg/Kg	101 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-3

REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD07-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 11-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : MTW
ANALYZED ON : 14-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 10
QC BATCH NO : AB522-25

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	139 mg/Kg	292 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	96.3 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-4
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD06-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 11-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : MTW
ANALYZED ON : 14-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 10
QC BATCH NO : AB522-25

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	293 mg/Kg	7420 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacotane (SS)	100 mg/Kg	102 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-5
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD06-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	83.1 mg/Kg	234 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacantane (SS)	100 mg/Kg	102 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-6
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD05-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	78.5 mg/Kg	550 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	102 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-7
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD05-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	72.1 mg/Kg	1100 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	99.6 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-8
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD04-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	43.4 mg/Kg	735 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	102 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-9
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD04-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	44.4 mg/Kg	459 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacotane (SS)	100 mg/Kg	102 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-10

REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD03-06-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	48.2 mg/Kg	54.9 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacantane (SS)	100 mg/Kg	104 %

Applicable results are reported on Dry Weight basis.

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DATE RECEIVED : 9-AUG-1995

REPORT NUMBER : D95-7354-11
REPORT DATE : 8-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Soil
ID MARKS : 35-SD03-612-02
PROJECT : 62470-323
DATE SAMPLED : 7-AUG-1995
PREPARATION METHOD : EPA 3550A
PREPARED BY : CLT
PREPARED ON : 10-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 20-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 3
QC BATCH NO : AB522-15

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	42.0 mg/Kg	84.5 mg/Kg

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacontane (SS)	100 mg/Kg	98.8 %

Applicable results are reported on Dry Weight basis.

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ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

353006

Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7354

Matrix (soil/water): SOIL

Lab Sample ID: 7354_10#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 62.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.15	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	26.6			P
	Cyanide				

3/10
10/4/15

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

353612

Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7354

Matrix (soil/water): SOIL

Lab Sample ID: 7354_11#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 71.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.13	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	11.4			P
	Cyanide				

PBR
10/4/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

354006

Name: Inchcape Testing Services Contract:
 Lab Code: Case No.: SAS No.: SDG No.: BK7354
 Matrix (soil/water): SOIL Lab Sample ID: 7354_8#CS
 Level (low/med): LOW Date Received: 08/09/95
 % Solids: 69.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.14	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	34.2			P
	Cyanide				

JB
10/8/95

Color Before: Clarity Before: Texture:
 Color After: Clarity After: Artifacts:
 Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

354612

Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7354

Matrix (soil/water): SOIL

Lab Sample ID: 7354_9#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 67.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.14	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	42.2			P
	Cyanide				

JPLA
10/4/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

355006

Name: Inchcape Testing Services Contract:
 Lab Code: Case No.: SAS No.: SDG No.: BK7354
 Matrix (soil/water): SOIL Lab Sample ID: 7354_6#CS
 Level (low/med): LOW Date Received: 08/09/95
 % Solids: 38.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.25	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	106			P
	Cyanide				

Handwritten: JBB
10/4/95

Color Before: BROWN Clarity Before: NA Texture: COARSE
 Color After: COLORLESS Clarity After: NA Artifacts: NA
 Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

355612

Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7354

Matrix (soil/water): SOIL

Lab Sample ID: 7354_7#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 41.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.23	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	104			P
	Cyanide				

PBB
10/4/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

356006

Name: Inchcape Testing Services Contract:
 Lab Code: Case No.: SAS No.: SDG No.: BK7354
 Matrix (soil/water): SOIL Lab Sample ID: 7354_4#CS
 Level (low/med): LOW Date Received: 08/09/95
 % Solids: 34.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.28	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	92.9			P
	Cyanide				

P.B. 4
10/4/11

Color Before: BROWN Clarity Before: NA Texture: COARSE
 Color After: COLORLESS Clarity After: NA Artifacts: NA
 Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

356612

Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7354

Matrix (soil/water): SOIL

Lab Sample ID: 7354_5#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 36.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.36			AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	9.9	B		P
	Cyanide				

JB
10/4/95

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

357006

Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7354

Matrix (soil/water): SOIL

Lab Sample ID: 7354_1#CS

Level (low/med): LOW

Date Received: 08/09/95

% Solids: 51.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.19	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	72.6			P
	Cyanide				

JBK
10/4/av

Color Before: BROWN

Clarity Before: NA

Texture: COARSE

Color After: COLORLESS

Clarity After: NA

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

35706D

Name: Inchcape Testing Services Contract:
 Lab Code: Case No.: SAS No.: SDG No.: BK7354
 Matrix (soil/water): SOIL Lab Sample ID: 7354_2#CS
 Level (low/med): LOW Date Received: 08/09/95
 % Solids: 55.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.17	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	61.7			P
	Cyanide				

PBB
10/4/95

Color Before: BROWN Clarity Before: NA Texture: COARSE
 Color After: COLORLESS Clarity After: NA Artifacts: NA
 Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

357612

Name: Inchcape Testing Services Contract:
 Lab Code: Case No.: SAS No.: SDG No.: BK7354
 Matrix (soil/water): SOIL Lab Sample ID: 7354_3#CS
 Level (low/med): LOW Date Received: 08/09/95
 % Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				
7440-36-0	Antimony				
7440-38-2	Arsenic				
7440-39-3	Barium				
7440-41-7	Beryllium				
7440-43-9	Cadmium				
7440-70-2	Calcium				
7440-47-3	Chromium				
7440-48-4	Cobalt				
7440-50-8	Copper				
7439-89-6	Iron				
7439-92-1	Lead				
7439-95-4	Magnesium				
7439-96-5	Manganese				
7439-97-6	Mercury	0.13	U		AV
7440-02-0	Nickel				
7440-09-7	Potassium				
7782-49-2	Selenium				
7440-22-4	Silver				
7440-23-5	Sodium				
7440-28-0	Thallium				
7440-62-2	Vanadium				
7440-66-6	Zinc	45.6			P
	Cyanide				

Handwritten: JBL
10/9/95

Color Before: GREEN Clarity Before: NA Texture: COARSE
 Color After: COLORLESS Clarity After: NA Artifacts: NA
 Comments:

046
393

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

357006S

Lab Name: Inchcape Testing Services Contract:

Lab Code: Case No.: SAS No.: SDG No.: BK7354

Matrix (soil/water): SOIL Level (low/med): LOW

% Solids for Sample: 51.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum							NR
Antimony							NR
Arsenic							NR
Barium							NR
Beryllium							NR
Cadmium							NR
Calcium							NR
Chromium							NR
Cobalt							NR
Copper							NR
Iron							NR
Lead							NR
Magnesium							NR
Manganese							NR
Mercury	75-125	1.8852	0.1853 U	1.94	97.2		AV
Nickel							NR
Potassium							NR
Selenium							NR
Silver							NR
Sodium							NR
Thallium							NR
Vanadium							NR
Zinc							NR
Cyanide							NR

Comments:

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

357612S

Lab Name: Inchcape Testing Services Contract:

Lab Code: Case No.: SAS No.: SDG No.: BK7354

Matrix (soil/water): SOIL Level (low/med): LOW
% Solids for Sample: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum							NR
Antimony							NR
Arsenic							NR
Barium							NR
Beryllium							NR
Cadmium							NR
Calcium							NR
Chromium							NR
Cobalt							NR
Copper							NR
Iron							NR
Lead							NR
Magnesium							NR
Manganese							NR
Mercury							NR
Nickel							NR
Potassium							NR
Selenium							NR
Silver							NR
Sodium							NR
Thallium							NR
Vanadium							NR
Zinc	75-125	172.0801	45.5790	138.89	91.1		P
Cyanide							NR

Comments:

ENVIROFORMS/INORGANIC CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

357612A

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7354

Matrix (soil/water): SOIL

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR)	Spike Added (SA)	%R	Q	M
Aluminum							NR
Antimony							NR
Arsenic							NR
Barium							NR
Beryllium							NR
Cadmium							NR
Calcium							NR
Chromium							NR
Cobalt							NR
Copper							NR
Iron							NR
Lead							NR
Magnesium							NR
Manganese							NR
Mercury							NR
Nickel							NR
Potassium							NR
Selenium							NR
Silver							NR
Sodium							NR
Thallium							NR
Vanadium							NR
Zinc							NR
Cyanide							NR

Comments:

ENVIROFORMS/INORGANIC CLP

6
DUPLICATES

SAMPLE NO.

357006D

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7354

Matrix (soil/water): SOIL

Level (low/med): LOW

% Solids for Sample: 51.4

% Solids for Duplicate: 51.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury	0.2	0.1853	U	0.1946	U			AV
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								
Cyanide								

ENVIROFORMS/INORGANIC CLP

6
DUPLICATES

SAMPLE NO.

357612D

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7354

Matrix (soil/water): SOIL

Level (low/med): LOW

% Solids for Sample: 72.0

% Solids for Duplicate: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc		45.5790		37.6153		19.1		P
Cyanide								

ENVIROFORMS/INORGANIC CLP

9

ICP SERIAL DILUTIONS

SAMPLE NO.

357612L

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7354

Matrix (soil/water): SOIL

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Difference	Q	M
		C		C			
Aluminum							
Antimony							
Arsenic							
Barium							
Beryllium							
Cadmium							
Calcium							
Chromium							
Cobalt							
Copper							
Iron							
Lead							
Magnesium							
Manganese							
Mercury							
Nickel							
Potassium							
Selenium							
Silver							
Sodium							
Thallium							
Vanadium							
Zinc		165.73		149.40	9.9		P

DATA VALIDATION WORKSHEETS

HEARTLAND ESI - NONHALOGENATED VOLATILES - SW846 8015 - Page 1

Project: CTO-323 Site: CAMP LESEUNE

Type of Review: NEESA D Case No.: D95-7354

Laboratory: Inchape Testing Method: Mod. 8015

Reviewer's Initials: JAC Completion Date: 10/2/95

Number and Type Samples: 11 soils

VOLATILE HOLDING TIMES

1. Were the holding times met for all volatile analyses? Yes No
2. If No, list affected samples, dates, and decisions.
5-8/7-8/95 2-8/10-15/95

Sample ID	Date Collected or VTSR	Analysis Date	DA	Reviewer Decision

Note: DA = The number of days analysis holding time is exceeded.

Analysis Hold Times may be determined from date of collection using the requirements of SW846 (14 days - waters or soils); or CLP requirement of 10 days from VTSR.

GC INITIAL CALIBRATION

Ass... Samples and Blanks: all

A. Calibration

1. Date(s) of calibration: 7/20/95

File/STD ID: VOA072095, 1, 1

File/STD ID: 2, 1

File/STD ID: 3, 1

File/STD ID: 4, 1

File/STD ID: 5, 1

↓
6, 1

Calibration Criteria

Explain the criteria used by the laboratory for the initial calibration and provide an example calculation.

6 levels of cal. std. analyzed - Gas in 3 ranges
area ratios vs conc plotted as LR curve
origin forced - $r^2 \geq 0.995$

TPH1 as gasoline:

Level one $4631/576164 = 0.00804$ Conc $10^{ug}/ng (0.135) = 1.35^{ug}/ng$

curve = $\begin{matrix} 0.00804 & 1.35 \\ 0.2445 & 13.5 \end{matrix}$ $r = 99410$

$\begin{matrix} 1.0856 & 67.5 \\ 2.265 & 135 \end{matrix}$ $m = 1.653$

$\begin{matrix} 6.149 & 338 \\ & b = 0.0435 \end{matrix}$

%RSD = _____

Note: The %RSD criteria for 8000 Series Methods is 20%.

GC INITIAL CALIBRATION

3. Does the lowest concentration standard correspond to the reported detection limits for the associated samples ?

Yes No

If no, list qualifications that are required.

4. Did all of the compounds meet the initial calibration %RSD criteria?

$$r^2 \geq 0.995$$

Yes No

If no, list the affected samples, non compliant compounds and required qualifications:

Sample ID	Compound	%RSD	Qualification

~~GC 1044125~~

Comments: _____

GC CONTINUING CALIBRATION

A. Continuing Calibration

1. Continuing Calibration Criteria

Briefly explain the criteria used by the laboratory for the continuing calibration and provide an example calculation.

CCV's analyzed @ acceptable intervals
%Ds not calculated on summaries - present on
quant pages for some of the CCV's - Reviewer calculated
those that weren't present %D from True Value calculated

CCV - 8/10/15 - 0548 LV Result 574.53
$$\%D = \frac{500 - 574.53}{500} (100\%) = 14.9\% D$$

%D = _____

* The Continuing Calibration criteria for 8000 Series Methods is 15%D for the mid-level standard.

2. Were all of the method requirements met including daily Retention Time Windows, mid-level standard after each group of 10 samples?

Yes No

If no, list qualifications that are required.

multicomponent target compound - RTWS not present
for surrogate or internal standard either. Exp & actual
RT's present - stable

GC CONTINUING CALIBRATION

3. Date of calibration: 8/10/95 1507
 File/STD ID: V6A080995,44,1
 Date of Initial Calibration: 7/20/95
 Associated Samples and Blanks: 7354-1MS, 7354-1MSD, 7354-1,
7354-5

4. Did all of the compounds meet the continuing calibration %D criteria?

Yes No

If no, list the affected samples, non compliant compounds and required qualifications.

Sample ID	Compound	%R or %D	Qualification
as above	Gasoline	24	J+

Comments: + results were reported

another CCV's acceptable or no samples associated

METHOD BLANK/TRIP BLANK QUALIFICATION SUMMARY

1. Blank qualification guidelines:

- a) If a compound is found in the blank but not in the sample, no action is taken.
- b) Any compound detected in the sample, which was also detected in the associated blank, must be qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than five (5) times the blank concentration.
- c) The reviewer should take note that the blank analysis may not involve the same weights, volumes or dilution factors as associated samples. These factors must be taken into consideration when applying the 5X criteria.
- d) In addition, the reviewer must review the trip blanks and rinseate blanks (if they were submitted with the data package) and all associated samples. Apply the same data validation guidelines used in assessing the method blanks.
- e) Qualification/Action codes:

U - The sample result is greater than the CRQL and less than five times (5X) the blank value. Cross out the "B" flag and qualify the sample result with a "U".

CRQL - The sample result is less than the CRQL and less than five times (5X) the blank value. Reject the sample result, cross out the "B" flag, and report the CRQL.

No Action - The sample result is greater than the CRQL and greater than five times (5X) the blank value.

METHOD BLANK SUMMARY

Blank ID: Blank File ID: VDA080995,3,1
Analysis date/time: 8/9/95 1822 Concentration units: $\mu\text{g/L}$, $\mu\text{g/Kg}$
Associated Samples: all 8/9-10/95

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

METHOD BLANK SUMMARY

Blank ID: BUC File ID: VOA081095, 3, 1

Analysis date/time: 8/10/95 2344 Concentration units: $\mu\text{g/L}$, $\mu\text{g/Kg}$

Associated Samples: all 8/11

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

METHOD BLANK SUMMARY

Blank ID: B12 File ID: VDA081495A, 6, 1

Analysis date/time: 01/14/95 1721 Concentration units: $\mu\text{g/L}$, $\mu\text{g/Kg}$

Associated Samples: all 8114

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

TRIP BLANK SUMMARY

Trip Blank ID: none File ID: _____

Analysis date/time: _____ Concentration units: µg/L

Associated Samples: _____

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

RINSEATE BLANK SUMMARY

Rinseate Blank ID: none File ID: _____

Analysis date/time: _____ Concentration units: $\mu\text{g/L}$

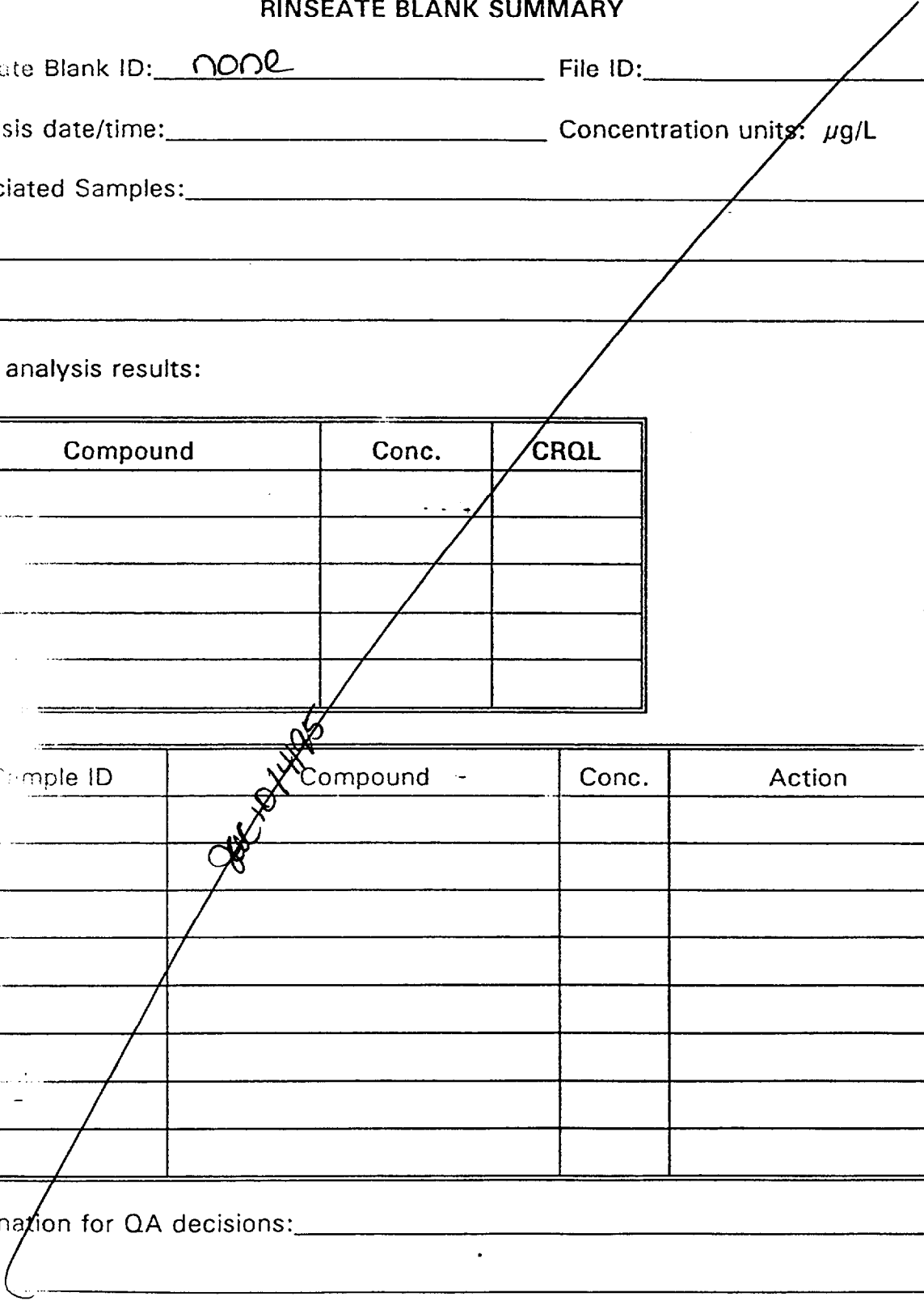
Associated Samples: _____

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____



SURROGATE RECOVERY SUMMARY

Matrix: Aqueous Non-aqueous

PROVIDE RECOVERY LIMITS:

<u>Surrogate</u>	<u>Lower</u>	<u>Upper</u>	
<u>Fluorobenzen</u>	<u>not provided</u>		<u>Default</u> <u>50-150</u>
<u> </u>	<u> </u>	<u> </u>	

1. Did all the surrogate recoveries for the blanks, QC samples, and field samples meet the acceptance criteria?

Yes No

If no, list all affected samples and their respective surrogate recoveries that are out of criteria.

Sample ID	%R	%R	QA Action

~~QC 10/4/95~~

* D denotes that the surrogate was diluted out

Comments: _____

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY

Sample ID: 7354-11 MS/MSD Matrix: soil

Associated Samples: all

1. Were the percent recoveries and RPDs within the advisory limits?

Yes No

If no, list the non compliant MS/MSD information below.

Compound	%R Limits	%R	%R	%RPD Limits	%RPD	Action

* - denotes non-compliant % Recoveries or %RPD

Comments: QC limits not provided - Reviewer applied
default limits of 50-150 for recovery & 50 for
RPD. 128, 129 & 1.4

SAMPLE RESULT VERIFICATION

Matrix: Aqueous Non-aqueous

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Was the percent moisture reported when required? Yes No NR
- 3. Was the data reported on a dry weight basis? Yes No NR
- 4. Did the GC chromatogram exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments and Calculation examples Positive results reported

TPH, as Gasoline - Calculation 7354-9 1/25

LV 744.65 WB

470456 vs LR curve = 27.1 (25) = 678 ug/kg

957235

%D = 99% due to curve plot

Total Gasoline Value - dry weight basis = LV = 29700

20057.89 ug/kg = 29671 ug/kg

.676

Reviewer: Jacqueline Cleveland

Date: 10/4/95

HEARTLAND ESI - NONHALOGENATED VOLATILES - SW846 8015 - Page 1

Project: CTO-323 Site: Camp Lejeune
 Type of Review: NUSO D Case No.: D95-7354
 Laboratory: Inchcape Testing Method: mod 8015
 Reviewer's Initials: JAC Completion Date: 10/2/95
 Number and Type Samples: 11 soils

VOLATILE HOLDING TIMES

1. Were the holding times met for all volatile analyses? (Yes) No
 5 - 8/17-8/19/95 e - 8/10-11/95 2 - 8/14/95, 8/20/95
2. If No, list affected samples, dates, and decisions.

Sample ID	Date Collected or VTSR	Analysis Date	DA	Reviewer Decision

Note: DA = The number of days analysis holding time is exceeded.

Analysis Hold Times may be determined from date of collection using the requirements of SW846 (14 days - waters or soils); or CLP requirement of 10 days from VTSR.

GC INITIAL CALIBRATION

Associated Samples and Blanks: all

A. Calibration

1. Date(s) of calibration: 4/12/95

File/STD ID: HP17041295B, 1, 1 - HP17041295B, 8, 1

File/STD ID: HP17042695, 1, 1

File/STD ID: HP17050395, 1, 1

File/STD ID: HP17050395, 2, 1

File/STD ID: _____

2. Calibration Criteria

Briefly explain the criteria used by the laboratory for the initial calibration and provide an example calculation.

8 levels of ical std analyzed - RF's calculated
RL curves plotted - forced thru zero
coefficient of detar > 0.995 Levels 9-11 analyzed
after samples - plotted in curve - linearity good
(accomodated 1 level diesel result A)

Level 25 RF: 139920.4531
 $3498012 / 25 = 139920.48$ ✓

%RSD = _____

* Note: The %RSD criteria for 8000 Series Methods is 20%.

GC INITIAL CALIBRATION

3. Does the lowest concentration standard correspond to the reported detection limits for the associated samples ?

Yes No

If no, list qualifications that are required.

4. Did all of the compounds meet the initial calibration %RSD criteria?

$r^2 \geq 0.995$

Yes No

If no, list the affected samples, non compliant compounds and required qualifications.

Sample ID	Compound	%RSD	Qualification

~~QC 10/2/15~~

Comments: _____

GC CONTINUING CALIBRATION

A. Continuing Calibration

1. Continuing Calibration Criteria

Briefly explain the criteria used by the laboratory for the continuing calibration and provide an example calculation.

Mid-level analyzed @ appropriate intervals
%Ds weren't calculated - ^{Review} ~~lab~~ calculated ^{X19ac} 10/4/95
%Ds from true value -

1000 ug/ml, 8/14/95 1132
$$\frac{1000 - 885}{1000} (100\%) = 11.5\%$$

%D = _____

* The Continuing Calibration criteria for 8000 Series Methods is 15%D for the mid-level standard.

2. Were all of the method requirements met including daily Retention Time Windows, mid-level standard after each group of 10 samples?

Yes No

If no, list qualifications that are required.

Multi-component target compound -
Surrogate RT stable

GC CONTINUING CALIBRATION

3. Date of calibration: all CCAL

File/STD ID: _____

Date of Initial Calibration: 4/12-5/3/95

Associated Samples and Blanks: all

4. Did all of the compounds meet the continuing calibration %D criteria?

Yes No

If no, list the affected samples, non compliant compounds and required qualifications.

Sample ID	Compound	%R or %D	Qualification

Comments: _____

METHOD BLANK/TRIP BLANK QUALIFICATION SUMMARY

1. Blank qualification guidelines:

- a) If a compound is found in the blank but not in the sample, no action is taken.
- b) Any compound detected in the sample, which was also detected in the associated blank, must be qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than five (5) times the blank concentration.
- c) The reviewer should take note that the blank analysis may not involve the same weights, volumes or dilution factors as associated samples. These factors must be taken into consideration when applying the 5X criteria.
- d) In addition, the reviewer must review the trip blanks and rinseate blanks (if they were submitted with the data package) and all associated samples. Apply the same data validation guidelines used in assessing the method blanks.
- e) Qualification/Action codes:

U - The sample result is greater than the CRQL and less than five times (5X) the blank value. Cross out the "B" flag and qualify the sample result with a "U".

CRQL - The sample result is less than the CRQL and less than five times (5X) the blank value. Reject the sample result, cross out the "B" flag, and report the CRQL.

No Action - The sample result is greater than the CRQL and greater than five times (5X) the blank value.

METHOD BLANK SUMMARY

Blank ID: HP17081495.A, 2, 1 File ID: BLK 30/5 ABS22-25

Analysis date/time: 8/14/95 1201 Concentration units: $\mu\text{g/L}$, $\mu\text{g/Kg}$

Associated Samples: all 8/14/95

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

METHOD BLANK SUMMARY

Blank ID: BIK 3015 AB522-15 File ID: unable to read

Analysis date/time: 8/19/95 1942 Concentration units: $\mu\text{g/L}$, $\mu\text{g/Kg}$

Associated Samples: all 8/19/95

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

TRIP BLANK SUMMARY

Trip Blank ID: none File ID: _____

Analysis date/time: _____ Concentration units: $\mu\text{g/L}$

Associated Samples: _____

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

RINSEATE BLANK SUMMARY

Rinseate Blank ID: none File ID: _____

Analysis date/time: _____ Concentration units: $\mu\text{g/L}$

Associated Samples: _____

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

SURROGATE RECOVERY SUMMARY

Matrix: Aqueous Non-aqueous

PROVIDE RECOVERY LIMITS:

Surrogate	Lower	Upper	
<u>triacontane</u>	<u>60</u>	<u>140</u>	<u>K1 gac 10/2/95</u> 50-150
	<u>not reported</u>		

1. Did all the surrogate recoveries for the blanks, QC samples, and field samples meet the acceptance criteria?

Yes No

If no, list all affected samples and their respective surrogate recoveries that are out of criteria.

Sample ID	%R	%R	QA Action

QC 10/2/95

* D denotes that the surrogate was diluted out

Comments: _____

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY

Sample ID: none

Matrix: _____

Associated Samples: _____

1. Were the percent recoveries and RPDs within the advisory limits?

Yes No

If no, list the non compliant MS/MSD information below.

Compound	%R Limits	%R	%R	%RPD Limits	%RPD	Action

* - denotes non-compliant % Recoveries or %RPD

Comments: Submitted QC acceptable

SAMPLE RESULT VERIFICATION

Matrix: Aqueous Non-aqueous

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Was the percent moisture reported when required? Yes No NR
moisture data located in total solids data pkg.
- 3. Was the data reported on a dry weight basis? Yes No NR
according to case narrative & Form 1's
- 4. Did the GC chromatogram exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments and Calculation examples + results reported
in 10 of the samples

7354-8 D95-7354-B LV 508 mg/kg WB
Form 1 values db.

$$217790752 \text{ vs } \text{LC curve} = \frac{(1019 \text{ } \mu\text{g}/\text{mg}) (5 \mu\text{g})}{10 \mu\text{g}}$$

$$= 509 \text{ mg/kg } \checkmark$$

$$\text{as db } 509 \text{ mg/kg} = 736.6 \text{ LV } 735 \checkmark$$

← 0.691

Reviewer: Jacqueline A. Cleveland Date: 10/2/95



NEESA LEVEL D DATA DELIVERABLES
INORGANICS - PART I

Site Name: CTO-323

Client: Butler

Location: _____
Analytical Fraction: Hg and Zn

Lab: Inchape

Reviewer: P. Hamburg

Date(s): 10/4/95

-
- A. Control Chart - results of the method blank spikes run with each batch of samples processed : Yes No NR
- B. CLP Form 1s with associated sample results and CLP flagging system. All percent moistures for soils and discussion of sample type : Yes No NR
- C. CLP Form 2s with Initial and continuing calibration standards (part 1 only) : Yes No NR
- D. CLP Form 3s with prep and method blanks : Yes No NR
- E. CLP Form 4s with Interference check sample data : Yes No NR
- F. CLP Form 5s with Matrix spike recovery and the postdigestion spike recovery for ICP Metals. Only done if predigest spike recovery exceeds limits : Yes No NR
- G. CLP Form 6s with Duplicate data results : Yes No NR
- H. CLP Form 7s with LCS data results : Yes No NR
- I. CLP Form 8s with GFAA standard addition data : Yes No NR
- J. CLP Form 9s with Serial Dilution data results : Yes No NR



NEESA LEVEL D DATA DELIVERABLES
INORGANICS - PART II

- | | | | |
|----|--|---|----|
| K. | CLP Form 10s with Instrument Detection Data | : <input checked="" type="radio"/> Yes No | NR |
| L. | CLP Forms 11 and 12 with Quarterly Verification of Instrument Parameters | : <input checked="" type="radio"/> Yes No | NR |
| M. | CLP Form 13s with Preparation Log data | : <input checked="" type="radio"/> Yes No | NR |
| N. | CLP Form 14s with Run Log data | : <input checked="" type="radio"/> Yes No | NR |



HEARTLAND ESI Form A

DATA DELIVERABLE REQUIREMENTS

A.	Permanently Bound	Yes	<input checked="" type="radio"/> No	NR
B.	Paginated	<input checked="" type="radio"/> Yes	No	NR
C.	Table of Contents	<input checked="" type="radio"/> Yes	No	NR
D.	Digestion Records(internal C-O-C)	<input checked="" type="radio"/> Yes	No	NR
E.	Chain-Of-Custody (external)	<input checked="" type="radio"/> Yes	No	NR
F.	Case Narrative			
1.	Sample list with Client and Lab IDs cross-referenced (copy attached)	<input checked="" type="radio"/> Yes	No	NR
2.	All Protocol deviations and QC problems noted	<input checked="" type="radio"/> Yes	No	NR
3.	Comments: _____			
G.	Uninitialed Strikeovers	Yes	<input checked="" type="radio"/> No	NR
H.	Legible Photocopies	<input checked="" type="radio"/> Yes	No	NR
I.	Consistent Dates	<input checked="" type="radio"/> Yes	No	NR
J.	Preparation Logs	<input checked="" type="radio"/> Yes	No	NR
K.	Instrument Run Logs	<input checked="" type="radio"/> Yes	No	NR
L.	Other Deviations or Comments: _____			



HEARTLAND ESI Form B

HOLDING TIMES FOR METALS

1. Was the holding time exceeded on any of the Metal Fractions

ICP/GFAA/FAA - Holding time of 6 months VTSR
 Mercury - Holding time of 28 days VTSR
 Cyanide - Holding time of 14 days VTSR

Yes No

2. If yes, complete the following form for all samples that exceeding holding times.

Fraction: _____

Sample ID	Matrix	VTSR	Date of Analysis	DA	QC Decision
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:

PBB 10/4/01

Note: DA = The number of days holding time to analysis is exceeded.

- S = Non-aqueous
- A = Aqueous
- X = Air

QA Decision: Results > IDL - J - estimated
 Results < IDL - R - rejected



HEARTLAND ESI Form C-1

INSTRUMENT CALIBRATION AND INITIAL CALIBRATION VERIFICATION (ICV)

Associated Samples All soil samples

1. a. Was the ICP instrument properly standardized? Yes No
If no, explain and list action. _____

b. Was the furnace instrument properly standardized? If no, were the required standards analyzed immediately after the instrument calibration and results within 95-105% recovery? Yes No
Yes No NR
If no, explain and list action. _____

c. Were the instruments for the analyses of Cyanide and Mercury properly standardized? Yes No
If no, explain and list action. _____

2. Was the ICV analyzed immediately after the system(s) were calibrated? Yes No
If no, explain and list action. _____

3. Was the ICV analyzed for every analyte? Yes No
If no, explain and list action. _____

4. Do all ICV analytes meet the QC requirements for % recovery? Yes No
If no, list affected analytes, their % recovery, and action for which:

a. % recovery is between 75-89% (CN, 70-84% or HG, 65-79%)



HEARTLAND ESI Form C-2

- b. % recovery is between 111-125% (CN, 116-130% or HG, 121-135%) _____
- c. % recovery is less than 75% or greater than 125% (CN, <70 or >130%, Hg <65 or >135) _____

5. a. Show calculation for the % recovery of one ICV analyte by ICP. Lab value 77.4g

Zinc $\frac{387}{500} \times 100 = 77.4\%$

- b. Show calculation for the % recovery of one ICV analyte by furnace AA. Lab value NR

- c. Show calculation for the ICV % recovery of Mercury. Lab Value 97.2g

$\frac{2.43}{2.50} \times 100 = 97.2\%$

- d. Show calculation for the ICV % recovery of Cyanide. Lab value NR

6. Specific comments: _____



HEARTLAND ESI Form D-1

CONTINUING CALIBRATION VERIFICATION (CCV)

Associated Samples All good sample

1. a. Was the CCV performed every two hours or at the 10% frequency? Yes No
If no, list action. _____

b. Was the CCV performed at the beginning and end of the sample analysis? Yes No
If no, list action. _____

2. Were the CCV standards analyzed for all analytes? Yes No
If no, list affected analytes, their associated samples and action. _____

3. Was the same concentration used for CCV throughout the analyses? Yes No
If no, list affected analytes, their associated samples and action. _____

4. Do all CCV analytes meet the QC requirements for % recovery? Yes No
If no, list affected analytes, their associated samples and action for which:

a. % recovery is between 75-89%(CN,70-84% or Hg, 65-79%) _____

b. % recovery is between 111-125%(CN,116-130% or Hg, 121-135%) _____

c. % recovery is less than 75% or greater than 125%(CN,<70 or >130%, Hg, <65 or <135%) _____



HEARTLAND ESI Form D-2

5. a. Show calculation for the % recovery of one CCV analyte analyzed by ICP. Lab value 120.26

$$Zinc \quad \frac{481}{500} \times 100 = 96.2\%$$

- b. Show calculation for the % recovery of one CCV analyte analyzed by furnace AA. Lab value NR

- c. Show calculation for the % recovery of one CCV analyte analyzed for Mercury. Lab value 99.3%

$$\frac{2.98}{3.00} \times 100 = 99.3\%$$

- d. Show calculation for the % recovery of one CCV analyte for Cyanide. Lab value NR

6. Specific comments: _____



HEARTLAND ESI Form F

INITIAL & CONTINUING CALIBRATION BLANK

Associated Samples All good sample

1. Were the initial calibration blanks analyzed for all analytes and run after the initial calibration verification? Yes No
If no, list affected analytes, and action.

2. Was the absolute value for all analytes in the initial calibration blank below the CRDL? Yes No
If no, list affected analytes and reject them.

3. Were the continuing calibration blanks analyzed for all analytes and run after the continuing calibration verification? Yes No
If no, list affected analytes, associated samples and action.

4. Was the frequency for the continuing calibration blanks correct? Yes No
If no, list affected analytes, associated samples and action.

5. Was the absolute value of all analytes for the continuing calibration blank below the CRDL? Yes No
If no, list affected analytes, associated samples and reject them.



HEARTLAND ESI Form G

PREPARATION BLANK SUMMARY

Sample Matrix: Soil Water Air Preparation Blank ID PBS
 Units: mg/kg ug/l ug/m3

1. Did the frequency of the preparation blank analysis meet method requirements? Yes No
 If no, explain and note action. _____

Analyte	: Conc	: <CRDL	: Comments/Action
	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	:
	:	:	PBS 10/4/05
	:	:	:
	:	:	:
	:	:	:
	:	:	:

Associated Samples All soil sample

CRDL Codes: Yes < CRDL
 No > CRDL



HEARTLAND ESI Form H

ICP INTERFERENCE CHECK SAMPLE

Associated Samples All sod samples

1. Was an ICP interference check sample performed Yes No
at the correct frequency?
If no, note any deviations and action. _____

2. a. Were the interferences for solution A Yes No
reported?
If no, note deviations _____

b. Were the analytes and interferences for solution AB reported? Yes No
If no, note deviations _____

3. Were the concentrations of Al, Ca, Fe and Mg Yes No
in associated samples found to be significantly less than
(i.e., < 50%) their respective concentrations in solution A?
If yes, no action is required.

4. Did all required analytes in solution AB meet Yes No
the QC limit of 80-120%?
If no,

a. List any analytes and their % recovery which are greater than or equal
to 30% but less than 80% and action. _____

b. List any analytes and their % recovery which are greater
than 120% and action. _____

c. List any analytes and their % recovery which are less than
30% and action. _____

5. Show the calculation for % recovery for one analyte in solution AB.
Lab value 870g

Zn $\frac{870}{1000} \times 100 = 87\%$



) HEARTLAND ESI Form I-1

SAMPLE SPIKE ANALYSIS

Sample Spike Analysis performed on sample 357006 / 357612

Matrix: Soil Water Air
Units: mg/kg ug/l ug/m3
% Solids 51.4 / 72.0

Associated Samples All soil sample

1. Was the sample spike analysis performed at the correct frequency? Yes No
If no, note deviations and action. _____

2. Was the sample spike analysis performed on a field sample? Yes No
If no, reject all associated samples.

3. a. Were two analytical methods used to obtain reported values for one analyte? Yes No
If yes, list analytes _____

b. Was sample spike analysis performed using both methods for that analyte? Yes No
If no, reject affected sample(s) which did not have spike analysis performed. _____

4. Was sample analysis performed at the proper concentration? Yes No
If no, list analytes and qualify. _____

5. Did the % recovery for all analytes meet the criteria of 75-125%? Yes No
If no, list only those analytes which % recovery are out and whose sample result (SR) is less than 4 times the sample added (SA). List % recovery in parenthesis next to the analyte out and action. _____



HEARTLAND ESI Form I-2

6. Were outliers for % recovery flagged with the "N" qualifier? Yes No
If no, list analytes not flagged. _____

7. a. Show calculation for % recovery for one analyte analyzed by ICP. Lab value 91.1%

Zinc $\frac{1721.45.4}{138.9} \times 100 = 96.1\%$

b. Show calculation for % recovery for one analyte analyzed by furnace AA. Lab value NR

c. Show calculation for % recovery for Mercury. Lab value 97.2%

$\frac{1.89}{1.94} \times 100 = 97.4\%$

d. Show calculation for % recovery for Cyanide. Lab value NR



HEARTLAND ESI Form K-1

DUPLICATE ANALYSIS

Duplicate Analysis performed on sample 357006 / 357612

Matrix: Soil Water Air
Units: mg/kg ug/l ug/m3
% Solids: 51.4 / 22.0

Associated Samples All soil samples

1. Were duplicate analyses performed at the correct frequency? Yes No
If no, note deviations and action. _____

2. Was duplicate analysis performed on a field sample? Yes No
If no, reject all associated samples.

3. Were two analytical methods used to obtain reported values for one analyte? Yes No
If yes,
a. List analytes _____

b. Were duplicate analysis performed using both methods for that analyte? Yes No
If no, reject affected samples which did not have duplicate analysis performed. _____

4. Is the laboratory using the correct control limit (i.e. +CRDL or 20% for water and 35% for soils criteria) to judge duplicate RPD results? Yes No
If no, note deviations. _____



HEARTLAND ESI Form K-2

5. Do all analytes meet these QC control limits? Yes No
If no, list the analytes outside the limits and qualify these analytes. _____

6. Were outliers correctly flagged with the "*" qualifier? Yes No
If no, list those analytes not correctly flagged. _____

7. a. Show calculation for RPD for one analyte analyzed by ICP.

Zinc $\frac{1145.6 - 37.6}{(45.6 + 37.6)} \Delta$ $x_{avr} = \frac{8.0}{41.6} x_{avr} = 19.2\%$
Lab value 19.1%

b. Show calculation for RPD for one analyte analyzed by furnace AA. Lab value NR

c. Show calculation for RPD for Mercury. Lab value NC

d. Show calculation for RPD for Cyanide. Lab value NR



HEARTLAND ESI Form L

LABORATORY CONTROL SAMPLE

Matrix: Soil Water Air
Units: mg/kg ug/l ugm3
%Solids _____

Associated Samples All soil sample

1. Was the laboratory control sample performed at the correct frequency? Yes No
If no, give action. _____

2. Do all analytes meet the QC limits of 80-120% (except Silver, Antimony, Mercury and Cyanide for aqueous samples) or within the control limits established by EPA for soils? Yes No
If no, list analytes, their recovery and action. _____

3. a. Show the calculation for % recovery for at least one analyte by ICP.
Zinc $\frac{93.3}{100.0} \times 100 = 93.3\%$ Lab value 93.3%

b. Show the calculation for % recovery for at least one analyte analyzed by furnace AA.
Lab value NR

c. Show the calculation for % recovery of Mercury (soil only).
Lab value 100%

$$\frac{1.0}{1.0} \times 100 = 100\%$$



HEARTLAND ESI Form N

SAMPLE RESULT VERIFICATION

Associated Samples All good sample

1. Were all samples reported within the calibration range? Yes No
If no, list affected samples and action.

2. Was the % solids analysis performed for all nonaqueous samples? Yes No
If no, list affected samples and action.

3. Show calculation for % solids for one sample. Lab value 62.3 %

4. Was the raw data free of any anomalies? Yes No
If no, list affected samples and action.

5. Was the data package free of any computational or transcriptional errors? Yes No
If no, list affected samples and action.

6. Verify that nonaqueous samples were reported on a dry weight basis by recalculating the results for one analyte in a sample. Lab value 26.6 mg/kg

353006 7354-10 #CS
Zinc $(16.16) \times \left(\frac{1}{1.623}\right) \times \left(\frac{1}{1.06}\right) = 26.6 \text{ mg/kg}$



HEARTLAND ESI Form O

ICP SERIAL DILUTION

Serial Dilution performed on Sample 37612
Dilution Factor 5

Matrix: Soil Water Air
Units: mg/kg ug/l ug/m3

Associated Samples All soil sample

1. Was a serial dilution performed at the correct frequency? Yes No
If no, give action.

2. Was a field sample used for serial dilution? Yes No
If no, give action.

3. For all analytes greater than fifty times the IDL, was a serial dilution performed? Yes No
If no, list analytes and reject them.

4. a. For all analytes greater than ten times the IDL, did the the serial dilution analysis meet the QC limit of 10% D? Yes No
If no, list those analytes outside the limits and qualify them.

b. Show a calculation for % D for one analyte analyzed by ICP.

Zinc
$$\frac{11166 - 14911}{166} \times 100 = 10.21$$
 Lab Value 9.98



HEARTLAND ESI Form P

QUARTERLY VERIFICATION OF INSTRUMENT PARAMETERS

1. Was the IDL analyzed and reported quarterly (every three calendar months) for each element on Form X. Yes No
If no, explain and list action. _____
2. Was the IDL below the CRDL for each element? Yes No
If no, explain and list action. _____
3. Was the ICP interelement correction factor analyzed and reported for each element on Form 11 and 12. Yes No
If no, explain and list action. _____
4. Was the linear range analyzed and reported annually and quarterly respectively for each element on Form 11 and 12. Yes No
If no, explain and list action. _____

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
SBLK5S IDW01 IDW01MS IDW01MSD	2,4-dinitrophenol pentachlorophenol	+	J	1
IDW01 IDW01MS	bis(2-ethylhexyl) phthalate	+	U	2
IDW01MSD	bis(2-ethylhexyl) phthalate	+	CRQL	2

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result



HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

October 10, 1995

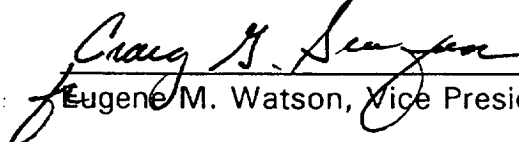
Prepared for
BAKER ENVIRONMENTAL, INC.
420 Rouser Road
Coraopolis, PA 15108

This Data Validation Report is a review of the analytical results of sampling conducted July 21 and August 13 & 14, 1995 in support of the Camp Geiger Fuel Farm Project, 62470-323 (Camp Lejeune). There were two (2) water samples with one (1) MS/MD pair which were received and analyzed by Inchcape Testing Services - NDRC Laboratories in this analytical batch, **SDG# 53167**.

Heartland ESI personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The CLP fractions have been validated utilizing: the "Laboratory Data Validation Functional Guidelines For Evaluating Organics Analysis", June, 1991; the "Laboratory Data Validation Functional Guidelines For Evaluating Inorganics Analysis", July, 1988; specific method requirements in SW-846; and ILM02.0; Region IV modifications; Level D requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**.

The release of this Data Validation Report is authorized by the following signature:



Eugene M. Watson, Vice President Heartland ESI

10-10-95.

Date

SDG# 53167

SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>			<u>Analytical Fractions</u>		
<u>BAKER ID</u>	<u>NDRC ID</u>	<u>Matrix</u>	<u>VOA</u>	<u>SV</u>	<u>P/P</u>
TB01	268004	WATER	X		
IDWO1	268003	WATER	X	X	X
IDWO1MS	268003MS	WATER	X	X	X
IDWO1MD	268003MD	WATER	X	X	X
Total Number of Samples (Water/Soil)			4/0	3/0	3/0

MS - Matrix Spike

MD - Matrix Spike Duplicate/Matrix Duplicate

Individual fractions were reviewed as follows:

	<u>Primary</u>	<u>Secondary</u>
VOA - Volatiles (OLM01.8)	Dan Heil	Gene Watson
SV - Semivolatiles (OLM01.8)	Dan Heil	Gene Watson
P/P - Pesticides/PCBs (OLM01.8)	J. Cleveland	Gene Watson

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 53167

Holding Times

The holding times for all of the samples were not met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibration that was analyzed by the laboratory for these samples was acceptable for all compound %RSDs and average RRFs. No qualifications are required.

Continuing calibrations

The continuing calibrations that were analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations (continued)

Specific Finding:

1. The continuing calibration, LDQ050BHV, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

VBLKD3 2-butanone
IDW01
IDW01MS
IDW01MSD

2. The continuing calibration, LDQ050BHV, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and all non detects as estimated (UJ).

VBLKD3 acetone
IDW01
IDW01MS
IDW01MSD

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed did not exhibit contamination. No qualifications are required.

Trip Blanks

The trip blanks that were analyzed exhibited contamination for chloroform and benzene. However, none of the associated samples did not exhibit similar contamination. No qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Rinseate Blanks

The associate rinseate blank was not identified for this SDG. No qualifications are required.

Field Blanks

The associate field blank was not identified for this SDG. No qualifications are required.

Surrogates

All of the surrogate recoveries for the all blanks and samples were within QA/QC limits. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All spike and RPD recoveries were within advisory limits for MS/MSD IDW01. No qualifications are required.

Field Duplicate

No qualifications are required.

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
VBLKD3 IDW01 IDW01MS IDW01MSD	2-butanone	+	J	1
VBLKD3 IDW01 IDW01MS IDW01MSD	acetone	+/-	J/UJ	2

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
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- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; to the National Functional Guidelines for Organic Data Review, and DQO Level IV. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 53167

Holding Times

All extraction and analysis holding times for all samples were met for all samples per the SOW and National Functional Guidelines. No qualifications are required.

Tuning

All of the DFTPP tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibration that was analyzed by the laboratory for these samples was acceptable for all compound %RSDs and average RRFs. No qualifications are required.

Continuing Calibrations

The continuing calibrations that were analyzed all of the criteria and non criteria compounds met requirements for RRFs. Qualifications are required for compounds with non compliant %Ds.

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 2

Continuing Calibrations (continued)

Specific Findings:

1. The continuing calibration, REA050RBS, contained compounds with %Ds greater than 25% D but less than 50% D. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J).

SBLK5S	2,4-dinitrophenol
IDW01	pentachlorophenol
IDW01MS	
IDW01MSD	

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blank that was analyzed exhibited contamination for bis(2-ethylhexyl)phthalate. The method blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action.

Specific Finding:

2. The samples listed below have been qualified for method blank contamination. Qualification are for all method blanks.

IDW01	bis(2-ethylhexyl)	U
IDW01MS	phthalate	
IDW01MSD	bis(2-ethylhexyl)	CRQL
	phthalate	

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 3

Rinseate Blanks

The associated rinseate blank was not identified for this SDG. No qualifications are required.

Field Blanks

The associated field blank was not identified for this SDG. No qualifications are required.

Surrogates

Surrogate recoveries for all samples and blanks met QA/QC criteria. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate

All spike and RPD recoveries were not within advisory limits for MS/MSD IDW01. The MS/MSD exhibited low spike recoveries for all of the spike compounds in the MSD sample, and all of the RPDs were out high. No qualifications are required.

Field Duplicates

No qualifications are required.

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

Overall performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates less than 10% of data required qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
SBLK5S IDW01 IDW01MS IDW01MSD	2,4-dinitrophenol pentachlorophenol	+	J	1
IDW01 IDW01MS	bis(2-ethylhexyl) phthalate	+	U	2
IDW01MSD	bis(2-ethylhexyl) phthalate	+	CRQL	2

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLOR ANALYSIS

General

The organic findings offered in this screening report assume that all analytical results are correct as reported and are based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

Laboratory SDG # 53167

Contractual Non-Compliance

The laboratory did not report blank spike results or present them on statistically developed Control Charts as required by the NEESA protocol.

Holding Times

All extraction and analysis holding times were met.

GC Instrument Performance

The resolution requirements were met on both columns in the sequence. All pertinent surrogate retention times were within the established RTWs. The percent breakdown for Endrin and DDT were within the QC limit on both columns in the sequence. All PEM RPDs were within the QC limit on both columns.

Initial Calibrations

The initial calibrations were acceptably linear for all compounds. No qualifications were required.

Continuing Calibrations

All compounds in the calibration standards were within the laboratory reported Retention Time Windows (RTWs) for all columns. No continuing calibration standards associated with the reported samples exhibited relative percent differences, RPDs, above the QC limits. No qualifications were required.

**Data Assessment Narrative
Pesticide/Aroclor**

Page 2

Method Blanks

The Method Blanks did not contain any confirmed peaks within the retention times of the target compounds. No qualifications were required.

Equipment Rinseate and Field Blanks

The field blank sample IDW01, did not exhibit contamination for target compounds.

Florisil/GPC Checks

The Florisil cartridge check exhibited acceptable spike recoveries for all compounds. The raw data for the check standard was present in the package. The GPC Calibration check was not required for these water samples.

Surrogate Recoveries

The field sample and the MS/MSD pair exhibited non-compliant DCB recoveries. All TCMX recoveries were within QC limits.

Specific Finding

1. The following samples exhibited DCB recoveries which were below the QC limits. All positive results are qualified as estimated, J, and all non-detect results are qualified as estimated, UJ.

1DW01

Matrix Spike/Matrix Spike Duplicate

The MS/MSD pair of sample 1DW01 exhibited acceptable recoveries and RPDs for all compounds. No qualifications were required.

Analyte Identification/Quantitation

There were no positive results reported in the sample. Identification and quantitation appear reasonable based on sample and standard review. The quantitation was verified.

**Data Assessment Narrative
Pesticide/Aroclor**

Page 3

Overall Assessment

The overall quality of the data package is good. The reported results are accepted as reported by the laboratory with the noted qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF PESTICIDE/AROCLOR DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
1DW01	All	+ /U	J/UJ	1

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier(s) used by the data validation firm
- + in the DL column denotes a positive result
- _ in the DL column denotes a non-detect result

ANNOTATED FORMS

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB01

Lab Name: AQUATEC INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix: (soil/water) WATER

Lab Sample ID: 268004

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: L268004V.D

Level: (low/med) LOW

Date Received: 08/18/95

% Moisture: not dec. _____

Date Analyzed: 08/22/95

GC Column: CAP ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	2	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	2	J
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

Handwritten signature

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TB01

Lab Name: AQUATEC INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix: (soil/water) WATER

Lab Sample ID: 268004

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: L268004V.D

Level: (low/med) LOW

Date Received: 08/18/95

% Moisture: not dec. _____

Date Analyzed: 08/22/95

GC Column: CAP ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
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16.				
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18.				
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21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix: (soil/water) WATER

Lab Sample ID: 268003

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: L268003V.D

Level: (low/med) LOW

Date Received: 08/18/95

% Moisture: not dec. _____

Date Analyzed: 08/24/95

GC Column: CAP ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	32	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	17	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

Handwritten mark: 052

Handwritten signature/initials

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

IDW01

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix: (soil/water) WATER

Lab Sample ID: 268003

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: L268003V.D

Level: (low/med) LOW

Date Received: 08/18/95

% Moisture: not dec. _____

Date Analyzed: 08/24/95

GC Column: CAP ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
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Handwritten signature

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01MS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 53167

Matrix: (soil/water) WATER Lab Sample ID: 268003MS

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: L268003MSV.D

Level: (low/med) LOW Date Received: 08/18/95

% Moisture: not dec. _____ Date Analyzed: 08/24/95

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	54	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	31	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	70	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	55	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	53	U
108-90-7	Chlorobenzene	54	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01MSD

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix: (soil/water) WATER

Lab Sample ID: 268003MD

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: L268003MDV.D

Level: (low/med) LOW

Date Received: 08/18/95

% Moisture: not dec. _____

Date Analyzed: 08/24/95

GC Column: CAP ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	56	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	31	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	71	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	55	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	55	U
108-90-7	Chlorobenzene	55	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

252

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01

Lab Name: AQUATEC, INC.

Contract: 95000

) Lab Code: AQUAI Case No.: 95000 SAS No.: . SDG No.: 53167

Matrix: (soil/water) WATER

Lab Sample ID: 268003

Sample wt/vol: 1002 (g/mL) ML

Lab File ID: R268003S.D

Level: (low/med) LOW

Date Received: 08/18/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 08/18/95

Concentrated Extract Volume: 1000 (UL)

Date Analyzed: 08/22/95

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl) Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

YH
10/28/95

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix: (soil/water) WATER

Lab Sample ID: 268003

Sample wt/vol: 1002 (g/mL) ML

Lab File ID: R268003S.D

Level: (low/med) LOW

Date Received: 08/18/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 08/18/95

Concentrated Extract Volume: 1000 (UL)

Date Analyzed: 08/22/95

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	11	U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

IDW01

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix: (soil/water) WATER

Lab Sample ID: 268003

Sample wt/vol: 1002 (g/mL) ML

Lab File ID: R268003S.D

Level: (low/med) LOW

Date Received: 08/18/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 08/18/95

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 08/22/95

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 8

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown alkane	7.143	5	<div style="display: flex; align-items: center;"> <div style="font-size: 2em; margin-right: 5px;">/</div> <div style="font-size: 0.8em; line-height: 1;"> 11111111 22222222 33333333 44444444 55555555 66666666 77777777 88888888 99999999 00000000 </div> </div>
2.	Unknown alkane	8.011	5	
3.	Unknown alkane	8.209	2	
4.	Unknown alkane	8.743	4	
5.	Unknown alkane	10.392	2	
6.	Unknown alkane	10.895	6	
7.	Unknown alkane	11.793	3	
8. 10544-50-0	Sulfur, mol. (S8)	14.227	2	
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JH WOOD

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01MS

Lab Name: AQUATEC, INC. Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 53167

Matrix: (soil/water) WATER Lab Sample ID: 268003MS

Sample wt/vol: 495 (g/mL) ML Lab File ID: R268003MSS.D

Level: (low/med) LOW Date Received: 08/18/95

% Moisture: _____ decanted: (Y/N) _____ Date Extracted: 08/18/95

Concentrated Extract Volume: 500 (UL) Date Analyzed: 08/22/95

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	60	
111-44-4	bis(-2-Chloroethyl) Ether	10	U
95-57-8	2-Chlorophenol	61	
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	41	
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	42	
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	47	
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	65	
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	44	

3/90
027

JG 7/20/95

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01MS

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix: (soil/water) WATER

Lab Sample ID: 268003MS

Sample wt/vol: 495 (g/mL) ML

Lab File ID: R268003MSS.D

Level: (low/med) LOW

Date Received: 08/18/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 08/18/95

Concentrated Extract Volume: 500 (UL)

Date Analyzed: 08/22/95

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	68	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	47	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	100	E
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	41	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	14	U 2
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

DH 10/95

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01MSD

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix: (soil/water) WATER

Lab Sample ID: 268003MD

Sample wt/vol: 480 (g/mL) ML

Lab File ID: R268003MDS.D

Level: (low/med) LOW

Date Received: 08/18/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 08/18/95

Concentrated Extract Volume: 500 (UL)

Date Analyzed: 08/22/95

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	32	
111-44-4	bis(-2-Chloroethyl) Ether	10	U
95-57-8	2-Chlorophenol	31	
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	20	
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	21	
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	23	
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	31	
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	22	

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01MSD

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix: (soil/water) WATER

Lab Sample ID: 268003MD

Sample wt/vol: 480 (g/mL) ML

Lab File ID: R268003MDS.D

Level: (low/med) LOW

Date Received: 08/18/95

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 08/18/95

Concentrated Extract Volume: 500 (UL)

Date Analyzed: 08/22/95

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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51-28-5-----	2,4-Dinitrophenol	26	U
100-02-7-----	4-Nitrophenol	24	J
132-64-9-----	Dibenzofuran	10	U
121-14-2-----	2,4-Dinitrotoluene	23	
84-66-2-----	Diethylphthalate	10	U
7005-72-3-----	4-Chlorophenyl-phenylether	10	U
86-73-7-----	Fluorene	10	U
100-01-6-----	4-Nitroaniline	26	U
534-52-1-----	4,6-Dinitro-2-methylphenol	26	U
86-30-6-----	N-nitrosodiphenylamine (1)	10	U
101-55-3-----	4-Bromophenyl-phenylether	10	U
118-74-1-----	Hexachlorobenzene	10	U
87-86-5-----	Pentachlorophenol	37	
85-01-8-----	Phenanthrene	10	U
120-12-7-----	Anthracene	10	U
86-74-8-----	Carbazole	10	U
84-74-2-----	Di-n-butylphthalate	10	U
206-44-0-----	Fluoranthene	10	U
129-00-0-----	Pyrene	20	
85-68-7-----	Butylbenzylphthalate	10	U
91-94-1-----	3,3'-Dichlorobenzidine	10	U
56-55-3-----	Benzo(a)anthracene	10	U
218-01-9-----	Chrysene	10	U
117-81-7-----	bis(2-Ethylhexyl)phthalate	10	U
117-84-0-----	Di-n-octylphthalate	10	U
205-99-2-----	Benzo(b)fluoranthene	10	U
207-08-9-----	Benzo(k)fluoranthene	10	U
50-32-8-----	Benzo(a)pyrene	10	U
193-39-5-----	Indeno(1,2,3-cd)pyrene	10	U
53-70-3-----	Dibenz(a,h)anthracene	10	U
191-24-2-----	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

JH

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01

Name: AQUATEC INC Contract: 95000
 Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 53167
 Matrix: (soil/water) WATER Lab Sample ID: 268003
 Sample wt/vol: 900.0 (g/mL) ML Lab File ID:
 % Moisture: decanted: (Y/N) Date Received: 08/18/95
 Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 08/18/95
 Concentrated Extract Volume: 10000 (uL) Date Analyzed: 09/02/95
 Injection Volume: 1.00 (uL) Dilution Factor: 1.00
 GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO. COMPOUND Q

319-84-6	alpha-BHC	0.056	U
319-85-7	beta-BHC	0.056	U
319-86-8	delta-BHC	0.056	U
58-89-9	gamma-BHC (Lindane)	0.056	U
76-44-8	Heptachlor	0.056	U
309-00-2	Aldrin	0.056	U
1024-57-3	Heptachlor epoxide	0.056	U
959-98-8	Endosulfan I	0.056	U
60-57-1	Dieldrin	0.11	U
72-55-9	4,4'-DDE	0.11	U
72-20-8	Endrin	0.11	U
33213-65-9	Endosulfan II	0.11	U
72-54-8	4,4'-DDD	0.11	U
1031-07-8	Endosulfan sulfate	0.11	U
50-29-3	4,4'-DDT	0.11	U
72-43-5	Methoxychlor	0.56	U
53494-70-5	Endrin ketone	0.11	U
7421-93-4	Endrin aldehyde	0.11	U
5103-71-9	alpha-Chlordane	0.056	U
5103-74-2	gamma-Chlordane	0.056	U
8001-35-2	Toxaphene	5.6	U
12674-11-2	Aroclor-1016	1.1	U
11104-28-2	Aroclor-1221	2.2	U
11141-16-5	Aroclor-1232	1.1	U
53469-21-9	Aroclor-1242	1.1	U
12672-29-6	Aroclor-1248	1.1	U
11097-69-1	Aroclor-1254	1.1	U
11096-82-5	Aroclor-1260	1.1	U

OC
10/4/95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01MS

Name: AQUATEC INC

Contract: 95000

Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 53167

Matrix: (soil/water) WATER Lab Sample ID: 268003MS

Sample wt/vol: 481.0 (g/mL) ML Lab File ID:

% Moisture: decanted: (Y/N) Date Received: 08/18/95

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 08/18/95

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 09/02/95

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.052	U
319-85-7	beta-BHC	0.052	U
319-86-8	delta-BHC	0.052	U
58-89-9	gamma-BHC (Lindane)	0.78	
76-44-8	Heptachlor	0.67	B
309-00-2	Aldrin	0.64	
1024-57-3	Heptachlor epoxide	0.052	U
959-98-8	Endosulfan I	0.052	U
60-57-1	Dieldrin	1.5	
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	1.4	
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	1.2	
72-43-5	Methoxychlor	0.52	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.052	U
5103-74-2	gamma-Chlordane	0.052	U
8001-35-2	Toxaphene	5.2	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.1	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

JAC
10/19/95

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

IDW01MSD

I Name: AQUATEC INC Contract: 95000
 Lab Code: AQUAI Case No.: 95000 SAS No.: SDG No.: 53167
 Matrix: (soil/water) WATER Lab Sample ID: 268003MD
 Sample wt/vol: 463.0 (g/mL) ML Lab File ID:
 % Moisture: decanted: (Y/N) Date Received: 08/18/95
 Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 08/18/95
 Concentrated Extract Volume: 5000 (uL) Date Analyzed: 09/02/95
 Injection Volume: 1.00 (uL) Dilution Factor: 1.00
 GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO. COMPOUND Q

319-84-6-----alpha-BHC	0.054	U
319-85-7-----beta-BHC	0.054	U
319-86-8-----delta-BHC	0.054	U
58-89-9-----gamma-BHC (Lindane)	0.91	
76-44-8-----Heptachlor	0.79	B
309-00-2-----Aldrin	0.75	
1024-57-3-----Heptachlor epoxide	0.054	U
959-98-8-----Endosulfan I	0.054	U
60-57-1-----Dieldrin	1.7	
72-55-9-----4,4'-DDE	0.11	U
72-20-8-----Endrin	1.7	
33213-65-9-----Endosulfan II	0.11	U
72-54-8-----4,4'-DDD	0.11	U
1031-07-8-----Endosulfan sulfate	0.11	U
50-29-3-----4,4'-DDT	1.3	
72-43-5-----Methoxychlor	0.54	U
53494-70-5-----Endrin ketone	0.11	U
7421-93-4-----Endrin aldehyde	0.11	U
5103-71-9-----alpha-Chlordane	0.054	U
5103-74-2-----gamma-Chlordane	0.054	U
8001-35-2-----Toxaphene	5.4	U
12674-11-2-----Aroclor-1016	1.1	U
11104-28-2-----Aroclor-1221	2.2	U
11141-16-5-----Aroclor-1232	1.1	U
53469-21-9-----Aroclor-1242	1.1	U
12672-29-6-----Aroclor-1248	1.1	U
11097-69-1-----Aroclor-1254	1.1	U
11096-82-5-----Aroclor-1260	1.1	U

JAC
10/19/95

DATA VALIDATION WORKSHEETS

MULTI-MEDIA VOLATILE ORGANIC FRACTION

CASE NUMBER: 95000 SDG NUMBER: 53167

LABORATORY: AQUATEC INC.

CLIENT: Baker PROJECT: OTO-323

REVIEWER: [Signature] DATE: 10-08-95

QA/QC LEVEL

- NEESA C
- NEESA D
- DQO LEVEL III
- DQO LEVEL IV
- _____

Statement Of Work (SOW)

- CLP 3/90
- CLP 2/88
- SW846 8240
- SW846 8240 Appendix IX
- _____

ANALYSIS MODIFICATIONS: NONE

GC/MS TUNING AND INITIAL MASS CALIBRATION
VOLATILE ORGANIC ANALYSIS

EPA SAMPLE ID.	Action	EPA SAMPLE ID.	Action
1.		10.	
2.		11.	
3.		12.	
4.		13.	
5.		14.	
6.		15.	
7.		16.	
8.		17.	
9.		18.	

A. BFB GC/MS Tuning

File ID: LDPO06A Injection Date: 08/21/95

Instrument ID: L -Injection Time: 14:11 Heated: Y N

- Is the BFB GC/MS Tune acceptable? Yes No
- Were all the standards, samples, blanks, and QC samples analyzed within 12 hours of the injection of the BFB solution? Yes No

B. Calibration

- Date(s) of calibration: 08/21/95
 RRF010 File ID: LDQ010HV
 RRF020 File ID: 201HV
 RRF050 File ID: 50EIV
 RRF100 File ID: 100HV
 RRF200 File ID: 200HV

**GC/MS TUNING AND INITIAL MASS CALIBRATION
VOLATILE ORGANIC FRACTION**

2. Performance Check

- a. All compounds with minimum average RRF criteria are within the CLP guidelines? Yes No

If no, enter the laboratory average RRF. If a compound has an average RRF less than 0.05, for samples analyzed within the initial calibration tuning period, qualify positive results as estimated (J) and reject (R) non detect results.

- b. All compounds with maximum %RSD criteria are within the CLP guidelines? Yes No

If no, enter the laboratory %RSD. For the samples analyzed within the initial calibration tuning period, qualify positive results for that analyte as estimated (J). Non detects may be qualified using professional judgement with an explanation in the case narrative/data assessment.

COMPOUND	MIN RRF	LAB RRF	MAX %RSD	LAB %RSD	QA
chloromethane	0.050		30.0		
bromomethane	0.100		30.0		
vinyl chloride	0.100		30.0		
chloroethane	0.050		30.0		
methylene chloride	0.050		30.0		
acetone	0.050		30.0		
carbon disulfide	0.050		30.0		
1,1-dichloroethene	0.100		30.0		
1,1-dichloroethane	0.200		30.0		
1,2-dichloroethene (total)	0.050		30.0		
chloroform	0.200		30.0		
1,2-dichloroethane	0.100		30.0		

**GC/MS TUNING AND INITIAL MASS CALIBRATION
VOLATILE ORGANIC FRACTION**

COMPOUND	MIN RRF	LAB RRF	MAX %RSD	LAB %RSD	QA
2-butanone	0.050		30.0		
1,1,1-trichloroethane	0.100		30.0		
carbon tetrachloride	0.100		30.0		
bromodichloromethane	0.200		30.0		
1,2-dichloropropane	0.050		30.0		
cis-1,3-dichloropropene	0.200		30.0		
trichloroethene	0.300		30.0		
dibromochloromethane	0.100		30.0		
1,1,2-trichloroethane	0.100		30.0		
benzene	0.500		30.0		
trans-1,3-dichloropropene	0.100		30.0		
bromoform	0.100		30.0		
4-methyl-2-pentanone	0.050		30.0		
2-hexanone	0.050		30.0		
tetrachloroethene	0.200		30.0		
1,1,2,2-tetrachloroethane	0.500		30.0		
toluene	0.400		30.0		
chlorobenzene	0.500		30.0		
ethylbenzene	0.100		30.0		
styrene	0.300		30.0		
xylene (total)	0.300		30.0		
toluene-d ₈	0.050		30.0		
bromofluorobenzene	0.200		30.0		
1,2-dichloroethane-d ₄	0.050		30.0		

**GC/MS TUNING AND INITIAL MASS CALIBRATION
VOLATILE ORGANIC FRACTION**

3. Calculations:

- c. Calculate the RRF of one of the standards for one of the compounds used in the initial calibration. Enter the compound name used in the calculation.

Compound Name: vinyl chloride

Lab Value: 1.370

$$\frac{\cancel{80584} (50)}{293976 (50)} = 1.370$$

- d. Calculate the %RSD of one of the compounds used in the initial calibration. Enter the compound name used in the calculation.

Compound Name: benzene

Lab Value: 3.6

$$SD = 0.039 \quad \frac{0.039}{1.060} \times 100 = 3.6$$

$$\bar{x} = 1.060$$

**GC/MS TUNING AND CONTINUING MASS CALIBRATION
VOLATILE ORGANIC FRACTION**

EPA SAMPLE ID.	Action	EPA SAMPLE ID.	Action
1. VBKCS		11.	
2. TBOI		12.	
3.		13.	
4.		14.	
5.		15.	
6.		16.	
7.		17.	
8.		18.	
9.		19.	
10.		20.	

A. BFB GC/MS Tuning

File ID: LD0001PV Injection Date: 08/22/95

Instrument ID: L Injection Time: 20:04 Heated: Y N

- Is the BFB GC/MS Tune acceptable? Yes No
- Were all the standards, samples, blanks, and QC samples analyzed within 12 hours of the injection of the BFB solution? Yes No

B. Calibration

1. Date of calibration: 08/22/95
 RRF050 File ID: LD00504HV
 Date(s) of Initial Calibration: 08/21/95

**GC/MS TUNING AND CONTINUING MASS CALIBRATION
VOLATILE ORGANIC FRACTION**

2. Performance Check

- a. All compounds with minimum RRF criteria are within the CLP guidelines Yes No

If no, enter the laboratory RRF. If a compound has a RRF less than 0.05, for samples analyzed within the continuing calibration tuning period, qualify positive results as estimated (J) and reject (R) non detect results.

- b. All compounds with maximum %D criteria are within the CLP guidelines: Yes No

If no, enter the laboratory %D. For the non compliant compounds, qualify all positive values as estimated (J) and non detects may be qualified using professional judgement with an explanation in the case narrative/data assessment.

COMPOUND	MIN RRF	LAB RRF	MAX %D	LAB %D	QA
chloromethane	0.050		25.0		
bromomethane	0.100		25.0		
vinyl chloride	0.100		25.0		
chloroethane	0.050		25.0		
methylene chloride	0.050		25.0		
acetone	0.050		25.0		
carbon disulfide	0.050		25.0		
1,1-dichloroethene	0.100		25.0		
1,1-dichloroethane	0.200		25.0		
1,2-dichloroethene (total)	0.050		25.0		
chloroform	0.200		25.0		
1,2-dichloroethane	0.100		25.0		

**GC/MS TUNING AND CONTINUING MASS CALIBRATION
VOLATILE ORGANIC FRACTION**

COMPOUND	MIN RRF	LAB RRF	MAX %D	LAB %D	QA
2-butanone	0.050		25.0		
1,1,1-trichloroethane	0.100		25.0		
carbon tetrachloride	0.100		25.0		
bromodichloromethane	0.200		25.0		
1,2-dichloropropane	0.050		25.0		
cis-1,3-dichloropropene	0.200		25.0		
trichloroethene	0.300		25.0		
dibromochloromethane	0.100		25.0		
1,1,2-trichloroethane	0.100		25.0		
benzene	0.500		25.0		
trans-1,3-dichloropropene	0.100		25.0		
bromoform	0.100		25.0		
4-methyl-2-pentanone	0.050		25.0		
2-hexanone	0.050		25.0		
tetrachlorethene	0.200		25.0		
1,1,2,2-tetrachloroethane	0.500		25.0		
toluene	0.400		25.0		
chlorobenzene	0.500		25.0		
ethylbenzene	0.100		25.0		
styrene	0.300		25.0		
xylene (total)	0.300		25.0		
toluene-d ₈	0.050		25.0		
bromofluorobenzene	0.200		25.0		
1,2-dichloroethane-d ₄	0.050		25.0		

GC/MS TUNING AND CONTINUING MASS CALIBRATION
VOLATILE ORGANIC FRACTION

3. Calculations

- c. Calculate the RRF for one compound. Enter the compound name used in the calculation.

Compound Name: chloroform

Lab Value: 3.318

$$\frac{89332(50)}{269198(50)} = 3.318$$

- d. Calculate the %D of one of the compounds used in the continuing calibration. Enter the compound name used in the calculation.

Compound Name: toluene

Lab Value: -1.1

$$\frac{1.389 - 1.405}{1.389} \times 100 = -1.1$$

**GC/MS TUNING AND CONTINUING MASS CALIBRATION
VOLATILE ORGANIC FRACTION**

EPA SAMPLE ID.	Action	EPA SAMPLE ID.	Action
1. VBIKD3		11.	
2. IDW01		12.	
3. IDW01M5		13.	
4. IDW01MSD		14.	
5.		15.	
6.		16.	
7.		17.	
8.		18.	
9.		19.	
10.		20.	

A. BFB GC/MS Tuning

File ID: LDQ002PV Injection Date: 08/24/95
 Instrument ID: L Injection Time: 08:56 Heated: Y N

- Is the BFB GC/MS Tune acceptable? Yes No
- Were all the standards, samples, blanks, and QC samples analyzed within 12 hours of the injection of the BFB solution? Yes No

B. Calibration

1. Date of calibration: 08/24/95
 RRF050 File ID: LDQ050BHV
 Date(s) of Initial Calibration: 08/24/95

**GC/MS TUNING AND CONTINUING MASS CALIBRATION
VOLATILE ORGANIC FRACTION**

2. Performance Check

- a. All compounds with minimum RRF criteria are within the CLP guidelines

Yes No

If no, enter the laboratory RRF. If a compound has a RRF less than 0.05, for samples analyzed within the continuing calibration tuning period, qualify positive results as estimated (J) and reject (R) non detect results.

- b. All compounds with maximum %D criteria are within the CLP guidelines:

Yes No

If no, enter the laboratory %D. For the non compliant compounds, qualify all positive values as estimated (J) and non detects may be qualified using professional judgement with an explanation in the case narrative/data assessment.

COMPOUND	MIN RRF	LAB RRF	MAX %D	LAB %D	QA
chloromethane	0.050		25.0		
bromomethane	0.100		25.0		
vinyl chloride	0.100		25.0		
chloroethane	0.050		25.0		
methylene chloride	0.050		25.0		
acetone	0.050		25.0	154.8	JOS
carbon disulfide	0.050		25.0		
1,1-dichloroethene	0.100		25.0		
1,1-dichloroethane	0.200		25.0		
1,2-dichloroethene (total)	0.050		25.0		
chloroform	0.200		25.0		
1,2-dichloroethane	0.100		25.0		

**GC/MS TUNING AND CONTINUING MASS CALIBRATION
VOLATILE ORGANIC FRACTION**

COMPOUND	MIN RRF	LAB RRF	MAX %D	LAB %D	QA
2-butanone	0.050		25.0		
1,1,1-trichloroethane	0.100		25.0	-31.1	J
carbon tetrachloride	0.100		25.0		
bromodichloromethane	0.200		25.0		
1,2-dichloropropane	0.050		25.0		
cis-1,3-dichloropropene	0.200		25.0		
trichloroethene	0.300		25.0		
dibromochloromethane	0.100		25.0		
1,1,2-trichloroethane	0.100		25.0		
benzene	0.500		25.0		
trans-1,3-dichloropropene	0.100		25.0		
bromoform	0.100		25.0		
4-methyl-2-pentanone	0.050		25.0		
2-hexanone	0.050		25.0		
tetrachlorethene	0.200		25.0		
1,1,2,2-tetrachloroethane	0.500		25.0		
toluene	0.400		25.0		
chlorobenzene	0.500		25.0		
ethylbenzene	0.100		25.0		
styrene	0.300		25.0		
xylenes (total)	0.300		25.0		
toluene-d ₈	0.050		25.0		
bromofluorobenzene	0.200		25.0		
1,2-dichloroethane-d ₄	0.050		25.0		

GC/MS TUNING AND CONTINUING MASS CALIBRATION
VOLATILE ORGANIC FRACTION

3. Calculations

- c. Calculate the RRF for one compound. Enter the compound name used in the calculation.

Compound Name: ChlorobenzeneLab Value: 0.930

$$\frac{1202193 (50)}{1293168 (50)} = 0.930$$

- d. Calculate the %D of one of the compounds used in the continuing calibration. Enter the compound name used in the calculation.

Compound Name: benzeneLab Value: 3.3

$$\frac{1,060 - 1,028}{1,060} \times 100 = 3.3$$

**INTERNAL STANDARD AREA SUMMARY
VOLATILE ORGANIC FRACTION**

1. Is the EICP area for each internal standard in all associated field samples, QC samples, and blanks within - 50% and + 100% of the respective internal standard EICP areas? Yes No

If the EICP area of one (1) or more internal standard is less than -50%:

- Positive results for those compounds that are quantified using the particular internal standard are flagged as estimated (J).
- Non detected for that fraction are flagged with the sample quantitation limit classified as estimated (UJ).

If the EICP area of one (1) or more internal standards is greater than + 100%:

- Positive results for those compounds that are quantified using the particular internal standard are flagged as estimated (J).

If no, list non-compliant sample IDs and areas below.

Standard ID: All STDs

	BCM	RT	1,4-DFB	RT	CBZ-d ₅	RT
12-HOUR STD						
UPPER LIMIT						
LOWER LIMIT						
EPA SAMPLE NO.	<i>100891</i>					

**BLANK SUMMARY
VOLATILE ORGANIC FRACTION**

1. Blank qualification guidelines:

- a) If a compound is found in the blank but not in the sample, no action is taken.
- b) Any compound (other than the four (4) listed below) detected in the sample, which was also detected in the associated blank, must be qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than five (5) times the blank concentration. For the following four (4) compounds, the results are qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than ten (10) times the blank concentration.

Common laboratory contaminants: methylene chloride
 acetone
 2-butanone

- c) The reviewer should take note that the blank analysis may not involve the same weights, volumes or dilution factors as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria.
- d) In addition, the reviewer must review the trip blanks, rinseate blanks and field blanks (if they were submitted with the data package) and all associated samples. Apply the same data validation guidelines used in assessing the method blanks.
- e) Qualification/Action codes:

U - The sample result is greater than the CRQL and less than ten times (10X) the blank value. Cross out the "B" flag and qualify the sample result with a "U".

CRQL - The sample result is less than the CRQL and less than ten times (10X) the blank value. Reject the sample result, cross out the "B" flag, and report the CRQL.

No Action - The sample result is greater than the CRQL and greater than ten times (10X) the blank value.

BLANK SUMMARY - TCL SUMMARY
VOLATILE ORGANIC FRACTION

Method Blank Trip Blank Rinseate Blank Field Blank Other

Sample ID: VBKCS File ID: LDQBOU1AV

COMPOUND	CONCENTRATION	CRQL

EPA SAMPLE ID				
TB01				

Blank

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKC9

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Lab File ID: LDQB001AV.D

Lab Sample ID: VBLKC9

Date Analyzed: 08/22/95

Time Analyzed: 2036

GC Column: CAP

ID: 0.53 (mm)

Heated Purge: (Y/N) N

Instrument ID: L

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
	=====	=====	=====	=====
01	TB01	268004	L268004V.D	2244
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

BLANK SUMMARY - TCL SUMMARY
VOLATILE ORGANIC FRACTION

Method Blank Trip Blank Rinseate Blank Field Blank Other

Sample ID: VB1KD3

File ID: CD 0300 131

COMPOUND	CONCENTRATION	CRQL

EPA SAMPLE ID				
ID W01				
↓ MS				
↓ MSD				

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKD3

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Lab File ID: LDQB001BV.D

Lab Sample ID: VBLKD3

Date Analyzed: 08/24/95

Time Analyzed: 0958

GC Column: CAP

ID: 0.53 (mm)

Heated Purge: (Y/N) N

Instrument ID: L

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	IDW01	268003	L268003V.D	1636
02	IDW01MS	268003MS	L268003MSV.D	1652
03	IDW01MSD	268003MD	L268003MDV.D	1722
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
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25				
26				
27				
28				
29				
30				

COMMENTS:

BLANK SUMMARY - TCL SUMMARY
VOLATILE ORGANIC FRACTION

Method Blank Trip Blank Rinseate Blank Field Blank Other

Sample ID: TB01

File ID: L268004V

COMPOUND	CONCENTRATION	CRQL
Chloroform	25	10
benzene	25	10

EPA SAMPLE ID			

~~25~~ 10-09

**SURROGATE RECOVERY SUMMARY
VOLATILE ORGANIC FRACTION**

1. Did all the surrogate recoveries for the blanks, QC samples, and field samples meet the acceptance criteria? Yes No

If no, list all the samples and their respective surrogate recoveries that do not meet QA/QC criteria.

EPA SAMPLE NO.	TOL-d ₈	BFB	DCE-d ₄	QUALIFACATION

RECOVERY LIMITS

		<u>WATER</u>	<u>SOIL</u>
toluene-d ₈	(TOL-d ₈)	88-110	84-138
bromofluorobenzene	(BFB)	86-115	59-113
1,2-dichloroethane-d ₄	(DCE-d ₄)	76-114	70-121

NOTE: D - denotes that surrogate was diluted out.

Comments: _____

2A
 WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

	EPA SAMPLE NO.	SMC1 (TOL) #	SMC2 (BFB) #	SMC3 (DCE) #	OTHER	TOT OUT
01	VBLKC9	99	102	97		0
02	TB01	102	103	97		0
03	VBLKD3	100	101	93		0
04	IDW01	97	99	91		0
05	IDW01MS	94	97	90		0
06	IDW01MSD	100	101	94		0
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
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25						
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27						
28						
29						
30						

QC LIMITS

SMC1 (TOL) = Toluene-d8 (88-110)
 SMC2 (BFB) = Bromofluorobenzene (86-115)
 SMC3 (DCE) = 1,2-Dichloroethane-d4 (76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

**MATRIX SPIKE/ MATRIX SPIKE DUPLICATE SUMMARY
VOLATILE ORGANIC FRACTION**

Sample ID: EDW01

Purge: heated non heated

Advisory Limits for Spike Recoveries:

	<u>Water</u>	<u>Max RPD</u>	<u>Soil</u>	<u>Max RPD</u>
1,1,-Dichloroethene	61-145	14	59-172	22
Trichloroethene	71-120	14	62-137	24
Benzene	76-127	11	66-142	21
Toluene	76-125	13	59-139	21
Chlorobenzene	75-130	13	60-133	21

1. Were the percent recoveries and the RPDs in compliance with the advisory limits?

Yes No

If no, list the non compliant MS/MSD information below as applicable.

COMPOUND	MS %REC.	MSD %REC.	RPD	QUALIFICATION
1,1-dichloroethene				
trichloroethene				
benzene				
toluene				
chlorobenzene				

MS/MSD 10/05/18

* - denotes non-compliant % Recoveries or %RPD

Comments: _____

3A
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix Spike - EPA Sample No.: IDW01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	0	54	108	61-145
Trichloroethene	50	17	70	106	71-120
Benzene	50	0	55	110	76-127
Toluene	50	0	53	106	76-125
Chlorobenzene	50	0	54	108	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	50	56	112	4	14	61-145
Trichloroethene	50	71	108	2	14	71-120
Benzene	50	55	110	0	11	76-127
Toluene	50	55	110	4	13	76-125
Chlorobenzene	50	55	110	2	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

FIELD DUPLICATE SAMPLE SUMMARY
VOLATILE ORGANIC FRACTION

Sample ID: NO DUP Duplicate Sample ID: _____

Matrix: aqueous / non aqueous Units: ug/L ug/Kg

Compound Name	Sample Concentration	Duplicate Concentration	RPD	Action

Water RPDs < 20% RPD

Soil RPDs < 35% RPD

Comments: _____

HEARTLAND ESI VOA 18

HESI94.1

SAMPLE CALUCULATION
VOLATILE ORGANIC FRACTION

EPA SAMPLE ID: FDW01

COMPOUND: Trichloro ethene

CONCENTRATION: 17

UNITS: $\mu\text{g/L}$ $\mu\text{g/Kg}$

~~90~~

() (5)

EPA SAMPLE ID.: <u>FDW01</u>		STD. ID.:
COMPOUND	RRT	STD. RRT
<u>trichloro ethene</u>		

**SAMPLE RESULT VERIFICATION
VOLATILE ORGANIC FRACTION**

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Were the percent moistures reported? Yes No **NR**
- 3. Were the data reported on a dry weight basis? Yes No **NR**
- 4. Did the GC/MS RIC and TIC exhibit interferences, off scale peaks or elevated baseline? Yes **No**
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes **No**
- 6. Were any computational or transcription errors found? Yes **No**

Specific Comments: _____

Reviewer: Daniel J. Hill AVP

Date: 10/1/08

MULTI-MEDIA SEMIVOLATILE ORGANIC FRACTION

CASE NUMBER: 95000 SDG NUMBER: 53/67

LABORATORY: AQUATEC, INC.

CLIENT: Baker PROJECT: OTO-323

REVIEWER: DJH DATE: 100598

QA/QC LEVEL

- NEESA C
- NEESA D
- DQO LEVEL III
- DQO LEVEL IV
- _____

Statement Of Work (SOW)

- CLP 3/90
- CLP 2/88
- SW846 8270
- SW846 8270 Appendix IX
- _____

NONE

ANALYSIS MODIFICATIONS: _____

SEMIVOLATILE HOLDING TIMES

	<u>Water</u>	<u>soil</u>	<u>Analysis</u>
CLP:	7 days from sampling	14 days from sampling	40 days from VTSR
SW846:	7 days from sampling	14 days from sampling	40 days from VTSR
Region I:	5 days from VTSR	7 days from VTSR	40 days from VTSR
Region III:	7 days from sampling	7 days from sampling	40 days from VTSR
NYSDEC:	5 days form VTSR	5 days from VTSR	40 days From VTSR

1. Were the holding times met for the all semivolatle samples? YES NO

If yes, complete the following form for all samples that exceeded holding times.

EPA SAMPLE NO.	MATRIX	VTSR OR DATE SAMPLED	DATE OF EXTRACTION / ANALYSIS	DA	Action

- Action:** DA - The number of days that the holding time was exceeded.
- DA ≤ 5: Qualify all positive results as estimated (J).
- DA > 5 ≤ 15: Qualify all positive results as estimated (J) and all non detects estimated (UJ).
- DA > 15: Qualify all positive results estimated (J) and reject all non detects.

GC/MS TUNING AND INITIAL MASS CALIBRATION
SEMIVOLATILE ORGANIC FRACTION

EPA SAMPLE ID.	Action	EPA SAMPLE ID.	Action
1.		10.	
2.		11.	
3.		12.	
4.		13.	
5.		14.	
6.		15.	
7.		16.	
8.		17.	
9.		18.	

A. DFTPP GC/MS Tuning

File ID: REA002PS

Injection Date: 06/28/95

Instrument ID: R

Injection Time: 11:44

- Is the DFTPP GC/MS Tune acceptable? Yes No
- Were all the standards, samples, blanks, and QC samples analyzed within 12 hours of the injection of the DFTPP solution? Yes No

B. Calibration

1. Date(s) of calibration: 06/28/95

RRF020 File ID: REA020BS

RRF050 File ID: 50BS

RRF080 File ID: 80BS

RRF120 File ID: 120BS

RRF160 File ID: 160BS

**GC/MS TUNING AND INITIAL MASS CALIBRATION
SEMIVOLATILE ORGANIC FRACTION**

2. Performance Check

- a. All compounds with minimum average RRF criteria are within the CLP guidelines? Yes No

If no, enter the laboratory average RRF. If a compound has an average RRF less than 0.05, for the samples analyzed within the initial calibration tuning period, qualify positive results as estimated (J) and reject (R) non detect results.

- b. All compounds with maximum %RSD criteria are within the CLP guidelines? Yes No

If no, enter the laboratory %RSD. For the samples analyzed within the initial calibration tuning period, qualify all positive results for the compound as estimated (J). Non detects may be qualified using professional judgement with an explanation in the case narrative/data assessment.

COMPOUND	MIN RRF	LAB RRF	MAX %RSD	LAB %RSD	QA
phenol	0.800		30.0		
bis(2-chloroethyl)ether	0.700		30.0		
2-chlorophenol	0.800		30.0		
1,3-dichlorobenzene	0.600		30.0		
1,4-dichlorobenzene	0.500		30.0		
1,2-dichlorobenzene	0.400		30.0		
2-methylphenol	0.700		30.0		
2,2'-oxybis(1-chloropropane)	0.050		30.0		
4-methylphenol	0.600		30.0		
N-nitrosodi-n-propylamine	0.500		30.0		
hexachloroethane	0.300		30.0		
nitrobenzene	0.200		30.0		

**GC/MS TUNING AND INITIAL MASS CALIBRATION
SEMIVOLATILE ORGANIC FRACTION**

COMPOUND	MIN RRF	LAB RRF	MAX %RSD	LAB %RSD	QA
isophorone	0.400		30.0		
2-nitrophenol	0.100		30.0		
2,4-dimethylphenol	0.200		30.0		
bis(2-chloroethoxy)methane	0.300		30.0		
2,4-dichlorophenol	0.200		30.0		
1,2,4-trichlorobenzene	0.200		30.0		
naphthalene	0.700		30.0		
4-chloroaniline	0.050		30.0		
hexachlorobutadiene	0.050		30.0		
4-chloro-3-methylphenol	0.200		30.0		
hexachlorocyclopentadiene	0.050		30.0		
2-methylnaphthalene	0.400		30.0		
2,4,6-trichlorophenol	0.200		30.0		
2,4,5-trichlorophenol	0.200		30.0		
2-chloronaphthalene	0.800		30.0		
2-nitroaniline	0.050		30.0		
dimethylphthalate	0.050		30.0		
acenaphthylene	1.300		30.0		
2,6-dinitrotoluene	0.200		30.0		
3-nitroaniline	0.050		30.0		
acenaphthene	0.800		30.0		
2,4-dinitrophenol	0.050		30.0		
4-nitrophenol	0.050		30.0		
dibenzofuran	0.800		30.0		

**GC/MS TUNING AND INITIAL MASS CALIBRATION
SEMIVOLATILE ORGANIC FRACTION**

COMPOUND	MIN RRF	LAB RRF	MAX %RSD	LAB %RSD	QA
2,4-dinitrotoluene	0.200		30.0		
diethylphthalate	0.050		30.0		
4-chlorophenyl-phenylether	0.400		30.0		
fluorene	0.900		30.0		
4-nitroaniline	0.050		30.0		
4,6-dinitro-2-methylphenol	0.050		30.0		
N-nitrosodiphenylamine	0.050		30.0		
4-bromophenyl-phenylether	0.100		30.0		
hexachlorobenzene	0.100		30.0		
pentachlorophenol	0.050		30.0		
phenanthrene	0.700		30.0		
anthracene	0.700		30.0		
carbazole	0.050		30.0		
di-n-butylphthalate	0.050		30.0		
fluoranthene	0.600		30.0		
pyrene	0.600		30.0		
butylbenzylphthalate	0.050		30.0		
3,3'-dichlorobenzidine	0.050		30.0		
benzo(a)anthracene	0.800		30.0		
chrysene	0.700		30.0		
bis(2-ethylhexyl)phthalate	0.050		30.0		
di-n-octylphthalate	0.050		30.0		
benzo(b)fluoranthene	0.700		30.0		
benzo(k)fluoranthene	0.700		30.0		

**GC/MS TUNING AND INITIAL MASS CALIBRATION
SEMIVOLATILE ORGANIC FRACTION**

COMPOUND	MIN RRF	LAB RRF	MAX %RSD	LAB %RSD	QA
benzo(a)pyrene	0.700		30.0		
indeno(1,2,3-cd)pyrene	0.500		30.0		
dibenzo(a,h)anthracene	0.400		30.0		
benzo(g,h,i)perylene	0.500		30.0		
nitrobenzene-d ₅	0.200		30.0		
2-fluorobiphenyl	0.700		30.0		
terphenyl-d ₁₄	0.500		30.0		
phenol-d ₆	0.800		30.0		
2-fluorophenol	0.600		30.0		
2-chlorophenol-d ₄	0.800		30.0		
1,2-dichlorobenzene-d ₄	0.400		30.0		
2,4,6-tribromophenol	0.050		30.0		

3. Calculations:

- c. Calculate the RRF of one of the standards for one of the compounds used in the initial calibration. Enter the compound name used in the calculation.

Compound Name: nitrobenzene

Lab Value: 0.498 $\frac{83432(40)}{96955(20)} = 0.498$

- d. Calculate the %RSD of one of the compounds used in the initial calibration. Enter the compound name used in the calculation.

Compound Name: acetyphenone

Lab Value: 2.8

$$SD = 0.031$$

$$\bar{X} = 1.102$$

$$\frac{0.031}{1.102} \times 100 = 2.8$$

**GC/MS TUNING AND CONTINUING MASS CALIBRATION
SEMIVOLATILE ORGANIC FRACTION**

EPA SAMPLE ID.	Action	EPA SAMPLE ID.	Action
1. SBK55		11.	
2. IDW01		12.	
3. IDW01MS		13.	
4. IDW01MSD		14.	
5.		15.	
6.		16.	
7.		17.	
8.		18.	
9.		19.	
10.		20.	

A. DFTPP GC/MS Tuning

File ID: REASLPS

Injection Date: 08/22/95

Instrument ID: R

Injection Time: 09:51

- Is the DFTPP GC/MS Tune acceptable? Yes No
- Were all the standards, samples, blanks, and QC samples analyzed within 12 hours of the injection of the DFTPP solution? Yes No

B. Calibration

1. Date of calibration: 08/22/95

RRF50 File ID: REASLPS

Date(s) of Initial Calibration: 06/28/95

**GC/MS TUNING AND CONTINUING MASS CALIBRATION
SEMIVOLATILE ORGANIC FRACTION**

2. Performance Check

- a. All compounds with minimum RRF criteria are within the CLP guidelines?
 Yes No

If no, enter the laboratory RRF. If a compound has a RRF less than 0.05, for samples analyzed within the continuing calibration tuning period, qualify positive results as estimated (J) and reject (R) non detect results.

- b. All compounds with maximum %D criteria are within the CLP guidelines?
 Yes No

If no, enter the laboratory %D. For the non compliant compounds, qualify all positive results as estimated (J) and non detects may be qualified using professional judgement with an explanation in the case narrative/data assessment.

COMPOUND	MIN RRF	LAB RRF	MAX. %D	LAB %D	QA
phenol	0.800		25.0		
bis(2-chloroethyl)ether	0.700		25.0		
2-chlorophenol	0.800		25.0		
1,3-dichlorobenzene	0.600		25.0		
1,4-dichlorobenzene	0.500		25.0		
1,2-dichlorobenzene	0.400		25.0		
2-methylphenol	0.700		25.0		
2,2'-oxybis(1-chloropropane)	0.050		25.0		
4-methylphenol	0.600		25.0		
N-nitrosodi-n-propylamine	0.500		25.0		
hexachloroethane	0.300		25.0		
nitrobenzene	0.200		25.0		

**GC/MS TUNING AND CONTINUING MASS CALIBRATION
SEMIVOLATILE ORGANIC FRACTION**

COMPOUND	MIN RRF	LAB RRF	MAX %D	LAB %D	QA
isophorone	0.400		25.0		
2-nitrophenol	0.100		25.0		
2,4-dimethylphenol	0.200		25.0		
bis(2-chloroethoxy)methane	0.300		25.0		
2,4-dichlorophenol	0.200		25.0		
1,2,4-trichlorobenzene	0.200		25.0		
naphthalene	0.700		25.0		
4-chloroaniline	0.050		25.0		
hexachlorobutadiene	0.050		25.0		
4-chloro-3-methylphenol	0.200		25.0		
2-methylnaphthalene	0.400		25.0		
hexachlorocyclopentadiene	0.050		25.0		
2,4,6-trichlorophenol	0.200		25.0		
2,4,5-trichlorophenol	0.200		25.0		
2-chloronaphthalene	0.800		25.0		
2-nitroaniline	0.050		25.0		
dimethylphthalate	0.050		25.0		
acenaphthylene	1.300		25.0		
2,6-dinitrotoluene	0.200		25.0		
3-nitroaniline	0.050		25.0		
acenaphthene	0.800		25.0		
2,4-dinitrophenol	0.050		25.0	28.3	J
4-nitrophenol	0.050		25.0		
dibenzofuran	0.800		25.0		

**GC/MS TUNING AND CONTINUING MASS CALIBRATION
SEMIVOLATILE ORGANIC FRACTION**

COMPOUND	MIN RRF	LAB RRF	MAX %D	LAB %D	QA
2,4-dinitrotoluene	0.200		25.0		
diethylphthalate	0.050		25.0		
4-chlorophenyl-phenylether	0.400		25.0		
fluorene	0.900		25.0		
4-nitroaniline	0.050		25.0		
4,6-dinitro-2-methylphenol	0.050		25.0		
N-nitrosodiphenylamine	0.050		25.0		
4-bromophenyl-phenylether	0.100		25.0		
hexachlorobenzene	0.100		25.0		
pentachlorophenol	0.050		25.0	29.5	J
phenanthrene	0.700		25.0		
anthracene	0.700		25.0		
carbazole	0.050		25.0		
di-n-butylphthalate	0.050		25.0		
fluoranthene	0.600		25.0		
pyrene	0.600		25.0		
butylbenzylphthalate	0.050		25.0		
3,3'-dichlorobenzidine	0.050		25.0		
benzo(a)anthracene	0.800		25.0		
chrysene	0.700		25.0		
bis(2-ethylhexyl)phthalate	0.050		25.0		
di-n-octylphthalate	0.050		25.0		
benzo(b)fluoranthene	0.700		25.0		
benzo(k)fluoranthene	0.700		25.0		
benzo(a)pyrene	0.700		25.0		
indeno(1,2,3-cd)pyrene	0.500		25.0		
dibenzo(a,h)anthracene	0.400		25.0		
benzo(g,h,i)perylene	0.500		25.0		
nitrobenzene-d ₅	0.200		25.0		

**GC/MS TUNING AND CONTINUING MASS CALIBRATION
SEMIVOLATILE ORGANIC FRACTION**

COMPOUND	MIN RRF	LAB RRF	MAX %D	LAB %D	QA
2-fluorobiphenyl	0.700		25.0		
terphenyl-d ₁₄	0.500		25.0		
phenol-d ₆	0.800		25.0		
2-fluorophenol	0.600		25.0		
2-chlorophenol-d ₄	0.800		25.0		
1,2-dichlorobenzene-d ₄	0.400		25.0		
2,4,6-tribromophenol	0.050		25.0		

3. Calculations:

- c. Calculate the RRF for one compound. Enter the compound name used in the calculation.

Compound Name: anthracene

Lab Value: 1.255

$$\frac{787413(40)}{502016(50)} = 7.5$$

- d. Calculate the %D of one of the compounds used in the continuing calibration. Enter the compound name used in the calculation.

Compound Name: Chrysene

Lab Value: -7.5

$$\frac{1.223 - 1.318}{1.223} \times 100 = -7.5$$

**INTERNAL STANDARD AREA SUMMARY
SEMIVOLATILE ORGANIC FRACTION - PART 1**

1. Is the EICP area for each internal standard in all associated field samples, QC samples, and blanks within - 50% and + 100% of the respective internal standard EICP areas? Yes No

If the EICP area of one (1) or more internal standard is less than -50%:

- Positive results for those compounds that are quantified using the particular internal standard are flagged as estimated (J).
- Non detects for that fraction are flagged with the sample quantitation limit classified as estimated (UJ).

If the EICP area of one (1) or more internal standards is greater than +100%:

- Positive results for those compounds that are quantified using the particular internal standard are flagged as estimated (J).

If no, list non-compliant sample IDs and areas below.

Standard ID: RETA 050815

	1,4-DCB-d ₄	RT	NPT-d ₈	RT	ACT-d ₁₀	RT
12-HOUR STD						
UPPER LIMIT						
LOWER LIMIT						
EPA SAMPLE NO.	RETA 050815					

**INTERNAL STANDARD AREA SUMMARY
SEMIVOLATILE ORGANIC FRACTION - PART 2**

2. Is the EICP area for each internal standard in all associated field samples, QC samples, and blanks within - 50% and + 100% of the respective internal standard EICP areas? Yes No

If the EICP area of one (1) or more internal standard is less than -50%:

- Positive results for those compounds that are quantified using the particular internal standard are flagged as estimated (J).
- Non detects for that fraction are flagged with the sample quantitation limit classified as estimated (UJ).

If the EICP area of one (1) or more internal standards is greater than + 100%:

- Positive results for those compounds that are quantified using the particular internal standard are flagged as estimated (J).

If no, list non-compliant sample IDs and areas below.

Standard ID: REACTORS

	PHN-d ₁₀	RT	CRY-d ₁₂	RT	PRY-d ₁₂	RT
12-HOUR STD						
UPPER LIMIT						
LOWER LIMIT						
EPA SAMPLE NO.	NO DATA					

**BLANK SUMMARY
SEMIVOLATILE ORGANIC FRACTION**

1. Blank qualification guidelines:

- a) If a compound is found in the blank but not in the sample, no action is taken.
- b) Any compound (other than listed below) detected in the sample, which was also detected in the associated blank, must be qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than five (5) times the blank concentration. For the following four (4) compounds, the results are qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than ten (10) times the blank concentration.

Common laboratory contaminants: phthalates

- c) The reviewer should take note that the blank analysis may not involve the same weights, volumes or dilution factors as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria.
- d) In addition, the reviewer must review the trip blanks, rinseate blanks and field blanks (if they were submitted with the data package) and all associated samples. Apply the same data validation guidelines used in assessing the method blanks.
- e) Qualification/Action codes:

U - The sample result is greater than the CRQL and less than ten times (10X) the blank value. Cross out the "B" flag and qualify the sample result with a "U".

CRQL - The sample result is less than the CRQL and less than ten times (10X) the blank value. Reject the sample result, cross out the "B" flag, and report the CRQL.

No Action - The sample result is greater than the CRQL and greater than ten times (10X) the blank value.

TIC SUMMARY
SEMIVOLATILE ORGANIC FRACTION

Sample ID: SB1K55

File ID: 110818555

TIC #	RT	CONC.	TIC #	RT	CONC.
1.			11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Sample TIC Rejection Summary

All sample TIC results found at the same retention time of the blank TICs are rejected if they are less than 5X the blank TIC value.

EPA SAMPLE NO.	REJECTED TICs	EPA SAMPLE NO.	REJECTED TICs

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLK5S

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.: .

SDG No.: 53167

Lab File ID: RB08185SS.D

Lab Sample ID: SBLK5S

Instrument ID: R

Date Extracted: 08/18/95

Matrix: (soil/water) WATER

Date Analyzed: 08/22/95

Level: (low/med) LOW

Time Analyzed: 1556

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	IDW01	268003	R268003S.D	08/22/95
02	IDW01MS	268003MS	R268003MSS.D	08/22/95
03	IDW01MSD	268003MD	R268003MDS.D	08/22/95
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

**SURROGATE RECOVERY SUMMARY
SEMIVOLATILE ORGANIC FRACTION**

1. Did all the surrogate recoveries for the blanks, QC samples, and field samples meet the acceptance criteria? Yes No

If no, list all affected samples and their respective surrogate recoveries that do not meet QA/QC criteria.

	NBZ-d ₅	2-FBP	TPH-d ₁₄	DCB-d ₄	QUALIFACATION
EPA SAMPLE NO.					

RECOVERY LIMITS

	<u>WATER</u>	<u>SOIL</u>
Nitrobenzene-d ₅ (NBZ-d ₅)	35-114	23-120
2-Fluorobiphenyl (2-FBP)	43-116	30-115
Terphenyl-d ₁₄ (TPH-d ₁₄)	33-141	18-137
1,2-Dichlorobenzene-d ₄ (12DCB)	16-110	20-130*

* - The recoveries for soils are advisory at this time.

NOTE: D - denotes that surrogate was diluted out.

Comments: _____

**SURROGATE RECOVERY SUMMARY
SEMIVOLATILE ORGANIC FRACTION**

2. Did all the surrogate recoveries for the blanks, QC samples, and field samples meet the acceptance criteria? Yes No

If no, list all the samples and their respective surrogate recoveries that do not meet QA/QC criteria.

	PHL-d ₆	2-FP	TBP	2-CP-d ₄	QUALIFICATION
EPA SAMPLE NO.					

W/1000998

RECOVERY LIMITS

	<u>WATER</u>	<u>SOIL</u>
Phenol-d ₅ (PHL-d ₆)	10-110	24-113
2-Fluorophenol (2-FP)	21-110	25-121
2,4,6-tribromophenol (TBP)	10-123	19-122
2-Chlorophenol-d ₄ (2CP-d ₄)	16-110	20-130*

* - The recoveries for soils are advisory at this time.

NOTE: D - denotes that surrogate was diluted out.

Comments: _____

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

	EPA SAMPLE NO.	S1. (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 (2CP) #	S8 (DCB) #	TOT OUT
01	SBLK5S	92	92	85	74	76	77	78	77	0
02	IDW01	87	85	71	83	75	87	80	70	0
03	IDW01MS	103	92	86	82	88	95	84	84	0
04	IDW01MSD	47	46	40	40	40	48	42	40	0
05										
06										
07										
08										
09										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

QC LIMITS

S1 (NBZ) = Nitrobenzene-d5 (35-114)
 S2 (FBP) = 2-Fluorobiphenyl (43-116)
 S3 (TPH) = Terphenyl-d14 (33-141)
 S4 (PHL) = Phenol-d5 (10-110)
 S5 (2FP) = 2-Fluorophenol (21-110)
 S6 (TBP) = 2,4,6-Tribromophenol (10-123)
 S7 (2CP) = 2-Chlorophenol-d4 (33-110) (advisory)
 S8 (DCB) = 1,2-Dichlorobenzene-d4 (16-110) (advisory)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D Surrogate diluted out

**MATRIX SPIKE/ MATRIX SPIKE DUPLICATE SUMMARY
SEMIVOLATILE ORGANIC FRACTION**

Sample ID: IDW01

1. Were the percent recoveries and the RPDs in compliance with the advisory limits?

Yes **No**

If no, list the non compliant MS/MSD information below.

COMPOUND	MS %REC.	MSD %REC.	MAX RPD	QA
PHENOL			63	NA
2-CHLOROPHENOL			67	
1,4-DICHLOROBENZENE			73	
N-NITROSODI-n-PROPYLAMINE		40	71	
1,2,4-TRICHLOROBENZENE			72	
4-CHLORO-3-METHYLPHENOL			73	
ACENAPHTHENE		40	71	
4-NITROPHENOL	89		97	
2,4-DINITROTOLUENE			70	
PENTACHLOROPHENOL	130		95	
PYRENE			73	

Advisory Limits for Spike Recoveries:

	<u>Water</u>	<u>Max RPD</u>	<u>Soil</u>	<u>Max RPD</u>
phenol	12-110	42	26-90	35
2-chlorophenol	27-123	40	25-102	50
1,4-dichlorobenzene	36-97	28	28-104	27
n-nitroso-di-n-propylamine	41-116	38	41-126	38
1,2,4,-trichlorobenzene	39-98	28	38-107	23
4-chloro-3-methylphenol	23-97	42	26-103	33
acenaphthene	46-118	31	31-137	19
4-nitrophenol	10-80	50	11-114	50
2,4-dinitrotoluene	24-96	38	28-89	47
pentachlorophenol	9-103	50	17-109	47
pyrene	26-127	31	35-142	36

3C
WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: AQUATEC, INC.

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix Spike - EPA Sample No.: IDW01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Phenol	76	0	60	79	12-110
2-Chlorophenol	76	0	61	80	27-123
1,4-Dichlorobenzene	50	0	41	82	36- 97
N-Nitroso-di-n-prop. (1)	50	0	42	84	41-116
1,2,4-Trichlorobenzene	50	0	47	94	39- 98
4-Chloro-3-Methylphenol	76	0	65	86	23- 97
Acenaphthene	50	0	44	88	46-118
4-Nitrophenol	76	0	68	89*	10- 80
2,4-Dinitrotoluene	50	0	47	94	24- 96
Pentachlorophenol	76	0	100	132*	9-103
Pyrene	50	0	41	82	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD		QC LIMITS	
			% REC #	% RPD #	RPD	REC.
Phenol	78	32	41	63*	42	12-110
2-Chlorophenol	78	31	40	67*	40	27-123
1,4-Dichlorobenzene	52	20	38	73*	28	36- 97
N-Nitroso-di-n-prop. (1)	52	21	40*	71*	38	41-116
1,2,4-Trichlorobenzene	52	23	44	72*	28	39- 98
4-Chloro-3-Methylphenol	78	31	40	73*	42	23- 97
Acenaphthene	52	22	42*	71*	31	46-118
4-Nitrophenol	78	24	31	97*	50	10- 80
2,4-Dinitrotoluene	52	23	44	72*	38	24- 96
Pentachlorophenol	78	37	47	95*	50	9-103
Pyrene	52	20	38	73*	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 11 out of 11 outside limits

Spike Recovery: 4 out of 22 outside limits

COMMENTS:

**FIELD DUPLICATE SAMPLE SUMMARY
SEMIVOLATILE ORGANIC FRACTION**

Sample ID: NO DUP Duplicate Sample ID: _____

Matrix: aqueous / non aqueous Units: ug/L ug/Kg

Compound Name	Sample Concentration	Duplicate Concentration	RPD	Action

Water RPDs < 20% RPD

Soil RPDs < 35% RPD

Comments: _____

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HESI94.1

SAMPLE CALUCULATION
SEMIVOLATILE ORGANIC FRACTION

EPA SAMPLE ID: ID0001

COMPOUND: bis(2-ethylhexyl)phthalate

CONCENTRATION: 0.11

UNITS: μg/L μg/Kg

$$\frac{309433 (40) (1000)}{388369 (10481) (2) (1002)} = 10.7 \mu\text{g/L}$$

EPA SAMPLE ID.: <u> ID0001 </u>		STD. ID.: <u> RETA080103 </u>
COMPOUND	RRT	STD. RRT
<u> bis(2eh)ph </u>	<u> 1.013 </u>	<u> 1.012 </u>

**SAMPLE RESULT VERIFICATION
SEMIVOLATILE ORGANIC FRACTION**

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Were the percent moistures reported? Yes No NR
- 3. Were the data reported on a dry weight basis? Yes No NR
- 4. Did the GC/MS RIC and TIC exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments: _____

Reviewer: *Daniel J. Hill* AVP

Date: 10.10.95

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HESI95.1

MULTI-MEDIA PESTICIDE/AROCLOR ORGANIC FRACTION

CASE NUMBER: 95000 SDG NUMBER: 53167

LABORATORY: AQUATEC, INC

CLIENT: Baker PROJECT: CTD 323

REVIEWER: JA Cleveland DATE: 10/9/95

QA/QC LEVEL

- NEESA C
- NEESA D
- DQO LEVEL III
- DQO LEVEL IV
- _____

Statement Of Work (SOW)

- CLP 3/90
- _____

ANALYSIS MODIFICATIONS: _____

PESTICIDE/AROCLOR HOLDING TIMES

	<u>Water</u>	<u>Soil</u>	<u>Analysis</u>
CLP:	7 days from sampling	14 days from sampling	40 days from EXTR.
Region I:	7 days from sampling	7 days from sampling	40 days from EXTR.
Region II:	7 days from sampling	7 days from sampling	40 days from EXTR.
Region III:	7 days from sampling	7 days from sampling	40 days from EXTR.
NYSDEC:	5 days form VTSR	5 days from VTSR	40 days From EXTR.

1. Were the holding times met for the all pesticide/aroclor samples?
 3- 8/14/95 e- 8/18/95 2- 9/2/95 Yes No
 If no, complete the following form for all samples that exceeded holding times.

EPA SAMPLE NO.	MATRIX	VTSR OR DATE SAMPLED	DATE OF EXTRACTION / ANALYSIS	DA	Action

Action: DA - The number of days that the holding time was exceeded.

DA ≤ 5: Qualify all positive results as estimated (J).

DA > 5 ≤ 15: Qualify all positive results as estimated (J) and all non detects estimated (UJ).

DA > 15: Qualify all positive results estimated (J) and reject all non detects.

INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION
PESTICIDE/AROCOR FRACTION

EPA SAMPLE ID.	Action	EPA SAMPLE ID.	Action
1. <u>all samples</u>		10.	
2.		11.	
3.		12.	
4.		13.	
5.		14.	
6.		15.	
7.		16.	
8.		17.	
9.		18.	

Instrument ID: 0850-1

Date(s) of Analyses: 9/1-2/95

Column 1: RTX-35

Column 2: RTX-1701

A. GC Column Resolution and Analytical Sequence

1. Were all of the resolution requirements met for the RCM, PEMs, and INDs?

Yes No

2. Is the analytical sequence correct?

Yes No

If no to either #1 or #2, action required: _____

B. Surrogate Retention Time Verification

3. Are all of the TCX and DCB retention times within the retention time windows?

Yes No

If no, action required: _____

**INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION
PESTICIDE/AROCLOR FRACTION**

C. Breakdown Evaluation

3. Are the percent breakdowns for 4,4'-DDT and Endrin less than 20% and is the combined percent breakdowns less than 30%? Yes No

If no, action required: _____

D. Calibration

4. Are all of the compounds with maximum %RSD criteria within the CLP guidance? Yes No

Compound	Max %RSD	Column 1 %RSD	Column 2 %RSD	QA Action
α -BHC	20.0			
β -BHC	20.0			
δ -BHC	20.0			
γ -BHC	20.0			
heptachlor	20.0			
aldrin	20.0			
heptachlor epoxide	20.0			
endosulfan I	20.0			
dieldrin	20.0			
4,4'-DDE	20.0			
endrin	20.0			
endosulfan II	20.0			
4,4'-DDD	20.0			
endosulfan sulfate	20.0			
4,4'-DDT	20.0			

**INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION
PESTICIDE/AROCLOR FRACTION**

Compound	Max %RSD	Column 1 %RSD	Column 2 %RSD	QA Action
methoxychlor	20.0			
endrin ketone	20.0			
endrin aldehyde	20.0			
α -chlordane	20.0			
γ -chlordane	20.0			

E. Calculations

5. Calculate a calibration factor for one compound in one of the standards used in the initial calibration.

Compound ID: A-BHC Lab Value: 1190000

Standard ID: Low Medium High Column ID: C1 C2

$$\frac{23703}{002} = 118515 \checkmark$$

6. Calculate the %RSD for one of the compounds used in the initial calibration.

Compound ID: 44'-DDT Lab Value: 12.3
Column ID: C1 (C2)

$$s_x = 85565 \quad \bar{x} = 696667 \quad \%RSD = 12.28\% \checkmark$$

INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION
PESTICIDE/AROCLOR FRACTION

8. Calculate a % breakdown for a PEM. PEMB3

Compound ID: Endrin Analysis Date: 9/2/95Column ID: Column 1 Column 2 Analysis Time: 128Reported Breakdown: 2.6

$$\begin{array}{r} \text{EA} \\ \frac{426}{736000} + \frac{504}{774000} \end{array} (100\%) = 2.46\% \quad \checkmark$$

0.05

**CONTINUING CALIBRATION
PESTICIDE/AROCLOR FRACTION**

EPA SAMPLE ID.	Action	EPA SAMPLE ID.	Action
1. <i>all</i>		11.	
2.		12.	
3.		13.	
4.		14.	
5.		15.	
6.		16.	
7.		17.	
8.		18.	
9.		19.	
10.		20.	

A. Calibration

Standard ID: *all CCALS*

Analysis Date: *9/2/95*

Time: _____

1. Are all of the compounds with maximum RPD criteria within the CLP guidance? Yes No

Compound	Max RPD	Column 1 RPD	Column 2 RPD	QA Action
α -BHC	25.0			
β -BHC	25.0			
δ -BHC	25.0			
γ -BHC	25.0			
heptachlor	25.0			
aldrin	25.0			

CONTINUING CALIBRATION
PESTICIDE/AROCLOR FRACTION

Compound	Max RPD	Column 1 RPD	Column 2 RPD	QA Action
heptachlor epoxide	25.0			
endosulfan I	25.0			
dieldrin	25.0			
4,4'-DDE	25.0			
endrin	25.0			
endosulfan II	25.0			
4,4'-DDD	25.0			
endosulfan sulfate	25.0			
4,4'-DDT	25.0			
methoxychlor	25.0			
endrin ketone	25.0			
endrin aldehyde	25.0			
α -chlordane	25.0			
γ -chlordane	25.0			

**CONTINUING CALIBRATION
PESTICIDE/AROCLOR FRACTION**

2. Calculate the concentration for one compound in one of the standards used in the continuing calibration.

Standard ID: INDAMBB

Column ID (C1) C2

Compound ID: A-BHC

Date: 9/2/95 Time: 0429

Lab Value: 0.023

$$\frac{27567}{1190000} = 0.0232$$

3. Calculate the RPD for one compound in one of the standards used in the continuing calibration.

Standard ID: as above

Column ID C1 C2

Compound ID: _____

Date: _____ Time: _____

Lab Value: 15.0

$$\%RPD = \frac{0.02 \cdot 0.023}{0.02} (100\%) = 15\%$$

**BLANK SUMMARY
PESTICIDE/AROCLOR FRACTION**

1. Blank qualification guidelines:

- a) If a compound is found in the blank but not in the sample, no action is taken.
- b) Any compound detected in the sample, which was also detected in the associated blank, must be qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than five (5) times the blank concentration.
- c) The reviewer should take note that the blank analysis may not involve the same weights, volume or dilution factors as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria.
- d) In addition, the reviewer must review the, rinseate blanks and field blanks (if they were submitted with the data package) and all associated samples. Apply the same data validation guidelines used in assessing the method blanks.
- e) Qualification/Action codes:

CRQL - The sample result is less than the CRQL and less than five times (5X) the blank value. Reject the sample result, cross out the "B" flag, and report the CRQL.

U - The sample result is greater than the CRQL and less than five times (5X) the blank value. Cross out the "B" flag and qualify the sample result with a "U".

No Action - The sample result is greater than the CRQL and greater than five times (5X) the blank value.

**BLANK SUMMARY - TCL SUMMARY
PESTICIDE/AROCLOR FRACTION**

Method Instrument Rinseate Field Sulfur

Sample ID: PIBUL

File ID: All PIBULS

COMPOUND	CONCENTRATION	CRQL

8/14/05

4C
PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PBLK6V

Name: AQUATEC INC

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Lab Sample ID: 261339

Lab File ID:

Matrix:(soil/water) WATER

Extraction:(SepF/Cont/Sonc) SEPF

Sulfur Cleanup: (Y/N) N

Date Extracted: 08/18/95

Date Analyzed (1): 09/02/95

Date Analyzed (2): 09/02/95

Time Analyzed (1): 0552

Time Analyzed (2): 0551

Instrument ID (1): 0850-1

Instrument ID (2): 0850-2

GC Column (1): RTX-35 ID: 0.53 (mm) GC Column (2): RTX-1701 ID: 0.53 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	IDW01	268003	09/02/95	09/02/95
02	IDW01MS	268003MS	09/02/95	09/02/95
03	IDW01MSD	268003MD	09/02/95	09/02/95

COMMENTS:

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**BLANK SUMMARY - TCL SUMMARY
PESTICIDE/AROCLOR FRACTION**

- Method
 Instrument
 Rinseate
 Field
 Sulfur

Sample ID: DBUL6V

File ID: 01SEP95/509, 2, 1

COMPOUND	CONCENTRATION	CRQL
EPA SAMPLE ID		

[Handwritten signature and date]
 SAC 10/12/95

HEARTLAND ESI P/A 11

HESI95.1

BLANK SUMMARY - TCL SUMMARY
PESTICIDE/AROCLOR FRACTION

Method Instrument Rinseate Field Sulfur

Sample ID: 35-1DW01-02

File ID: _____

COMPOUND	CONCENTRATION	CRQL

046-10-19-95

**FLORISIL CHECK/GPC CALIBRATION
PESTICIDE/AROCLOR FRACTION**

A. Florisil Cartridge Check

1. Were the compound recoveries within QA/QC limits (80%-120%)?
Yes No

If no, list compounds, recoveries and action:

Compound	Recovery	QA Action

B. GPC Calibration

2. Were the compound recoveries within QA/QC limits (80%-110%)?
Yes No

If no, list compounds, recoveries and action:

Compound	Recovery	QA Action

2E
WATER PESTICIDE SURROGATE RECOVERY

Lab Name: AQUATEC INC

Contract: 95000

Lab Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

GC Column(1): RTX-35

ID: 0.53(mm)

GC Column(2): RTX-1701

ID: 0.53(mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	PBLK6V	66	62	88	90			0
02	IDW01	82	81	32*	39*			2
03	IDW01MS	68	70	32*	36*			2
04	IDW01MSD	75	74	41*	42*			2

ADVISORY
QC LIMITS
(60-150)
(60-150)

TCX = Tetrachloro-m-xylene

DCB = Decachlorobiphenyl

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

**SURROGATE RECOVERY SUMMARY
PESTICIDE/AROCOR FRACTION**

1. Did all the surrogate recoveries for the blanks, QC samples, and field samples meet the acceptance criteria? Yes No

If no, list all affected samples and their respective surrogate recoveries that do not meet QA/QC criteria.

	TCX-1	TCX-2	DCB-1	DCB-2	QUALIFICATION
EPA SAMPLE NO.					
1DW01			32	39	J/UJ
1DW01MS			32	36	Not
1DW01MSD			41	42	↓

RECOVERY LIMITS

	<u>WATER</u>	<u>SOIL</u>
Tetrachloro-m-xylene (TCX)	60-150	60-150
Decachlorobiphenyl (DCB)	60-150	60-150

* - The recoveries are advisory at this time.

NOTE: D - denotes that surrogate was diluted out.

Comments: _____

3E
WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: AQUATEC INC

Contract: 95000

L Code: AQUAI

Case No.: 95000

SAS No.:

SDG No.: 53167

Matrix Spike - EPA Sample No.: IDW01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	1.040	0	0.780	75	56-123
Heptachlor	1.040	0	0.668	64	40-131
Aldrin	1.040	0	0.642	62	40-120
Dieldrin	2.080	0	1.46	70	52-126
Endrin	2.080	0	1.44	69	56-121
4,4'-DDT	2.080	0	1.15	55	38-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
gamma-BHC (Lindane)	1.080	0.912	84	11	15	56-123
Heptachlor	1.080	0.787	73	13	20	40-131
Aldrin	1.080	0.748	69	11	22	40-120
Dieldrin	2.160	1.74	81	15	18	52-126
Endrin	2.160	1.73	80	15	21	56-121
4,4'-DDT	2.160	1.33	62	12	27	38-127

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS:

**MATRIX SPIKE/ MATRIX SPIKE DUPLICATE SUMMARY
PESTICIDE/AROCOR FRACTION**

Sample ID: 1DW01

1. Were the percent recoveries and the RPDs in compliance with the advisory limits?

Yes No

If no, list the non compliant MS/MSD information below.

Compound	MS % Rec.	MSD % Rec.	Max RPD	QA Action
γ -BHC				
heptachlor				
aldrin				
dieldrin				
endrin				
4,4'-DDT				

OK 10/19/95

Advisory Limits for Spike Recoveries:

	<u>Water</u>	<u>Max RPD</u>	<u>Soil</u>	<u>Max RPD</u>
γ -BHC	56-123	15	46-127	50
heptachlor	40-131	20	35-130	31
aldrin	40-120	22	34-132	43
dieldrin	52-126	18	31-134	38
endrin	56-121	21	31-134	45
4,4'-DDT	38-127	27	23-134	50

NOTE: D - denotes that surrogate was diluted out.

Comments: _____

SAMPLE CALCULATION
PESTICIDE/AROCLOR FRACTION

EPA SAMPLE ID: 1DW01M50

COMPOUND: Endrin

CONCENTRATION: 1.7

UNITS: μg/L μg/Kg

c1
RTX-~~1701~~³⁵ ^{QC}
10/9/95

$$\frac{(152735 \text{ ht})(5000 \mu\text{d})(1)}{(955000 \text{ ht/ng})(463 \text{ ml})(1 \mu\text{L})} = 1.73 \mu\text{g/L}$$

EPA SAMPLE ID.: <u>as above</u>		STD. ID.: <u>INDAM/INDAM</u>
COMPOUND	RT	STD. RTW
<u>Undene</u>	<u>8.31</u> c1	<u>8.25 - 8.35</u>
<u>Heptachlor</u>	<u>9.32</u>	<u>9.26 - 9.36</u>
<u>Aldrin</u>	<u>10.19</u>	<u>10.15 - 10.25</u>
<u>Dieldrin</u>	<u>12.60</u>	<u>12.52 - 12.66</u>
<u>Endrin</u>	<u>13.20</u> ↓	<u>13.12 - 13.26</u>
<u>44'-DDT</u>	<u>13.00</u> c2	<u>12.92 - 13.06</u>

**SAMPLE RESULT VERIFICATION
PESTICIDE/AROCLOR FRACTION**

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Were the percent moisture reported? Yes No NR
- 3. Were the data reported on a dry weight basis? Yes No NR
- 4. Did the GC chromatogram exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments: NO + results

Reviewer: Jacqueline A Cleveland Date: 10/9/95



HEARTLAND

ENVIRONMENTAL SERVICES, INC.

Data Validation Report

October 10, 1995

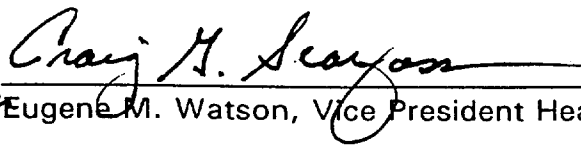
Prepared for
BAKER ENVIRONMENTAL, INC.
420 Rouser Road
Coraopolis, PA 15108

This Data Validation Report is a review of the analytical results of sampling conducted August 9 - 11, 1995 in support of the Camp Geiger Site 35, Fuel Farm Project 62470-323 (Camp Lejeune). There were sixteen (16) water samples with one (1) MS/MD pair which were received and analyzed by Inchcape Testing Services - NDRC Laboratories in this analytical batch, **SDG# BK7537**.

Heartland ESI personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The CLP fractions have been validated utilizing: the "Laboratory Data Validation Functional Guidelines For Evaluating Organics Analysis", June, 1991; the "Laboratory Data Validation Functional Guidelines For Evaluating Inorganics Analysis", July, 1988; specific method requirements in SW-846; and ILM02.0; Region IV modifications; Level D requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**.

The release of this Data Validation Report is authorized by the following signature:



for Eugene M. Watson, Vice President Heartland ESI

10-10-95
Date

SDG# BK7537

SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>			<u>Analytical Fractions</u>				
<u>BAKER ID</u>	<u>NDRC ID</u>	<u>Matrix</u>	<u>TPH</u>	<u>DRO</u>	<u>HG</u>	<u>ZN</u>	<u>TAL</u>
EMW032	7537 1#TL	WATER					X
EMW072	7537 2#TL	WATER					X
ER0102	7537 3#TL	WATER	X	X	X	X	X
ER0302	7537 9#CL	WATER					X
ER0502	7537 4#TL	WATER			X	X	X
GW0502	7537 8#TL	WATER					X
MW10D2	7537 15#TL	WATER					X
MW10S2	7537 14#CL	WATER					X
MW14D2	7537 17#CL	WATER					X
MW14S2	7537 16#TL	WATER					X
MW16D2	7537 13#TL	WATER					X
MW16S2	7537 11#TL	WATER					X
MW19D2	7537 5#CL	WATER					X
MW19S2	7537 6#TL	WATER					X
MW19S2D	7537-6D	WATER					X
MW19S2S	7537-6S	WATER					X
W16S2D	7537 12#CL	WATER					X
W19S2D	7537 7#TL	WATER					X
Total Number of Samples (Water/Soil)			1/0	1/0	2/0	2/0	18/0

*cut as per for
2 methods
had they
2 methods and 1/0*

MS - Matrix Spike MD - Matrix Spike Duplicate/Matrix Duplicate

Individual fractions were reviewed as follows:

	<u>Primary</u>	<u>Secondary</u>
TPH - Total Petroleum Hydrocarbons, Gas (SW-846, 8015M)	Jackie Cleveland	Gene Watson
DRO - Total Petroleum Hydrocarbons, Diesel (SW-846, 8015M)	Jackie Cleveland	Gene Watson
HG - Mercury (ILM02.0)	Paul Humburg	J. Cleveland
ZN - Zinc (ILM02.0)	Paul Humburg	J. Cleveland
TAL - Total Metals (ILM02)	Paul Humburg	J. Cleveland

DATA ASSESSMENT NARRATIVES

DATA ASSESSMENT NARRATIVE

TPH Modified 8015 - Gasoline Range Organics

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

Lab # D95-7357-3

The validator has reviewed the data for these samples for the target Hydrocarbons using the requirements contained in SW-846 Method 8015, modified for Gasoline.

Holding Times

All holding times were met based on the information included in the data package. No qualifications were required.

Initial Calibration

The laboratory analyzed six (6) levels of calibration standard. The laboratory plotted area ratios (component area divided by the internal standard area) against the concentrations of three (3) ranges of gasoline (TPH1, TPH2, and TPH3). Linear regression curves were plotted and the origin was forced. All coefficients of determination were ≥ 0.995 with the exception of TPH1 which was 0.993. There were no positive results in the samples so qualifications were not required. Each of the ranges was calculated as a separate entity and the total of the three (3) gives the gasoline concentration in each standard.

Continuing Calibration

A mid-level standard was analyzed at appropriate intervals. The laboratory did not calculate %Ds. The reviewer calculated the %D values. All %Ds were within the SW-846 15% criteria. Retention time windows were not present for the surrogate compound. However, expected and delta retention times were present on the quantitation pages. The surrogate retention time was stable. The laboratory did not submit summary forms for the continuing calibrations.

DATA ASSESSMENT NARRATIVE - Page 2

TPH-Modified 8015 - Gasoline

Blanks

The method blank associated with the reported sample did not contain any contamination. The field sample was a rinseate blank. It did not exhibit positive results. No qualifications were required.

Surrogate Recoveries

The surrogate recoveries were within the QC limits in all the samples and blanks.

Matrix Spike\Matrix Spike Duplicate

There was no MS/MSD pair in this SDG.

Field Duplicates

There was no field duplicate pair identified.

Target Compound Identification

No positive results were reported in the samples. Quantitation calculations were verified. No qualifications were required.

Overall Assessment

The overall quality of the data package is good. The reported results are accepted as reported. No CLP like forms were present in the data package.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF TPH QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
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NO QUALIFICATIONS WERE REQUIRED.

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier(s) used by the data validation firm
+ in the DL column denotes a positive result
_ in the DL column denotes a non-detect result

DATA ASSESSMENT NARRATIVE

TPH Modified 8015 - Gasoline Range Organics

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

Lab # D95-7537-3

The validator has reviewed the data for these samples for the target Hydrocarbons using the requirements contained in SW-846 Method 8015, modified for Gasoline.

Holding Times

All holding times were met based on the information included in the data package. No qualifications were required.

Initial Calibration

The laboratory analyzed six (6) levels of calibration standard. The laboratory plotted area ratios (component area divided by the internal standard area) against the concentrations of three (3) ranges of gasoline (TPH1, TPH2, and TPH3). Linear regression curves were plotted and the origin was forced. All coefficients of determination were ≥ 0.995 with the exception of TPH1 which was 0.993. There were no positive results in the samples so qualifications were not required. Each of the ranges was calculated as a separate entity and the total of the three (3) gives the gasoline concentration in each standard.

Continuing Calibration

A mid-level standard was analyzed at appropriate intervals. The laboratory did not calculate %Ds. The reviewer calculated the %D values. All %Ds were within the SW-846 15% criteria. Retention time windows were not present for the surrogate compound. However, expected and delta retention times were present on the quantitation pages. The surrogate retention time was stable. The laboratory did not submit summary forms for the continuing calibrations.

DATA ASSESSMENT NARRATIVE - Page 2

TPH-Modified 8015 - Diesel

Blanks

The method blanks associated with the reported samples did not contain any contamination. The field sample was a rinseate blank. It did not exhibit positive results for the target compound. No qualifications were required.

Surrogate Recoveries

The surrogate recoveries were within the QC limits in all the samples and blanks.

Matrix Spike\Matrix Spike Duplicate

There was no MS/MSD pair in this SDG.

Field Duplicates

There was no field duplicate pair identified.

Target Compound Identification

No positive results were reported in the samples. Quantitation calculations were verified. No qualifications were required.

Overall Assessment

The overall quality of the data package is good. The reported results are accepted as reported. No CLP like forms were present in the data package.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF TPH QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
------------------	-------------------	-----------	-----------	-------------------------

NO QUALIFICATIONS WERE REQUIRED

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier(s) used by the data validation firm
- + in the DL column denotes a positive result
- _ in the DL column denotes a non-detect result

TPH - Modified 8015 - Diesel

DATA ASSESSMENT NARRATIVE
Metals

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations are recalculated by the reviewer. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from **CTO-323, SDG# BK7537**, the analysis of sixteen (16) field water samples and one Matrix Spike and Duplicate pair for TAL Metals. Overall, the inorganic data quality was fair. All protocol requirements were followed with the exception of the following problems.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in Section 3 of the NEESA (20.2-047B) QA protocol.

Calibration

No deficiencies in this section.

Preparation and Field Blank

1. The preparation blank exhibited contamination for the following elements.

Copper	5.21	ug/l
Magnesium	58.8	ug/l

The USEPA requires that all sample values below five times the preparation or calibration blank contamination be qualified as estimated, "U".

The rinsate blank exhibited low level contamination. No impact on this SDG.

Interferences

No significant interferences were observed.

Metals Data Assessment Narrative (continued - Page 2)

Spike Recovery

No deficiencies in this section.

Duplicate

No deficiencies in this section.

LCS

No deficiencies in this section.

Serial Dilution

No deficiencies in this section.

MSA

2. The following analytes exhibited low recovery during the GFAA spiking procedure. All positive and non-detect results are qualified as estimated, "J" or "UJ".

<u>Analytes</u>	<u>Samples</u>
Lead	EMW032, 072 and MW19D2.
Selenium	EMW032, ER0102, MW14S2 and MW16S2.
Thallium	MW14S2, MW16D2, MW16S2 and W16S2D.

3. The following analytes exhibited high recovery during the GFAA spiking procedure. All positive results are qualified as estimated, "J".

<u>Analytes</u>	<u>Samples</u>
Lead	ER0302, MW14S2 and W19S2D.
Thallium	MW19S2.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All water samples	Cu and Mg.	+	U	1
EMW032, 072 and MW19D2. EMW032, ER0102, MW14S2 and MW16S2. MW14S2, MW16D2, MW16S2 and W16S2D.	Pb. Se. Ti.	+ / U	J / UJ	2
ER0302, MW14S2 and W19S2D. MW19S2.	Pb. Ti.	+	J	3

DL - denotes laboratory qualifier/reported value
 + denotes positive values
 U denotes non-detect values

QL - denotes data validation qualifier

ANNOTATED FORM IS



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 12-AUG-1995

REPORT NUMBER : D95-7537-3
REPORT DATE : 12-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Water
ID MARKS : 35-ER01-02
: Fuel Farm
PROJECT : CTO323 Site 35, Camp Geiger
DATE SAMPLED : 11-AUG-1995
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : VHT
ANALYZED ON : 15-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 29-081595

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	50.0 $\mu\text{g/L}$	< 50.0 $\mu\text{g/L}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene (SS)	50.0 $\mu\text{g/L}$	101 %

Applicable results are reported on Dry Weight basis.

JAC
10/9/95



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 12-AUG-1995

REPORT NUMBER : D95-7537-3
REPORT DATE : 12-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Water
ID MARKS : 35-ER01-02
: Fuel Farm
PROJECT : CTO323 Site 35, Camp Geiger
DATE SAMPLED : 11-AUG-1995
PREPARATION METHOD : EPA 3520B
PREPARED BY : VHC
PREPARED ON : 17-AUG-1995
ANALYSIS METHOD : EPA 8015M /1
ANALYZED BY : T L
ANALYZED ON : 18-AUG-1995
DILUTION FACTOR : 1
METHOD FACTOR : 1.2
QC BATCH NO : AB522-64

TPH BY GC (EXTRACTABLE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	0.60 mg/L	< 0.60 mg/L

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Triacotane (SS)	25.0 mg/L	116%

Applicable results are reported on Dry Weight basis.

AL
12/19/95

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

EMW032

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_1#TL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	96.5	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	89900			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	9.0	B		P
7440-50-8	Copper	9.6	B		P
7439-89-6	Iron	3350			P
7439-92-1	Lead	1.0	U	W	F
7439-95-4	Magnesium	2240	B		P
7439-96-5	Manganese	22.9			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	734	B		P
7782-49-2	Selenium	2.5	U	W	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	8120			P
7440-28-0	Thallium	0.70	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	10.5	B		P
	Cyanide				NR

JBA
10/10/95
 O1
 OJL
 OJL

Color Before: COLORLESS Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS Clarity After: CLEAR

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

EMW072

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_2#TL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.0	U		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	105000			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.8	B		P
7440-50-8	Copper	5.0	B		P
7439-89-6	Iron	106			P
7439-92-1	Lead	1.0	U	W	F
7439-95-4	Magnesium	3480	B		P
7439-96-5	Manganese	26.2			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	2150	B		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	7940			P
7440-28-0	Thallium	0.70	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	10.6	B		P
	Cyanide				NR

U1
052
PB
60/10/95

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

ER0102

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_3#TL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	27.1	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	500	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	20.0	U		P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	50.6	B		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	200	U		P
7782-49-2	Selenium	2.5	U	W	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	791	B		P
7440-28-0	Thallium	0.70	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	7.8	B		P
	Cyanide				NR

Handwritten: PB 10/02/95

Handwritten: U, 052

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

ER0302

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_9#CL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	35.5	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	500	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	20.0	U		P
7439-92-1	Lead	1.0	U	W	F
7439-95-4	Magnesium	50.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	200	U		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	1000	B		P
7440-28-0	Thallium	0.70	B		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	6.1	B		P
	Cyanide				NR

VBH
10/10/95

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

242

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

ER0502

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_4#TL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.3	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	500	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	20.0	U		P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	50.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	200	U		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	705	B		P
7440-28-0	Thallium	0.70	B		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	6.8	B		P
	Cyanide				NR

JPH
08/12/95

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

GW0502

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_8#TL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	25.9	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	56900	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	337	U		P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	2280	B		P
7439-96-5	Manganese	22.1	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	4400	B		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	31900	U		P
7440-28-0	Thallium	1.0	B		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	6.7	B		P
	Cyanide				NR

Handwritten: JB
10/10/95

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW10D2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_15#TL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.0	U		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	122000	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	1490	U		P
7439-92-1	Lead	1.0	B		F
7439-95-4	Magnesium	2420	B		P
7439-96-5	Manganese	19.0	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	811	B		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	8390	U		P
7440-28-0	Thallium	0.70	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	13.8	B		P
	Cyanide				NR

Handwritten: JB 6
10/10/95

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

245

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW10S2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_14#CL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	303	-		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	3.5	B		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	75000	-		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	6.6	B		P
7439-89-6	Iron	152	-		P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	1800	B		P
7439-96-5	Manganese	7.5	B		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	860	B		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	9970	-		P
7440-28-0	Thallium	0.70	U		F
7440-62-2	Vanadium	9.1	B		P
7440-66-6	Zinc	6.5	B		P
	Cyanide		-		NR

YB
10/10/95

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW14D2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_17#CL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	28.6	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	33.7	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	119000			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	1070			P
7439-92-1	Lead	15.4			F
7439-95-4	Magnesium	2450	B		P
7439-96-5	Manganese	23.4			P
7439-97-6	Mercury	2.0	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	1270	B		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	9560			P
7440-28-0	Thallium	0.70	U		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	29.5			P
	Cyanide				NR

YB
10/10/95

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW14S2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_16#TL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.0	U		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	4.2	B		F
7440-39-3	Barium	27.1	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	142000			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.9	B		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	4490			P
7439-92-1	Lead	1.0	U	W	F
7439-95-4	Magnesium	4520	B		P
7439-96-5	Manganese	44.6			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	1460	B		P
7782-49-2	Selenium	2.5	U	W	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	10400			P
7440-28-0	Thallium	0.70	U	W	F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	22.5			P
	Cyanide				NR

VBH
10/10/95

052

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

248

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MW16D2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_13#TL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.0	U		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	96900			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	6.1	B		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	2580			P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	3440	B		P
7439-96-5	Manganese	275			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	970	B		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	8380			P
7440-28-0	Thallium	0.70	U	W	F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	12.9	B		P
	Cyanide				NR

Handwritten notes:
7/14/95
Steph

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW16S2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_11#TL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.0	U		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	10.3			F
7440-39-3	Barium	32.2	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	124000			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	16.0	B		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	40400			P
7439-92-1	Lead	8.9			F
7439-95-4	Magnesium	4580	B		P
7439-96-5	Manganese	141			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	793	B		P
7782-49-2	Selenium	2.5	U	W	F
7440-22-4	Silver	10.9			P
7440-23-5	Sodium	4350	B		P
7440-28-0	Thallium	0.90	B	W	F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	11.5	B		P
	Cyanide				NR

JBH
10/10/95

052

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

250

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MW19D2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_5#CL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	47.9	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	109000			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.2	B		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	113			P
7439-92-1	Lead	1.0	U	W	F
7439-95-4	Magnesium	4990	B		P
7439-96-5	Manganese	36.7			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	3360	B		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	10500			P
7440-28-0	Thallium	0.70	B		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	10.4	B		P
	Cyanide				NR

Handwritten: 2/26
10/00/95

Handwritten: 052

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW19S2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_6#TL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	282			P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	35600	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	4.4	B		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	266	U		P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	1880	B		P
7439-96-5	Manganese	102	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	2650	B		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	11300	U		P
7440-28-0	Thallium	0.70	U	W	F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	9.9	B		P
	Cyanide				NR

VBH
12/12/95

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

W16S2D

b Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_12#CL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.0	U		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	11.1	U		F
7440-39-3	Barium	31.3	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	121000	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	16.9	B		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	42200	U		P
7439-92-1	Lead	2.9	B		F
7439-95-4	Magnesium	4540	B		P
7439-96-5	Manganese	139	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	728	B		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	4520	B		P
7440-28-0	Thallium	1.1	B	W	F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	5.0	U		P
	Cyanide				NR

JBH
12/12/95

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

853

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

W19S2D

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Lab Sample ID: 7537_7#TL

Level (low/med): LOW

Date Received: 08/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	205			P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	34500			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	4.1	B		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	215			P
7439-92-1	Lead	1.0	U	W	F
7439-95-4	Magnesium	1770	B		P
7439-96-5	Manganese	98.1			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	2600	B		P
7782-49-2	Selenium	2.5	U		F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	11200			P
7440-28-0	Thallium	1.3	B		F
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	11.7	B		P
	Cyanide				NR

Handwritten: JPH
10/10/95

Color Before: COLORLESS Clarity Before: CLEAR Texture: NA

Color After: COLORLESS Clarity After: CLEAR Artifacts: NA

Comments:

Handwritten: 259



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-258-5591
Fax. 214-258-5592

DATE RECEIVED : 12-AUG-1995

REPORT NUMBER : D95-7537-3
REPORT DATE : 12-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Water
ID MARKS : 35-ER01-02
: Fuel Farm
PROJECT : CTO323 Site 35, Camp Geiger
DATE SAMPLED : 11-AUG-1995

CLP METALS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Mercury /1	0.2 µg/L	< 0.2 µg/L
Dilution Factor : 1 Prepared using 245.1 CLP-M on 16-AUG-1995 by CEL Analyzed using 245.1 CLP-M on 18-AUG-1995 by CGJ QC Batch No : SOW_HG 39		
Zinc /1	20 µg/L	< 20 µg/L
Dilution Factor : 1 Prepared using SOW D-III-A-2 on 16-AUG-1995 by CEL Analyzed using 200.7 CLP-M on 21-AUG-1995 by JLW QC Batch No : SOW-154		

Applicable results are reported on Dry Weight basis.

JBL
6/10/95



Inchcape Testing Services

Environmental Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-258-5591
Fax. 214-258-5592

DATE RECEIVED : 12-AUG-1995

REPORT NUMBER : D95-7537-4

REPORT DATE : 12-SEP-1995

SAMPLE SUBMITTED BY : Baker Environmental, Inc.
ADDRESS : Airport Office Park, Building 3 - 420 Rouser
: Coraopolis, PA 15108
ATTENTION : Mr. Dan Bonk

SAMPLE MATRIX : Water
ID MARKS : 35-ER05-02
: Fuel Farm
PROJECT : CTO323 Site 35, Camp Geiger
DATE SAMPLED : 11-AUG-1995

CLP METALS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Mercury /1	0.2 µg/L	< 0.2 µg/L
Dilution Factor : 1 Prepared using 245.1 CLP-M on 16-AUG-1995 by CEL Analyzed using 245.1 CLP-M on 18-AUG-1995 by CGJ QC Batch No : SOW_HG 39		
Zinc /1	20 µg/L	< 20 µg/L
Dilution Factor : 1 Prepared using SOW D-III-A-2 on 16-AUG-1995 by CEL Analyzed using 200.7 CLP-M on 21-AUG-1995 by JLW QC Batch No : SOW-154		

Applicable results are reported on Dry Weight basis.

JBK
10/6/95

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

MW19S2S

Lab Name: Inchcape Testing Services Contract:

Lab Code: Case No.: SAS No.: SDG No.: BK7537

Matrix (soil/water): WATER Level (low/med): LOW
% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2375.0080	282.0815	2000.00	104.6		P
Antimony	75-125	538.3075	20.0000	500.00	107.7		P
Arsenic	75-125	36.2000	2.0000	40.00	90.5		F
Barium	75-125	2131.7205	20.0000	2000.00	106.6		P
Beryllium	75-125	58.0830	1.0000	50.00	116.2		P
Cadmium	75-125	54.3450	2.0000	50.00	108.7		P
Calcium							NR
Chromium	75-125	210.2655	2.0000	200.00	105.1		P
Cobalt	75-125	537.2635	4.4005	500.00	106.6		P
Copper	75-125	270.5620	5.0000	250.00	108.2		P
Iron	75-125	1388.2275	266.4770	1000.00	112.2		P
Lead	75-125	18.2100	1.0000	20.00	91.0		F
Magnesium							NR
Manganese	75-125	633.8285	101.9655	500.00	106.4		P
Mercury	75-125	0.8830	0.2000	1.00	88.3		AV
Nickel	75-125	528.0805	10.0000	500.00	105.6		P
Potassium							NR
Selenium	75-125	11.7000	2.5000	10.00	117.0		F
Silver	75-125	48.4885	2.0000	50.00	97.0		P
Sodium							NR
Thallium	75-125	56.2000	0.7000	50.00	112.4		F
Vanadium	75-125	543.3705	2.0000	500.00	108.7		P
Zinc	75-125	554.4060	9.8995	500.00	108.9		P
Cyanide							NR

Comments:

276
034

ENVIROFORMS/INORGANIC CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

MW19S2A

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	Spike Added (SA)	%R	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury								NR
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide								NR

Comments:

ENVIROFORMS/INORGANIC CLP

6
DUPLICATES

SAMPLE NO.

MW19S2D

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	200.0	282.0815		245.7750		13.8		P
Antimony		20.0000	U	20.0000	U			P
Arsenic		2.0000	U	2.0000	U			F
Barium		20.0000	U	20.0000	U			P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		2.0000	U	2.0000	U			P
Calcium		35632.6080		35913.2760		0.8		P
Chromium		2.0000	U	2.0000	U			P
Cobalt		4.4005	B	4.4795	B	1.8		P
Copper		5.0000	U	10.1740	B	200.0		P
Iron	100.0	266.4770		261.7715		1.8		P
Lead		1.0000	U	1.0000	U			F
Magnesium		1876.0020	B	1881.7595	B	0.3		P
Manganese		101.9655		103.4915		1.5		P
Mercury		0.2000	U	0.2000	U			AV
Nickel		10.0000	U	10.0000	U			P
Potassium		2650.7185	B	2566.9545	B	3.2		P
Selenium		2.5000	U	2.5000	U			F
Silver		2.0000	U	2.0000	U			P
Sodium	5000.0	11292.9000		11564.6000		2.4		P
Thallium		0.7000	U	0.7000	U			F
Vanadium		2.0000	U	2.0000	U			P
Zinc		9.8995	B	18.8585	B	62.3		P
Cyanide								NR

ENVIROFORMS/INORGANIC CLP

9
ICP SERIAL DILUTIONS

SAMPLE NO.

MW19S2L

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7537

Matrix (soil/water): WATER

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	282.08		419.64	B	48.8		P
Antimony	20.00	U	100.00	U			P
Arsenic							
Barium	20.00	U	100.00	U			P
Beryllium	1.00	U	5.00	U			P
Cadmium	2.00	U	10.00	U			P
Calcium	35632.61		36467.24		2.3		P
Chromium	2.00	U	10.00	U			P
Cobalt	4.40	B	10.00	U	100.0		P
Copper	5.00	U	25.00	U			P
Iron	266.48		314.22	B	17.9		P
Lead							
Magnesium	1876.00	B	2105.10	B	12.2		P
Manganese	101.97		106.39		4.3		P
Mercury							
Nickel	10.00	U	50.00	U			P
Potassium	2650.72	B	2536.62	B	4.3		P
Selenium							
Silver	2.00	U	10.00	U			P
Sodium	11292.90		9802.00	B	13.2		P
Thallium							
Vanadium	2.00	U	10.00	U			P
Zinc	9.90	B	25.00	U	100.0		P

DATA VALIDATION WORKSHEETS

Gasoline

HEARTLAND ESI - NONHALOGENATED VOLATILES - SW846 8015 - Page 1

Project: Baker 323 Site: Lynne

Type of Review: DDO IV Case No.: D-95-7357-3

Laboratory: Inchape Method: mod 8015

Reviewer's Initials: JIC Completion Date: 10/9/95

Number and Type Samples: 1 N20

VOLATILE HOLDING TIMES

1. Were the holding times met for all volatile analyses? Yes No
2. If No, list affected samples, dates, and decisions.

Sample ID	Date Collected or VTSR	Analysis Date	DA	Reviewer Decision

Note: DA = The number of days analysis holding time is exceeded.

Analysis Hold Times may be determined from date of collection using the requirements of SW846 (14 days - waters or soils); or CLP requirement of 10 days from VTSR.

GC INITIAL CALIBRATION

Associated Samples and Blanks: all

A. Calibration

1. Date(s) of calibration: 7/12/95

File/STD ID: VOA071295, 2, 1

File/STD ID: 3

File/STD ID: 4

File/STD ID: 5

File/STD ID: 7

File/STD ID: 8



2. Calibration Criteria

Briefly explain the criteria used by the laboratory for the initial calibration and provide an example calculation.

6 levels analyzed
Gas as 3 regions / area ratio vs amount for each region
LR curve for each - Final result - yum
TPH1 as gasoline curve = $r^2 = 0.993$
 $m = 0.0202$
 $b = 0.1654$

%RSD = _____

* Note: The %RSD criteria for 8000 Series Methods is 20%.

GC INITIAL CALIBRATION

3. Does the lowest concentration standard correspond to the reported detection limits for the associated samples ?

Yes No

If no, list qualifications that are required.

4. Did all of the compounds meet the initial calibration %RSD criteria?

$$r^2 \geq 0.995$$

Yes No

If no, list the affected samples, non compliant compounds and required qualifications.

Sample ID	Compound	%RSD	Qualification
all	Gasoline TPH1	0.993	J+ - none

Comments: _____

GC CONTINUING CALIBRATION

A. Continuing Calibration

1. Continuing Calibration Criteria

Briefly explain the criteria used by the laboratory for the continuing calibration and provide an example calculation.

mid-level analyzed @ 10 injection intervals
no %Ds calculated

$$\frac{815195 - 1423 \text{ VOA081595, 1, 1}}{500} (100\%) = 2.8\%D$$

%D = _____

* The Continuing Calibration criteria for 8000 Series Methods is 15%D for the mid-level standard.

2. Were all of the method requirements met including daily Retention Time Windows, mid-level standard after each group of 10 samples?

Yes No

If no, list qualifications that are required.

multi-component compound - surrogate at 15
Stable

GC CONTINUING CALIBRATION

3. Date of calibration: all CW

File/STD ID: _____

Date of Initial Calibration: 7/12/95

Associated Samples and Blanks: all

4. Did all of the compounds meet the continuing calibration %D criteria?

Yes No

If no, list the affected samples, non compliant compounds and required qualifications.

Sample ID	Compound	%R or %D	Qualification

Comments: _____

~~TRIP~~ ^{method} BLANK SUMMARY

^{method}

~~Trip~~ Blank ID: BUL File ID: VOA 081595, 4, 1

Analysis date/time: 08/15/95 Concentration units: $\mu\text{g/L}$

Associated Samples: all

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

SURROGATE RECOVERY SUMMARY

Matrix: Aqueous Non-aqueous

PROVIDE RECOVERY LIMITS:

Surrogate	Lower	Upper
Fluorobenzene	not reported	

default
50-150

1. Did all the surrogate recoveries for the blanks, QC samples, and field samples meet the acceptance criteria?

Yes No

If no, list all affected samples and their respective surrogate recoveries that are out of criteria.

Sample ID	%R	%R	QA Action

QC 10/19/95

* D denotes that the surrogate was diluted out

Comments: _____

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY

Sample ID: none

Matrix: _____

Associated Samples: _____

1. Were the percent recoveries and RPDs within the advisory limits?

Yes No

If no, list the non compliant MS/MSD information below.

Compound	%R Limits	%R	%R	%RPD Limits	%RPD	Action

* - denotes non-compliant % Recoveries or %RPD

Comments: _____

SAMPLE RESULT VERIFICATION

Matrix: Aqueous ~~Non-aqueous~~

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Was the percent moisture reported when required? Yes No NR
- 3. Was the data reported on a dry weight basis? Yes No NR
- 4. Did the GC chromatogram exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments and Calculation examples NO + RESULTS

Reviewer: Jacqueline A Cleveland Date: 10/9/95

Diesel

HEARTLAND ESI - NONHALOGENATED VOLATILES - SW846 8015 - Page 1

Project: Baker 323 Site: Luzerne

Type of Review: QAD IV Case No.: 95-7537-3

Laboratory: Inchcape Method: Mod. 8015 TPH

Reviewer's Initials: JAC Completion Date: 10/9/95

Number and Type Samples: 1 H2O

VOLATILE HOLDING TIMES

- Were the holding times met for all volatile analyses? Yes No
 5- 8/11/95 2- 8/17/95 2- 8/18/95
- If No, list affected samples, dates, and decisions.

Sample ID	Date Collected or VTSR	Analysis Date	DA	Reviewer Decision

Note: DA = The number of days analysis holding time is exceeded.

Analysis Hold Times may be determined from date of collection using the requirements of SW846 (14 days - waters or soils); or CLP requirement of 10 days from VTSR.

GC INITIAL CALIBRATION

Associated Samples and Blanks: ay

A. Calibration

1. Date(s) of calibration: 4/12/95

File/STD ID: HP17041295B, 1, 1 HP17041295B, 8, 1

File/STD ID: _____ 2 HP17042695, 1, 1

File/STD ID: _____ 3 HP17050395, 1, 1

File/STD ID: _____ 4 ↓ 2, 1

File/STD ID: _____ 5

File/STD ID: _____ 6

File/STD ID: _____ 7

2. Calibration Criteria

Briefly explain the criteria used by the laboratory for the initial calibration and provide an example calculation.

11 levels analyzed

LR curve plotted

4 stds 1000, 2000, 3000, & 4000 analyzed

after initial curve

1 curve = $r^2 = 0.999$

$m = 214298$

$b = 444642$

%RSD = _____

* Note: The %RSD criteria for 8000 Series Methods is 20%.

GC INITIAL CALIBRATION

3. Does the lowest concentration standard correspond to the reported detection limits for the associated samples ?

Yes No

If no, list qualifications that are required.

4. Did all of the compounds meet the initial calibration %RSD criteria?

OK R² ≥ 0.995

Yes No

If no, list the affected samples, non compliant compounds and required qualifications.

Sample ID	Compound	%RSD	Qualification

Comments: _____

GC CONTINUING CALIBRATION

A. Continuing Calibration

1. Continuing Calibration Criteria

Briefly explain the criteria used by the laboratory for the continuing calibration and provide an example calculation.

Mid-level analyzed @ 10 injection intervals
No %D calculated - Reviewer checked

8/19/95 0037 HP1708185 46.1
$$\%D = \frac{1000 - 856.369}{1000} (100\%) = 14.4\%D$$

%D = _____

* The Continuing Calibration criteria for 8000 Series Methods is 15%D for the mid-level standard.

2. Were all of the method requirements met including daily Retention Time Windows, mid-level standard after each group of 10 samples?

Yes No

If no, list qualifications that are required.

multi component target - surrogate

GC CONTINUING CALIBRATION

3. Date of calibration: all CVDs

File/STD ID: _____

Date of Initial Calibration: 4/12-13/95

Associated Samples and Blanks: all

4. Did all of the compounds meet the continuing calibration %D criteria?

+/- 15% criteria applied

Yes No

If no, list the affected samples, non compliant compounds and required qualifications.

Sample ID	Compound	%R or %D	Qualification

Comments: _____

Method
IRIP BLANK SUMMARY

Method

Trip Blank ID: BLK 100015 ABS22-64 File ID: ILLEGIBLE

Analysis date/time: 8/18/95 2044 Concentration units: $\mu\text{g/L}$

Associated Samples: QU

Blank analysis results:

Compound	Conc.	CRQL

Sample ID	Compound	Conc.	Action

Explanation for QA decisions: _____

SURROGATE RECOVERY SUMMARY

Matrix: Aqueous Non-aqueous

PROVIDE RECOVERY LIMITS:

Surrogate	Lower	Upper
tracantone	not	reported

50-150 as default.

1. Did all the surrogate recoveries for the blanks, QC samples, and field samples meet the acceptance criteria?

Yes No

If no, list all affected samples and their respective surrogate recoveries that are out of criteria.

Sample ID	%R	%R	QA Action
QC 10/19/95			

* D denotes that the surrogate was diluted out

Comments: _____

MATRIX SPIKE/MATRIX SPIKE DUPLICATE SUMMARY

Sample ID: none Matrix: _____

Associated Samples: _____

1. Were the percent recoveries and RPDs within the advisory limits?
Yes No

If no, list the non compliant MS/MSD information below.

Compound	%R Limits	%R	%R	%RPD Limits	%RPD	Action

* - denotes non-compliant % Recoveries or %RPD

Comments: _____

SAMPLE RESULT VERIFICATION

Matrix: Aqueous Non-aqueous

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Was the percent moisture reported when required? Yes No NR
- 3. Was the data reported on a dry weight basis? Yes No NR
- 4. Did the GC chromatogram exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments and Calculation examples no + results

pp 199-201 missing from data package
p 203 & pp 205-207, pp 210

NO CUP like forms submitted

Sample is unseated blank

Reviewer: Jacqueline A Cleveland

Date: 10/9/95



NEESA LEVEL D DATA DELIVERABLES
INORGANICS - PART I

Site Name: CTO-323

Client: Baker

Location: Camp Geiger
Analytical Fraction: TAL Metals

Lab: Inchape

Reviewer: P. Humby

Date(s): 10/10/98

- A. Control Chart - results of the method blank : Yes No NR
spikes run with each batch of samples :
processed :
- B. CLP Form 1s with associated sample results : Yes No NR
and CLP flagging system. All percent :
moistures for soils and discussion of :
sample type :
- C. CLP Form 2s with Initial and continuing : Yes No NR
calibration standards (part 1 only) :
- D. CLP Form 3s with prep and method blanks : Yes No NR
- E. CLP Form 4s with Interference check : Yes No NR
sample data :
- F. CLP Form 5s with Matrix spike recovery and : Yes No NR
the postdigestion spike recovery for :
ICP Metals. Only done if predigest :
spike recovery exceeds limits :
- G. CLP Form 6s with Duplicate data results : Yes No NR
- H. CLP Form 7s with LCS data results : Yes No NR
- I. CLP Form 8s with GFAA standard addition : Yes No NR
data :
- J. CLP Form 9s with Serial Dilution data : Yes No NR
results :



NEESA LEVEL D DATA DELIVERABLES
INORGANICS - PART II

- | | | | | |
|----|--|--|----|----|
| K. | CLP Form 10s with Instrument Detection Data | : <input checked="" type="radio"/> Yes | No | NR |
| L. | CLP Forms 11 and 12 with Quarterly Verification of Instrument Parameters | : <input checked="" type="radio"/> Yes | No | NR |
| M. | CLP Form 13s with Preparation Log data | : <input checked="" type="radio"/> Yes | No | NR |
| N. | CLP Form 14s with Run Log data | : <input checked="" type="radio"/> Yes | No | NR |



HEARTLAND ESI Form A

DATA DELIVERABLE REQUIREMENTS

A.	Permanently Bound	Yes	<input checked="" type="radio"/> No	NR
B.	Paginated	<input checked="" type="radio"/> Yes	No	NR
C.	Table of Contents	<input checked="" type="radio"/> Yes	No	NR
D.	Digestion Records(internal C-O-C)	<input checked="" type="radio"/> Yes	No	NR
E.	Chain-Of-Custody (external)	<input checked="" type="radio"/> Yes	No	NR
F.	Case Narrative			
	1. Sample list with Client and Lab IDs cross-referenced (copy attached)	<input checked="" type="radio"/> Yes	No	NR
	2. All Protocol deviations and QC problems noted	<input checked="" type="radio"/> Yes	No	NR
	3. Comments: _____			
<hr/>				
G.	Uninitialed Strikeovers	Yes	<input checked="" type="radio"/> No	NR
H.	Legible Photocopies	<input checked="" type="radio"/> Yes	No	NR
I.	Consistent Dates	<input checked="" type="radio"/> Yes	No	NR
J.	Preparation Logs	<input checked="" type="radio"/> Yes	No	NR
K.	Instrument Run Logs	<input checked="" type="radio"/> Yes	No	NR
L.	Other Deviations or Comments: _____			
<hr/>				
<hr/>				
<hr/>				



HEARTLAND ESI Form B

HOLDING TIMES FOR METALS

1. Was the holding time exceeded on any of the Metal Fractions

ICP/GFAA/FAA - Holding time of 6 months VTSR

Mercury - Holding time of 28 days VTSR

Cyanide - Holding time of 14 days VTSR

Yes

No

2. If yes, complete the following form for all samples that exceeding holding times.

Fraction: _____

Sample ID	Matrix	VTSR	Date of Analysis	DA	QC Decision

PB# - 10/10/91

Note: DA = The number of days holding time to analysis is exceeded.

S = Non-aqueous

A = Aqueous

X = Air

QA Decision: Results > IDL - J - estimated

Results < IDL - R - rejected



HEARTLAND ESI Form C-1

INSTRUMENT CALIBRATION AND INITIAL CALIBRATION VERIFICATION (ICV)

Associated Samples All water sample

1. a. Was the ICP instrument properly standardized? Yes No
If no, explain and list action. _____

- b. Was the furnace instrument properly standardized? Yes No
If no, were the required standards analyzed immediately after the instrument calibration and results within 95-105% recovery?
Yes No
If no, explain and list action. _____

- c. Were the instruments for the analyses of Cyanide and Mercury properly standardized? Yes No
If no, explain and list action. _____

2. Was the ICV analyzed immediately after the system(s) were calibrated? Yes No
If no, explain and list action. _____

3. Was the ICV analyzed for every analyte? Yes No
If no, explain and list action. _____

4. Do all ICV analytes meet the QC requirements for % recovery? Yes No
If no, list affected analytes, their % recovery, and action for which:
 - a. % recovery is between 75-89% (CN, 70-84% or HG, 65-79%)



HEARTLAND ESI Form C-2

b. % recovery is between 111-125% (CN, 116-130% or HG, 121-135%) _____

c. % recovery is less than 75% or greater than 125% (CN, <70 or >130%, Hg <65 or >135) _____

5. a. Show calculation for the % recovery of one ICV analyte by ICP. Lab value 102.49

Silver $\frac{205}{200} \times 100 = 102.51$

b. Show calculation for the % recovery of one ICV analyte by furnace AA. Lab value 96.98

Lead $\frac{19.4}{20.0} \times 100 = 97.0$

c. Show calculation for the ICV % recovery of Mercury. Lab Value 91.62

$\frac{2.29}{2.50} \times 100 = 91.62$

d. Show calculation for the ICV % recovery of Cyanide. Lab value NR

6. Specific comments: _____



HEARTLAND ESI Form D-1

CONTINUING CALIBRATION VERIFICATION (CCV)

Associated Samples All water sample

1. a. Was the CCV performed every two hours or at the 10% frequency? Yes No
If no, list action. _____

b. Was the CCV performed at the beginning and end of the sample analysis? Yes No
If no, list action. _____

2. Were the CCV standards analyzed for all analytes? Yes No
If no, list affected analytes, their associated samples and action. _____

3. Was the same concentration used for CCV throughout the analyses? Yes No
If no, list affected analytes, their associated samples and action. _____

4. Do all CCV analytes meet the QC requirements for % recovery? Yes No
If no, list affected analytes, their associated samples and action for which:

a. % recovery is between 75-89%(CN, 70-84% or Hg, 65-79%) _____

b. % recovery is between 111-125%(CN, 116-130% or Hg, 121-135%) _____

c. % recovery is less than 75% or greater than 125%(CN, <70 or >130%, Hg, <65 or <135%) _____



HEARTLAND ESI Form D-2

5. a. Show calculation for the % recovery of one CCV analyte analyzed by ICP. Lab value 106.79

Vanadium $\frac{534}{500} \times 100 = 106.8\%$

- b. Show calculation for the % recovery of one CCV analyte analyzed by furnace AA. Lab value 90.6

Selenium $\frac{22.5}{25.0} \times 100 = 90\%$

- c. Show calculation for the % recovery of one CCV analyte analyzed for Mercury. Lab value 95.7%

$\frac{2.87}{3.00} \times 100 = 95.7\%$

- d. Show calculation for the % recovery of one CCV analyte for Cyanide. Lab value NR

6. Specific comments: _____



HEARTLAND ESI Form F

INITIAL & CONTINUING CALIBRATION BLANK

Associated Samples All water sample

1. Were the initial calibration blanks analyzed for all analytes and run after the initial calibration verification? Yes No
If no, list affected analytes, and action. _____

2. Was the absolute value for all analytes in the initial calibration blank below the CRDL? Yes No
If no, list affected analytes and reject them. _____

3. Were the continuing calibration blanks analyzed for all analytes and run after the continuing calibration verification? Yes No
If no, list affected analytes, associated samples and action. _____

4. Was the frequency for the continuing calibration blanks correct? Yes No
If no, list affected analytes, associated samples and action. _____

5. Was the absolute value of all analytes for the continuing calibration blank below the CRDL? Yes No
If no, list affected analytes, associated samples and reject them. _____



HEARTLAND ESI Form G

PREPARATION BLANK SUMMARY

Sample Matrix: Soil Water Air Preparation Blank ID PBW
 Units: mg/kg ug/l ug/m3

1. Did the frequency of the preparation blank analysis meet method requirements? Yes No
 If no, explain and note action. _____

Analyte	Conc	<CRDL	Comments/Action
Copper	5.21	yes	qualify all data as
Magnesium	58.8	↓	necessary
			PBW 10/10/20

Associated Samples All water sample

CRDL Codes: Yes < CRDL
 No > CRDL



HEARTLAND ESI Form H

ICP INTERFERENCE CHECK SAMPLE

Associated Samples All water sample

1. Was an ICP interference check sample performed Yes No
at the correct frequency?
If no, note any deviations and action. _____

2. a. Were the interferences for solution A Yes No
reported?
If no, note deviations _____

b. Were the analytes and interferences for solution AB reported? Yes No
If no, note deviations _____

3. Were the concentrations of Al, Ca, Fe and Mg Yes No
in associated samples found to be significantly less than
(i.e., <50%) their respective concentrations in solution A?
If yes, no action is required.

4. Did all required analytes in solution AB meet Yes No
the QC limit of 80-120%?
If no,

a. List any analytes and their % recovery which are greater than or equal to 30% but less than 80% and action. _____

b. List any analytes and their % recovery which are greater than 120% and action. _____

c. List any analytes and their % recovery which are less than 30% and action. _____

5. Show the calculation for % recovery for one analyte in solution AB.
Lab value 1159

$$\text{Silver } \frac{1150}{1000} \times 100 = 115\%$$



HEARTLAND ESI Form I-1

SAMPLE SPIKE ANALYSIS

Sample Spike Analysis performed on sample MW 1952

Matrix: Soil Water Air
Units: mg/kg ug/l ug/m3
% Solids _____

Associated Samples All water sample

1. Was the sample spike analysis performed at the correct frequency? Yes No
If no, note deviations and action. _____

2. Was the sample spike analysis performed on a field sample? Yes No
If no, reject all associated samples.

3. a. Were two analytical methods used to obtain reported values for one analyte? Yes No
If yes, list analytes _____

b. Was sample spike analysis performed using both methods for that analyte? Yes No
If no, reject affected sample(s) which did not have spike analysis performed. _____

4. Was sample analysis performed at the proper concentration? Yes No
If no, list analytes and qualify. _____

5. Did the % recovery for all analytes meet the criteria of 75-125%? Yes No
If no, list only those analytes which % recovery are out and whose sample result (SR) is less than 4 times the sample added (SA). List % recovery in parenthesis next to the analyte out and action. _____

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HEARTLAND ESI Form 1-2

6. Were outliers for % recovery flagged with the "N" qualifier?
If no, list analytes not flagged.

Yes No

7. a. Show calculation for % recovery for one analyte analyzed by ICP. Lab value 106.48
Manganese $\frac{634-102}{500} \times 100 = 106.4\%$
- b. Show calculation for % recovery for one analyte analyzed by furnace AA. Lab value 117.9
Selenium $\frac{11.7}{10.0} \times 100 = 117\%$
- c. Show calculation for % recovery for Mercury. Lab value 88.39
 $\frac{.883}{1.000} \times 100 = 88.3\%$
- d. Show calculation for % recovery for Cyanide. Lab value NR



HEARTLAND ESI Form K-1

DUPLICATE ANALYSIS

Duplicate Analysis performed on sample MW1952P

Matrix: Soil Water Air
Units: mg/kg ug/l ug/m3
% Solids: _____

Associated Samples All water sample

1. Were duplicate analyses performed at the correct frequency? Yes No
If no, note deviations and action. _____

2. Was duplicate analysis performed on a field sample? Yes No
If no, reject all associated samples.

3. Were two analytical methods used to obtain reported values for one analyte? Yes No
If yes,
a. List analytes _____

b. Were duplicate analysis performed using both methods for that analyte? Yes No
If no, reject affected samples which did not have duplicate analysis performed. _____

4. Is the laboratory using the correct control limit (i.e. +CRDL or 20% for water and 35% for soils criteria) to judge duplicate RPD results? Yes No
If no, note deviations. _____

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HEARTLAND ESI Form K-2

5. Do all analytes meet these QC control limits? Yes No
If no, list the analytes outside the limits and qualify these analytes. _____

6. Were outliers correctly flagged with the "*" qualifier? Yes No
If no, list those analytes not correctly flagged. _____

7. a. Show calculation for RPD for one analyte analyzed by ICP. Lab value 1.56

Manganese $\frac{||102-103||}{(102+103) \Delta} \times 100$ $\frac{1}{102.5} \times 100 = 1.06$

b. Show calculation for RPD for one analyte analyzed by furnace AA. Lab value NC

c. Show calculation for RPD for Mercury. Lab value NC

d. Show calculation for RPD for Cyanide. Lab value NR



HEARTLAND ESI Form L

LABORATORY CONTROL SAMPLE

Matrix: Soil mg/kg Water ug/l Air ugm3
Units: mg/kg ug/l ugm3
%Solids _____

Associated Samples All water sample

1. Was the laboratory control sample performed at the correct frequency? Yes No
If no, give action. _____

2. Do all analytes meet the QC limits of 80-120% (except Silver, Antimony, Mercury and Cyanide for aqueous samples) or within the control limits established by EPA for soils? Yes No
If no, list analytes, their recovery and action. _____

3. a. Show the calculation for % recovery for at least one analyte by ICP. Lab value 104.6%

Antimony $\frac{523}{500} \times 100 = 104.6\%$

b. Show the calculation for % recovery for at least one analyte analyzed by furnace AA. Lab value 88%

Selenium $\frac{88}{0.0} \times 100 = 88\%$

c. Show the calculation for % recovery of Mercury (soil only). Lab value NK



HEARTLAND ESI Form N

SAMPLE RESULT VERIFICATION

Associated Samples All water samples

1. Were all samples reported within the calibration range? Yes No
If no, list affected samples and action. _____
2. Was the % solids analysis performed for all nonaqueous samples? Yes No NR
If no, list affected samples and action. _____
3. Show calculation for % solids for one sample. Lab value NR
4. Was the raw data free of any anomalies? Yes No
If no, list affected samples and action. _____
5. Was the data package free of any computational or transcriptional errors? Yes No
If no, list affected samples and action. _____
6. Verify that nonaqueous samples were reported on a dry weight basis by recalculating the results for one analyte in a sample. Lab value NR



HEARTLAND ESI Form O

ICP SERIAL DILUTION

Serial Dilution performed on Sample MW1952
Dilution Factor 5

Matrix: Soil Water Air
Units: mg/kg ug/l ug/m3

Associated Samples All water samples

1. Was a serial dilution performed at the correct frequency? Yes No
If no, give action. _____

2. Was a field sample used for serial dilution? Yes No
If no, give action. _____

3. For all analytes greater than fifty times the IDL, was a serial dilution performed? Yes No
If no, list analytes and reject them. _____

4. a. For all analytes greater than ten times the IDL, did the the serial dilution analysis meet the QC limit of 10% D? Yes No
If no, list those analytes outside the limits and qualify them.

b. Show a calculation for % D for one analyte analyzed by ICP.

Manganese $\frac{11102-10611}{102} \times 100 = 3.99\%$ Lab Value 4.3%



HEARTLAND ESI Form P

QUARTERLY VERIFICATION OF INSTRUMENT PARAMETERS

1. Was the IDL analyzed and reported quarterly (every three calendar months) for each element on Form X.

Yes No

If no, explain and list action. _____

2. Was the IDL below the CRDL for each element?
If no, explain and list action. _____

Yes No

3. Was the ICP interelement correction factor analyzed and reported for each element on Form 11 and 12.

Yes No

If no, explain and list action. _____

4. Was the linear range analyzed and reported annually and quarterly respectively for each element on Form 11 and 12.

Yes No

If no, explain and list action. _____



HEARTLAND
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

October 10, 1995

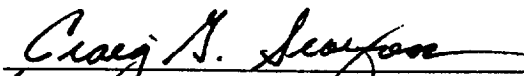
Prepared for
BAKER ENVIRONMENTAL, INC.
420 Rouser Road
Coraopolis, PA 15108

This Data Validation Report is a review of the analytical results of sampling conducted August 12 & 13, 1995 in support of the Camp Geiger Site 35, Fuel Farm Project, 62470-323 (Camp Lejeune). There were twelve (12) water samples with two (2) MS/MD pairs which were received and analyzed by Inchcape Testing Services - NDRC Laboratories in this analytical batch, **SDG# BK7597**.

Heartland ESI personnel have reviewed the data presented for the Samples listed below for the Analytical Fractions indicated. The CLP fractions have been validated utilizing: the "Laboratory Data Validation Functional Guidelines For Evaluating Organics Analysis", June, 1991; the "Laboratory Data Validation Functional Guidelines For Evaluating Inorganics Analysis", July, 1988; specific method requirements in SW-846; and ILM02.0; Region IV modifications; Level D requirements and good professional judgement.

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatogram, etc., for each sample have been carefully reviewed. The end-user is urged to review the **Specific Findings** and associated **Data Qualifications** presented in this report. Annotated Form Is for all samples reviewed are included after the **Narratives**.

The release of this Data Validation Report is authorized by the following signature:



Eugene M. Watson, Vice President Heartland ESI

10-10-95.
Date

SDG# BK7597

SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>		<u>Analytical Fractions</u>	
<u>BAKER ID</u>	<u>NDRC ID</u>	<u>Matrix</u>	<u>TAL</u>
EMW052	7597 6#CL	WATER	X
ER0702	7597 10#CL	WATER	X
FB0102	7597-12	WATER	X
IDW012	7597 11#CL	WATER	X
MW09D2	7597-2	WATER	X
MW09S2	7597 7#CL	WATER	X
MW22D2	7597-8	WATER	X
MW22S2	7597 9#CL	WATER	X
MW29A2	7597 4#CL	WATER	X
MW29A2D	7597 4D#CL	WATER	X
MW29A2S	7597 4S#CL	WATER	X
MW29B2	7597 5#CL	WATER	X
MW33A2	7597 1#CL	WATER	X
MW33A2D	7597-1D	WATER	X
MW33A2S	7597-1S	WATER	X
MW33D2	7597 3#CL	WATER	X

Total Number of Samples (Water/Soil) 16/0

MS - Matrix Spike

MD - Matrix Spike Duplicate/Matrix Duplicate

Individual fractions were reviewed as follows:

	<u>Primary</u>	<u>Secondary</u>
TAL - Total Metals (ILM02)	Paul Humburg	J. Cleveland

DATA ASSESSMENT NARRATIVE

Metals

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations are recalculated by the reviewer. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from CTO-323, SDG# BK7597, the analysis of twelve (12) field water samples and one Matrix Spike and Duplicate pair for TAL Metals. Overall, the inorganic data quality was fair. All protocol requirements were followed with the exception of the following problems.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in Section 3 of the NEESA (20.2-047B) QA protocol.

Calibration

No deficiencies in this section.

Preparation and Field Blank

1. The preparation blank exhibited contamination for the following elements.

Cadmium	2.86	ug/l
Silver	4.97	ug/l
Zinc	7.44	ug/l

The USEPA requires that all sample values below five times the preparation or calibration blank contamination be qualified as estimated, "U".

The rinsate blank exhibited low level contamination. No impact on this SDG.

Interferences

No significant interferences were observed.

Metals Data Assessment Narrative (continued - Page 2)

Spike Recovery

2. The Matrix Spike recoveries for Lead and Selenium were below the lower control limits. All positive and non-detect results are qualified as estimated, "J" or "UJ".

Duplicate

3. The Duplicate analysis for Lead was outside the control limits. All positive results are qualified as estimated, "J".

LCS

No deficiencies in this section.

Serial Dilution

No deficiencies in this section.

MSA

4. The following analytes exhibited low recovery during the GFAA spiking procedure. All positive and non-detect results are qualified as estimated, "J" or "UJ".

<u>Analytes</u>	<u>Samples</u>
Selenium	MW29D2, MW33A2 and IDW012.

5. The following analytes exhibited high recovery during the GFAA spiking procedure. All positive results are qualified as estimated, "J".

<u>Analytes</u>	<u>Samples</u>
Lead	IDW012 and MW33D2.
Selenium	ER0702.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All water samples	Cd, Ag and Zn.	+	U	1
All water samples	Pb and Se.	+ /U	J /UJ	2
All water samples	Pb.	+	J	3
MW29B2, MW33A2 and IDW012.	Se.	+ /U	J /UJ	4
IDW012 and MW33D2. ER0702.	Pb. Se.	+	J	5

DL - denotes laboratory qualifier/reported value
 + denotes positive values
 U denotes non-detect values

QL - denotes data validation qualifier

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

EMW052

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597_6#CL

Level (low/med): LOW

Date Received: 08/15/95

* Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	93.2	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	8.7	B		F
7440-39-3	Barium	21.7	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	45100			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	3.8	B		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	20200			P
7439-92-1	Lead	12.1		N*	F
7439-95-4	Magnesium	3610	B		P
7439-96-5	Manganese	51.7			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	1160	B		P
7782-49-2	Selenium	2.5	U	N	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	9090			P
7440-28-0	Thallium	9.9	U		P
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	5.0	U		P

M. V.
10/10/95

J2,3

UJ2

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

ER0702

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597_10#CL

Level (low/med): LOW

Date Received: 08/15/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	42.9	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	1.4	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	500	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	20.0	U		P
7439-92-1	Lead	1.0	U	N*	F
7439-95-4	Magnesium	50.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	200	U		P
7782-49-2	Selenium	2.5	U	NW	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	854	B		P
7440-28-0	Thallium	9.9	U		P
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	15.1	B		P

Handwritten notes:
 UJ2
 UJ2
 U1
 10/10/95

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

ents:

005

024

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

FB0102

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597-12

Level (low/med): LOW

Date Received: 08/15/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.3	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	1.4	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	500	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	20.0	U		P
7439-92-1	Lead	1.0	U	N*	F
7439-95-4	Magnesium	50.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	200	U		P
7782-49-2	Selenium	2.5	U	N	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	509	B		P
7440-28-0	Thallium	9.9	U		P
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	5.0	U		P

052

YB
10/10/95

052

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

006

025

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

IDW012

Lab Name: Inchcape Testing Services

Contract:

Lab Code: -

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597_11#CL

Level (low/med): LOW

Date Received: 08/15/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	43700	-		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	18.1	-		F
7440-39-3	Barium	433	-		P
7440-41-7	Beryllium	5.5	-		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	253000	-		P
7440-47-3	Chromium	166	-		P
7440-48-4	Cobalt	34.8	B		P
7440-50-8	Copper	26.5	-		P
7439-89-6	Iron	37500	-		P
7439-92-1	Lead	50.6	-	NW*	F
7439-95-4	Magnesium	7330	-		P
7439-96-5	Manganese	179	-		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	51.2	-		P
7440-09-7	Potassium	5900	-		P
7782-49-2	Selenium	4.5	B	N	F
7440-22-4	Silver	2.9	B		P
7440-23-5	Sodium	8560	-		P
7440-28-0	Thallium	12.2	-		P
7440-62-2	Vanadium	106	-		P
7440-66-6	Zinc	332	-		P

YBK
10/10/95

J2,3,5

J2,4
U1

Color Before: BROWN

Clarity Before: CLEAR

Texture: NA

Color After: YELLOW

Clarity After: CLEAR

Artifacts: NA

ents:

007

026

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW09D2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597-2

Level (low/med): LOW

Date Received: 08/15/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	26.2	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	1.4	U		F
7440-39-3	Barium	20.9	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	104000	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	1650	U		P
7439-92-1	Lead	1.0	U	N*	F
7439-95-4	Magnesium	2260	B		P
7439-96-5	Manganese	19.7	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	844	B		P
7782-49-2	Selenium	2.5	U	N	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	8740	U		P
7440-28-0	Thallium	9.9	U		P
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	10.9	B		P

Handwritten notes:
 OJL
 JBT
 10/10/95
 OJL
 U1

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artificial: NA

Comments:

008

027

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

MW09S2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597_7#CL

Level (low/med): LOW

Date Received: 08/15/95

* Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	198	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	3.2	B		F
7440-39-3	Barium	57.7	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	3.9	B		P
7440-70-2	Calcium	98600			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	162			P
7439-92-1	Lead	1.0	U	N*	F
7439-95-4	Magnesium	4110	B		P
7439-96-5	Manganese	38.6			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	3350	B		P
7782-49-2	Selenium	3.4	B	N	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	29000			P
7440-28-0	Thallium	9.9	U		P
7440-62-2	Vanadium	5.5	B		P
7440-66-6	Zinc	18.5	B		P

U1

Handwritten: JBS
10/10/95

UJ2

J2

U1

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

009

020

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW22D2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597-8

Level (low/med): LOW

Date Received: 08/15/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	22.6	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	1.4	U		F
7440-39-3	Barium	24.7	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	104000	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	1110	U		P
7439-92-1	Lead	2.5	B	N*	F
7439-95-4	Magnesium	3020	B		P
7439-96-5	Manganese	41.2	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	1120	B		P
7782-49-2	Selenium	2.5	U	N	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	7050	U		P
7440-28-0	Thallium	9.9	U		P
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	5.9	B		P

Handwritten: J2, 3
PB
10/10/95

Handwritten: UJL

Handwritten: U1

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

Handwritten: 010
023

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW22S2

Lab Name: Inchcape Testing Services

Contract:

Lab Code: -

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597_9#CL

Level (low/med): LOW

Date Received: 08/15/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	123	B		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	7.1	B		F
7440-39-3	Barium	32.5	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	133000			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	5.6	B		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	15700			P
7439-92-1	Lead	1.0	U	N*	F
7439-95-4	Magnesium	3230	B		P
7439-96-5	Manganese	63.5			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	2320	B		P
7782-49-2	Selenium	2.5	U	N	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	5080			P
7440-28-0	Thallium	9.9	U		P
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	5.0	U		P

Handwritten: JBH
10/10/95

052

052

Color Before: YELLOW

Clarity Before: CLEAR

Texture: NA

Color After: YELLOW

Clarity After: CLEAR

Artifacts: NA

Notes:

011
030

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW29A2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597_4#CL

Level (low/med): LOW

Date Received: 08/15/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	357	-		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	13.3			F
7440-39-3	Barium	81.7	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	7460			P
7440-47-3	Chromium	2.0	B		P
7440-48-4	Cobalt	3.3	B		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	9360			P
7439-92-1	Lead	1.0	U	N*	F
7439-95-4	Magnesium	1550	B		P
7439-96-5	Manganese	29.2			P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	B		P
7440-09-7	Potassium	2170	B		P
7782-49-2	Selenium	2.5	U	N	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	14600			P
7440-28-0	Thallium	9.9	U		P
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	17.4	B		P

Handwritten notes:
 052
 JBB
 10/10/95
 052
 01

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

012

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW29B2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597_5#CL

Level (low/med): LOW

Date Received: 08/15/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.0	U		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	1.4	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	93500	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	933	U		P
7439-92-1	Lead	1.4	B	N*	F
7439-95-4	Magnesium	1890	B		P
7439-96-5	Manganese	17.1	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	1110	B		P
7782-49-2	Selenium	2.5	U	NW	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	6460	U		P
7440-28-0	Thallium	9.9	U		P
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	11.6	B		P

YB
10/10/95

J2,3

UJ2,4

U1

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

0130

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW33A2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597_1#CL

Level (low/med): LOW

Date Received: 08/15/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	520	-		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	1.4	U		F
7440-39-3	Barium	98.4	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	6380			P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	58.4	B		P
7439-92-1	Lead	6.0	B	N*	F
7439-95-4	Magnesium	3620	B		P
7439-96-5	Manganese	8.8	B		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	1840	B		P
7782-49-2	Selenium	2.6	B	NW	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	5370			P
7440-28-0	Thallium	9.9	U		P
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	7.6	B		P

YBO
10/10/95
J2,3
J2,4
U1

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Comments:

014
033

ENVIROFORMS/INORGANIC CLP

SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

MW33D2

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Lab Sample ID: 7597_3#CL

Level (low/med): LOW

Date Received: 08/15/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.0	U		P
7440-36-0	Antimony	20.0	U		P
7440-38-2	Arsenic	1.4	U		F
7440-39-3	Barium	20.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	102000	U		P
7440-47-3	Chromium	2.0	U		P
7440-48-4	Cobalt	2.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	648	U		P
7439-92-1	Lead	1.5	B	NW*	F
7439-95-4	Magnesium	2170	B		P
7439-96-5	Manganese	20.1	U		P
7439-97-6	Mercury	0.20	U		AV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	929	B		P
7782-49-2	Selenium	2.5	B	N	F
7440-22-4	Silver	2.0	U		P
7440-23-5	Sodium	7340	U		P
7440-28-0	Thallium	9.9	U		P
7440-62-2	Vanadium	2.0	U		P
7440-66-6	Zinc	24.3	U		P

JB
10/10/95

J2, 3, 5

UJ2

U1

Color Before: COLORLESS

Clarity Before: CLEAR

Texture: NA

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: NA

Notes:

015

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

MW33A2S

Lab Name: Inchcape Testing Services Contract:

Lab Code: Case No.: SAS No.: SDG No.: BK7597

Matrix (soil/water): WATER Level (low/med): LOW
% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum							NR
Antimony							NR
Arsenic	75-125	37.2000	1.4000 U	40.00	93.0		F
Barium							NR
Beryllium							NR
Cadmium							NR
Calcium							NR
Chromium							NR
Cobalt							NR
Copper							NR
Iron							NR
Lead	75-125	20.5800	5.9700	20.00	73.0	N	F
Magnesium							NR
Manganese							NR
Mercury							NR
Nickel							NR
Potassium							NR
Selenium	75-125	9.0000	2.6000 B	10.00	64.0	N	F
Silver							NR
Sodium							NR
Thallium	75-125	2207.0500	9.9000 U	2000.00	110.4		P
Vanadium							NR
Zinc							NR

VSB 10/10/05

Comments:

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

MW29A2S

Lab Name: Inchcape Testing Services Contract:

Lab Code: Case No.: SAS No.: SDG No.: BK7597

Matrix (soil/water): WATER Level (low/med): LOW
% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum	75-125	2397.2430	356.6400	2000.00	102.0		P
Antimony	75-125	513.8405	20.0000	500.00	102.8		P
Arsenic							NR
Barium	75-125	2157.1120	81.7165	2000.00	103.8		P
Beryllium	75-125	55.8405	1.0000	50.00	111.7		P
Cadmium	75-125	53.1450	2.0000	50.00	106.3		P
Calcium							NR
Chromium	75-125	208.3285	2.0000	200.00	104.2		P
Cobalt	75-125	532.5985	3.2505	500.00	105.9		P
Copper	75-125	263.9085	5.0000	250.00	105.6		P
Iron		10498.8460	9357.4135	1000.00	114.1		P
Lead							NR
Magnesium							NR
Manganese	75-125	562.6785	29.2030	500.00	106.7		P
Mercury							NR
Nickel	75-125	535.9175	10.0000	500.00	107.2		P
Potassium							NR
Selenium							NR
Silver	75-125	52.8275	2.0000	50.00	105.7		P
Sodium							NR
Thallium							NR
Vanadium	75-125	535.8995	2.0000	500.00	107.2		P
Zinc	75-125	558.0205	17.3990	500.00	108.1		P

WBA
18/10/av

Comments:

ENVIROFORMS/INORGANIC CLP

5A
SPIKE SAMPLE RECOVERY

SAMPLE NO.

MW09D2S

Lab Name: Inchcape Testing Services Contract:

Lab Code: - Case No.: SAS No.: SDG No.: BK7597

Matrix (soil/water): WATER Level (low/med): LOW
% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added (SA)	%R	Q	M
Aluminum							NR
Antimony							NR
Arsenic							NR
Barium							NR
Beryllium							NR
Cadmium							NR
Calcium							NR
Chromium							NR
Cobalt							NR
Copper							NR
Iron							NR
Lead							NR
Magnesium							NR
Manganese							NR
Mercury	75-125	0.9130	0.2000	1.00	91.3		AV
Nickel							NR
Potassium							NR
Selenium							NR
Silver							NR
Sodium							NR
Thallium							NR
Vanadium							NR
Zinc							NR

PB 6 10/6/01

Comments:

ENVIROFORMS/INORGANIC CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

MW33A2A

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR)	Spike Added (SA)	%R	Q	M
Aluminum							NR
Antimony							NR
Arsenic							NR
Barium							NR
Beryllium							NR
Cadmium							NR
Calcium							NR
Chromium							NR
Cobalt							NR
Copper							NR
Iron							NR
Lead							NR
Magnesium							NR
Manganese							NR
Mercury							NR
Nickel							NR
Potassium							NR
Selenium							NR
Silver							NR
Sodium							NR
Thallium							NR
Vanadium							NR
Zinc							NR

YB68
10/20/00

Comments:

ENVIROFORMS/INORGANIC CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

MW29A2A

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR)	Spike Added (SA)	%R	Q	M
Aluminum							NR
Antimony							NR
Arsenic							NR
Barium							NR
Beryllium							NR
Cadmium							NR
Calcium							NR
Chromium							NR
Cobalt							N
Copper							N
Iron							NR
Lead							NR
Magnesium							NR
Manganese							NR
Mercury							NR
Nickel							NR
Potassium							NR
Selenium							NR
Silver							NR
Sodium							NR
Thallium							NR
Vanadium							NR
Zinc							NR

VBW 10/10/11

Comments:

ENVIROFORMS/INORGANIC CLP

6
DUPLICATES

SAMPLE NO.

MW33A2D

Lab Name: Inchcape Testing Services Contract:

Lab Code: Case No.: SAS No.: SDG No.: BK7597

Matrix (soil/water): WATER Level (low/med): LOW

* Solids for Sample: 0.0 * Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic		1.4000	U	1.4000	U			F
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead	3.0	5.9700		1.0000	U	200.0	*	F
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium		1844.2000	B	1810.2000	B	1.9		P
Selenium		2.6000	B	2.5000	U	200.0		F
Silver								
Sodium								
Thallium		9.9000	U	9.9000	U			P
Vanadium								
Zinc								

YB
10/10/00

ENVIROFORMS/INORGANIC CLP

6
DUPLICATES

SAMPLE NO.

MW29A2D

Lab Name: Inchcape Testing Services

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: BK7597

Matrix (soil/water): WATER

Level (low/med): LOW

‡ Solids for Sample: 0.0

‡ Solids for Duplicate:

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum	200.0	356.6400		357.5425		0.3		P
Antimony		20.0000	U	20.0000	U			P
Arsenic								
Barium		81.7165	B	83.1135	B	1.7		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		2.0000	U	2.0000	U			P
Calcium	5000.0	7461.1340		7571.7800		1.5		P
Chromium		2.0000	U	2.0000	U			P
Cobalt		3.2505	B	3.0225	B	7.3		P
Copper		5.0000	U	5.0000	U			P
Iron		9357.4135		9511.4695		1.6		P
Lead								
Magnesium		1547.6020	B	1568.8600	B	1.4		P
Manganese	15.0	29.2030		29.4115		0.7		P
Mercury								
Nickel		10.0000	U	10.0000	U			P
Potassium								
Selenium								
Silver		2.0000	U	2.0000	U			P
Sodium	5000.0	14613.4470		14680.7940		0.5		P
Thallium								
Vanadium		2.0000	U	2.0000	U			P
Zinc		17.3990	B	13.0300	B	28.7		P

PBA
10/10/11

ENVIROFORMS/INORGANIC CLP

6
DUPLICATES

SAMPLE NO.

MW09D2D

Lab Name: Inchcape Testing Services Contract:

Lab Code: - Case No.: SAS No.: SDG No.: BK7597

Matrix (soil/water): WATER Level (low/med): LOW

* Solids for Sample: 0.0 * Solids for Duplicate:

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury		0.2000	U	0.2000	U			AV
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

Handwritten signature and date: JTB 10/11/07



NEESA LEVEL D DATA DELIVERABLES
INORGANICS - PART I

Site Name: CTO-323

Client: Baker

Location: Camp Geiger
Analytical Fraction: _____

Lab: Inch Cape

Reviewer: _____

Date(s): 10/9/95

- A. Control Chart - results of the method blank spikes run with each batch of samples processed : Yes No NR
- B. CLP Form 1s with associated sample results and CLP flagging system. All percent moistures for soils and discussion of sample type : Yes No NR
- C. CLP Form 2s with Initial and continuing calibration standards (part 1 only) : Yes No NR
- D. CLP Form 3s with prep and method blanks : Yes No NR
- E. CLP Form 4s with Interference check sample data : Yes No NR
- F. CLP Form 5s with Matrix spike recovery and the postdigestion spike recovery for ICP Metals. Only done if predigest spike recovery exceeds limits : Yes No NR
- G. CLP Form 6s with Duplicate data results : Yes No NR
- H. CLP Form 7s with LCS data results : Yes No NR
- I. CLP Form 8s with GFAA standard addition data : Yes No NR
- J. CLP Form 9s with Serial Dilution data results : Yes No NR



NEESA LEVEL D DATA DELIVERABLES
INORGANICS - PART II

- | | | | | |
|----|--|--|----|----|
| K. | CLP Form 10s with Instrument Detection Data | : <input checked="" type="radio"/> Yes | No | NR |
| L. | CLP Forms 11 and 12 with Quarterly Verification of Instrument Parameters | : <input checked="" type="radio"/> Yes | No | NR |
| M. | CLP Form 13s with Preparation Log data | : <input checked="" type="radio"/> Yes | No | NR |
| N. | CLP Form 14s with Run Log data | : <input checked="" type="radio"/> Yes | No | NR |



HEARTLAND ESI Form A

DATA DELIVERABLE REQUIREMENTS

A.	Permanently Bound	Yes	<input checked="" type="radio"/> No	NR
B.	Paginated	<input checked="" type="radio"/> Yes	No	NR
C.	Table of Contents	<input checked="" type="radio"/> Yes	No	NR
D.	Digestion Records(internal C-O-C)	<input checked="" type="radio"/> Yes	No	NR
E.	Chain-Of-Custody (external)	<input checked="" type="radio"/> Yes	No	NR
F.	Case Narrative			
1.	Sample list with Client and Lab IDs cross-referenced (copy attached)	<input checked="" type="radio"/> Yes	No	NR
2.	All Protocol deviations and QC problems noted	<input checked="" type="radio"/> Yes	No	NR
3.	Comments: _____			
G.	Uninitialed Strikeovers	Yes	<input checked="" type="radio"/> No	NR
H.	Legible Photocopies	<input checked="" type="radio"/> Yes	No	NR
I.	Consistent Dates	<input checked="" type="radio"/> Yes	No	NR
J.	Preparation Logs	<input checked="" type="radio"/> Yes	No	NR
K.	Instrument Run Logs	<input checked="" type="radio"/> Yes	No	NR
L.	Other Deviations or Comments: _____			



HEARTLAND ESI Form B

HOLDING TIMES FOR METALS

1. Was the holding time exceeded on any of the Metal Fractions

ICP/GFAA/FAA - Holding time of 6 months VTSR

Mercury - Holding time of 28 days VTSR

Cyanide - Holding time of 14 days VTSR

Yes

No

2. If yes, complete the following form for all samples that exceeding holding times.

Fraction: _____

Sample ID : Matrix : VTSR : Date of Analysis : DA : QC Decision

:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:
:	:	:	:	:	:

PB 10/9/00

Note: DA = The number of days holding time to analysis is exceeded.

- S = Non-aqueous
- A = Aqueous
- X = Air

QA Decision: Results > IDL - J - estimated
 Results < IDL - R - rejected



HEARTLAND ESI Form C-1

INSTRUMENT CALIBRATION AND INITIAL CALIBRATION VERIFICATION (ICV)

Associated Samples All water sample

1. a. Was the ICP instrument properly standardized? Yes No
If no, explain and list action. _____

b. Was the furnace instrument properly standardized? Yes No
If no, were the required standards analyzed immediately after the instrument calibration and results within 95-105% recovery?
Yes No
If no, explain and list action. _____

c. Were the instruments for the analyses of Cyanide and Mercury properly standardized? Yes No
If no, explain and list action. _____

2. Was the ICV analyzed immediately after the system(s) were calibrated? Yes No
If no, explain and list action. _____

3. Was the ICV analyzed for every analyte? Yes No
If no, explain and list action. _____

4. Do all ICV analytes meet the QC requirements for % recovery? Yes No
If no, list affected analytes, their % recovery, and action for which:

a. % recovery is between 75-89% (CN, 70-84% or HG, 65-79%)



HEARTLAND ESI Form C-2

b. % recovery is between 111-125% (CN, 116-130% or HG, 121-135%) _____

c. % recovery is less than 75% or greater than 125% (CN, <70 or >130%, Hg <65 or >135) _____

5. a. Show calculation for the % recovery of one ICV analyte by ICP. Lab value 103.94

Zhultin $\frac{208}{200} \times 100 = 104\%$

b. Show calculation for the % recovery of one ICV analyte by furnace AA. Lab value 98.17

Selenin $\frac{19.7}{20.0} \times 100 = 98.5\%$

c. Show calculation for the ICV % recovery of Mercury. Lab Value 91.69

$\frac{2.29}{2.50} \times 100 = 91.6\%$

d. Show calculation for the ICV % recovery of Cyanide. Lab value NC

6. Specific comments: _____



HEARTLAND ESI Form D-1

CONTINUING CALIBRATION VERIFICATION (CCV)

Associated Samples All water sample

1. a. Was the CCV performed every two hours or at the 10% frequency? Yes No
If no, list action. _____

- b. Was the CCV performed at the beginning and end of the sample analysis? Yes No
If no, list action. _____

2. Were the CCV standards analyzed for all analytes? Yes No
If no, list affected analytes, their associated samples and action. _____

3. Was the same concentration used for CCV throughout the analyses? Yes No
If no, list affected analytes, their associated samples and action. _____

4. Do all CCV analytes meet the QC requirements for % recovery? Yes No
If no, list affected analytes, their associated samples and action for which:
 - a. % recovery is between 75-89%(CN, 70-84% or Hg, 65-79%) _____
 - b. % recovery is between 111-125%(CN, 116-130% or Hg, 121-135%) _____
 - c. % recovery is less than 75% or greater than 125%(CN, <70 or >130%, Hg, <65 or >135%) _____

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HEARTLAND ESI Form D-2

5. a. Show calculation for the % recovery of one CCV analyte analyzed by ICP. Lab value 95.1%

$$\text{Aluminum} \quad \frac{23765}{25000} \times 100 = 95.1\%$$

- b. Show calculation for the % recovery of one CCV analyte analyzed by furnace AA. Lab value 92.1%

$$\text{Selenium} \quad \frac{23.1}{25.0} \times 100 = 92.4\%$$

- c. Show calculation for the % recovery of one CCV analyte analyzed for Mercury. Lab value 95.7%

$$\frac{2.87}{3.00} \times 100 = 95.7\%$$

- d. Show calculation for the % recovery of one CCV analyte for Cyanide. Lab value NR

6. Specific comments: _____



HEARTLAND ESI Form F

INITIAL & CONTINUING CALIBRATION BLANK

Associated Samples All water sample

1. Were the initial calibration blanks analyzed for all analytes and run after the initial calibration verification? Yes No
If no, list affected analytes, and action. _____
2. Was the absolute value for all analytes in the initial calibration blank below the CRDL? Yes No
If no, list affected analytes and reject them. _____
3. Were the continuing calibration blanks analyzed for all analytes and run after the continuing calibration verification? Yes No
If no, list affected analytes, associated samples and action. _____
4. Was the frequency for the continuing calibration blanks correct? Yes No
If no, list affected analytes, associated samples and action. _____
5. Was the absolute value of all analytes for the continuing calibration blank below the CRDL? Yes No
If no, list affected analytes, associated samples and reject them. _____



HEARTLAND ESI Form G

PREPARATION BLANK SUMMARY

Sample Matrix: Soil Water Air Preparation Blank ID PBW
Units: mg/kg ug/l ug/m3

1. Did the frequency of the preparation blank analysis meet method requirements? Yes No
If no, explain and note action. _____

Analyte	Conc	<CRDL	Comments/Action
Cadmium	2.86	yes	quality all data as
Silver	4.99	↓	necessing
Zinc	7.44	↓	↓
			PBW 10/9/98

Associated Samples All water samples

CRDL Codes: Yes < CRDL
No > CRDL



HEARTLAND ESI Form H

ICP INTERFERENCE CHECK SAMPLE

Associated Samples All water samples

1. Was an ICP interference check sample performed Yes No at the correct frequency?
If no, note any deviations and action. _____
2. a. Were the interferences for solution A Yes No reported?
If no, note deviations _____
- b. Were the analytes and interferences for Yes No solution AB reported?
If no, note deviations _____
3. Were the concentrations of Al, Ca, Fe and Mg Yes No in associated samples found to be significantly less than (i.e., <50%) their respective concentrations in solution A?
If yes, no action is required.
4. Did all required analytes in solution AB meet Yes No the QC limit of 80-120%?
If no,
 - a. List any analytes and their % recovery which are greater than or equal to 30% but less than 80% and action. _____
 - b. List any analytes and their % recovery which are greater than 120% and action. _____
 - c. List any analytes and their % recovery which are less than 30% and action. _____
5. Show the calculation for % recovery for one analyte in solution AB.

Lab value 108.4%

$$\text{Silver } \frac{1084}{1000} \times 100 = 108.4\%$$



HEARTLAND ESI Form I-1

SAMPLE SPIKE ANALYSIS

Sample Spike Analysis performed on sample MW33A2 / MW29A2

Matrix: . . Soil Water Air
Units: mg/kg ug/l ug/m3
% Solids _____

Associated Samples All water sample

1. Was the sample spike analysis performed at the correct frequency? Yes No
If no, note deviations and action. _____

2. Was the sample spike analysis performed on a field sample? Yes No
If no, reject all associated samples.

3. a. Were two analytical methods used to obtain reported values for one analyte? Yes No
If yes, list analytes _____

b. Was sample spike analysis performed using both methods for that analyte? Yes No
If no, reject affected sample(s) which did not have spike analysis performed. _____

4. Was sample analysis performed at the proper concentration? Yes No
If no, list analytes and qualify. _____

5. Did the % recovery for all analytes meet the criteria of 75-125%? Yes No
If no, list only those analytes which % recovery are out and whose sample result (SR) is less than 4 times the sample added (SA). List % recovery in parenthesis next to the analyte out and action. lead (73) and Selenium (64) low recovery 0.5/5



HEARTLAND ESI Form I-2

6. Were outliers for % recovery flagged with the "N" qualifier?
If no, list analytes not flagged. _____

Yes No

7. a. Show calculation for % recovery for one analyte analyzed by ICP. Lab value 102.8%

$$\text{Antimony } \frac{514}{500} \times 100 = 102.8\%$$

- b. Show calculation for % recovery for one analyte analyzed by furnace AA. Lab value 93.0%

$$\text{Arsenic } \frac{37.2}{40.0} \times 100 =$$

- c. Show calculation for % recovery for Mercury. Lab value 91.3%

$$\frac{1913}{1.00} \times 100 = 91.3\%$$

- d. Show calculation for % recovery for Cyanide. Lab value NR



HEARTLAND ESI Form K-1

DUPLICATE ANALYSIS

Duplicate Analysis performed on sample MW33A2 / MW29A2

Matrix: Soil Water Air
Units: mg/kg ug/l ug/m3
% Solids: _____

Associated Samples All water samples

1. Were duplicate analyses performed at the correct frequency? Yes No
If no, note deviations and action. _____

2. Was duplicate analysis performed on a field sample? Yes No
If no, reject all associated samples.

3. Were two analytical methods used to obtain reported values for one analyte? Yes No
If yes,
a. List analytes _____

b. Were duplicate analysis performed using both methods for that analyte? Yes No
If no, reject affected samples which did not have duplicate analysis performed. _____

4. Is the laboratory using the correct control limit (i.e. +CRDL or 20% for water and 35% for soils criteria) to judge duplicate RPD results? Yes No
If no, note deviations. _____

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HEARTLAND ESI Form K-2

5. Do all analytes meet these QC control limits? Yes No
If no, list the analytes outside the limits and qualify these analytes. lead

6. Were outliers correctly flagged with the "*" qualifier? Yes No
If no, list those analytes not correctly flagged. _____

7. a. Show calculation for RPD for one analyte analyzed by ICP. Lab value 1.72

Basin
$$\frac{1181.7 - 83.1}{(81.7 + 83.1) / 2} \times w = \frac{1.4}{82.4} \times 100 = 1.79$$

b. Show calculation for RPD for one analyte analyzed by furnace AA. Lab value NC

c. Show calculation for RPD for Mercury. Lab value NC

d. Show calculation for RPD for Cyanide. Lab value NR



HEARTLAND ESI Form L

LABORATORY CONTROL SAMPLE

Matrix:	Soil	Water	Air
Units:	mg/kg	ug/l	ugm3
%Solids	_____		

Associated Samples All water samples

1. Was the laboratory control sample performed at the correct frequency? Yes No
If no, give action. _____

2. Do all analytes meet the QC limits of 80-120% (except Silver, Antimony, Mercury and Cyanide for aqueous samples) or within the control limits established by EPA for soils? Yes No
If no, list analytes, their recovery and action. _____

3. a. Show the calculation for % recovery for at least one analyte by ICP. Lab value 105.1%

Antimony $\frac{526}{500} \times 100 = 105.2\%$

b. Show the calculation for % recovery for at least one analyte analyzed by furnace AA. Lab value 91.2%

Lead $\frac{18.2}{20.0} \times 100 = 91.0\%$

c. Show the calculation for % recovery of Mercury (soil only). Lab value NR



HEARTLAND ESI Form N

SAMPLE RESULT VERIFICATION

Associated Samples All water sample

1. Were all samples reported within the calibration range? Yes No
If no, list affected samples and action. _____

2. Was the % solids analysis performed for all nonaqueous samples? Yes No
If no, list affected samples and action. NR

3. Show calculation for % solids for one sample. Lab value NR

4. Was the raw data free of any anomalies? Yes No
If no, list affected samples and action. _____

5. Was the data package free of any computational or transcriptional errors? Yes No
If no, list affected samples and action. _____

6. Verify that nonaqueous samples were reported on a dry weight basis by recalculating the results for one analyte in a sample. Lab value NR



HEARTLAND ESI Form P

QUARTERLY VERIFICATION OF INSTRUMENT PARAMETERS

1. Was the IDL analyzed and reported quarterly (every three calendar months) for each element on Form X. Yes No
If no, explain and list action. _____
2. Was the IDL below the CRDL for each element? Yes No
If no, explain and list action. _____
3. Was the ICP interelement correction factor analyzed and reported for each element on Form 11 and 12. Yes No
If no, explain and list action. _____
4. Was the linear range analyzed and reported annually and quarterly respectively for each element on Form 11 and 12. Yes No
If no, explain and list action. _____

APPENDIX S
DATA VALIDATION REPORT FOR ROUND FOUR



HEARTLAND

ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 9604G931
Date: May 20, 1996
Client Name: Baker Environmental, Inc.
Project/Site Name: Camp Lejeune - #232
Date Sampled: April 27, 1996
Number of Samples: 9 Aqueous Sample(s) with 1 MS/MSD(s)
Laboratory: Weston Environmental Metrics, Inc.
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level: NEESA Level C
Method(s) Utilized: CLP Low Concentration SOW
Analytical Fractions: Volatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Kimberly S. Stapp
for Eugene M. Watson, Vice President

29 May 1996
Date

SDG# 9604G931

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

Baker ID	Matrix	VOA	
35-MW14D-04	WATER	X	
35-MW36B-04	WATER	X	
35-MW36A-04	WATER	X	
35-MW19S-04	WATER	X	
35-MW19D-04	WATER	X	
35-MW19D-04MS	WATER	X	
35-MW19D-04MSD	WATER	X	
35-MW19D-04D	WATER	X	
35-MW35A-04	WATER	X	
35-MW09D-04	WATER	X	
35-TB03-04	WATER	X	
Total Billable Samples (Water/Soil)			11 0

VOA = CLP Volatiles

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; National Functional Guidelines for Organic Data Review, and NEESA C. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 9604G931

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples was acceptable for all %RSDs and RRFs. No qualifications are required.

Continuing calibrations

The continuing calibrations that were analyzed with this data package was not acceptable for all %Ds. All average RRFs were within criteria. Qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations (continued)

Specific Finding:

1. The continuing calibration, OB501, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

VBLKGQ	acetone
35-MW14D-04	2-butanone
35-MW36B-04	4-methyl-2-pentanone
35-MW36A-04	2-hexanone
35-MW19S-04	1,1,2,2-tetrachloroethane
35-MW19D-04	
35-MW19D-04MS	
35-MW19D-04MSD	
35-MW09D-04	

2. The continuing calibration, OA502, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

VBLKNY	acetone
35-MW35A-04	2-butanone
35-TB03-04	4-methyl-2-pentanone
35-MW19D-04DDL	2-hexanone
35-MW19D-04DL	1,1,2,2-tetrachloroethane

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed exhibited no contamination and TICs. No qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Trip Blanks

The associated trip blank, 35-TB03-04 exhibited no contamination. No qualifications are required.

Rinseate Blanks

The associated rinseate blank was not identified for this SDG. No qualifications are required.

Field Blanks

The associated field blank was not identified for this SDG. No qualifications are required.

Surrogates

Surrogate recoveries for all samples and blanks met QA/QC criteria. The SOW and the National Functional Guidelines allow one surrogate for each fraction to fall outside the QA/QC criteria as long as the recovery is greater than 10%. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All spike and RPD recoveries were not within the QA/QC criteria for MS/MSD 35-MW19D-04 for trichloroethene. No qualifications are required.

Field Duplicate

No qualifications are required.

Compound Identification/Quantitation

3. Reject all E-flagged analytes in samples 35-MW19D-04 and 35-MW19D-04D, in favor of the dilution.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is qualified.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
VBLKGQ	acetone	+	J	1
35-MW14D-04	2-butanone			
35-MW36B-04	4-methyl-2-pentanone			
35-MW36A-04	2-hexanone			
35-MW19S-04	1,1,2,2-tetrachloroethane			
35-MW19D-04				
35-MW19D-04MS				
35-MW19D-04MSD				
35-MW09D-04				
VBLKNY	acetone	+	J	2
35-MW35A-04	2-butanone			
35-TB03-04	4-methyl-2-pentanone			
35-MW19D-04DDL	2-hexanone			
35-MW19D-04DL	1,1,2,2-tetrachloroethane			
35-MW19D-04	All E-flagged analytes	+	R	3
35-MW19D-04D				
35-MW19D-04	All results except	+/-	R	3
35-MW19D-04D	D-flagged analytes			

- * DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW14D-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB01

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/01/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	160	
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	3	J
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	71	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

3/90
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW140-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB01

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/01/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4-----Methyl-tert-butylether_____	5	U
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW140-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YS801

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/01/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW36B-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB02

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	4	J
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
75-34-3	-----1,1-Dichloroethane	4	J
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	10	U
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	10	U
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW36B-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB02

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4------	Methyl-tert-butylether	5	U
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW36B-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YS802

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW36A-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YS803

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW36A-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB03

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4------	Methyl-tert-butylether_____		5 U
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW36A-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YS803

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW19S-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB04

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q

74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	16	
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	10	U
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	12	
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW19S-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB04

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4- - - - -	Methyl-tert-butylether _____	5	U
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016

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW19S-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB04

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW19D-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB05

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	360 330	R3
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	270 290	R3
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

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5/29/96

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW19D-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB05

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4-.....	Methyl-tert-butylether_____		5 U
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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW190-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB05

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW19D-04DL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB15

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 2.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	20	R3
75-01-4	-----Vinyl Chloride	20	
74-83-9	-----Bromomethane	20	
75-00-3	-----Chloroethane	20	
75-35-4	-----1.1-Dichloroethene	20	
67-64-1	-----Acetone	20	
75-15-0	-----Carbon Disulfide	20	
75-09-2	-----Methylene Chloride	20	
540-59-0	-----1.2-Dichloroethene (total)	360	D
75-34-3	-----1.1-Dichloroethane	20	R3
78-93-3	-----2-Butanone	20	
67-66-3	-----Chloroform	20	
71-55-6	-----1.1.1-Trichloroethane	20	
56-23-5	-----Carbon Tetrachloride	20	
71-43-2	-----Benzene	20	
107-06-2	-----1.2-Dichloroethane	20	
79-01-6	-----Trichloroethene	320	D
78-87-5	-----1.2-Dichloropropane	20	R3
75-27-4	-----Bromodichloromethane	20	
10061-01-5	-----cis-1.3-Dichloropropene	20	
108-10-1	-----4-Methyl-2-pentanone	20	
108-88-3	-----Toluene	20	
10061-02-6	-----trans-1.3-Dichloropropene	20	
79-00-5	-----1.1.2-Trichloroethane	20	
127-18-4	-----Tetrachloroethene	20	
591-78-6	-----2-Hexanone	20	
124-48-1	-----Dibromochloromethane	20	
108-90-7	-----Chlorobenzene	20	
100-41-4	-----Ethylbenzene	20	
100-42-5	-----Styrene	20	
75-25-2	-----Bromoform	20	
79-34-5	-----1.1.2.2-Tetrachloroethane	20	
1330-20-7	-----Xylene (total)	20	

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW19D-04DL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB15


Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 2.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4------	Methyl-tert-butylether _____	10	SR3

3/90

 05022

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW190-04DL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YS815

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 2.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW190-04D

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB08

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	290	ER3
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	270	ER3
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

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6/24

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW19D-04D

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YS808

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether_____		5 U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW19D-04D

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB08

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW190-04DDL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YS814

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 2.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

74-87-3	Chloromethane	20	R3
75-01-4	Vinyl Chloride	20	
74-83-9	Bromomethane	20	
75-00-3	Chloroethane	20	
75-35-4	1,1-Dichloroethene	20	
67-64-1	Acetone	20	
75-15-0	Carbon Disulfide	20	
75-09-2	Methylene Chloride	20	
540-59-0	1,2-Dichloroethene (total)	370	
75-34-3	1,1-Dichloroethane	20	
78-93-3	2-Butanone	20	R3
67-66-3	Chloroform	20	
71-55-6	1,1,1-Trichloroethane	20	
56-23-5	Carbon Tetrachloride	20	
71-43-2	Benzene	20	
107-06-2	1,2-Dichloroethane	20	
79-01-6	Trichloroethene	320	
78-87-5	1,2-Dichloropropane	20	
75-27-4	Bromodichloromethane	20	
10061-01-5	cis-1,3-Dichloropropene	20	
108-10-1	4-Methyl-2-pentanone	20	R3
108-88-3	Toluene	20	
10061-02-6	trans-1,3-Dichloropropene	20	
79-00-5	1,1,2-Trichloroethane	20	
127-18-4	Tetrachloroethene	20	
591-78-6	2-Hexanone	20	
124-48-1	Dibromochloromethane	20	
108-90-7	Chlorobenzene	20	
100-41-4	Ethylbenzene	20	
100-42-5	Styrene	20	
75-25-2	Bromoform	20	
79-34-5	1,1,2,2-Tetrachloroethane	20	
1330-20-7	Xylene (total)	20	

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW190-04DDL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB14

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 2.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4-----	Methyl-tert-butylether_____	10	<i>RB</i>
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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW19D-04DDL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB14

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 2.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0
CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW35A-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-007

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YS812

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	5	J
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	10	U
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	25	
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	17	JZ
1330-20-7	-----Xylene (total)	10	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW35A-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-007

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB12

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether_____		S U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW35A-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-007

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB12

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW09D-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-008

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB10

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW090-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-008

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB10

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4------	Methyl-tert-butylether_____	5	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW09D-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-008

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB10

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	17.02	39	+ <i>NS</i>
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-TB03-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-009

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB13

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO. COMPOUND CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q

74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

Handwritten signature and date:
05/02/96

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-TB03-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-009

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YS813


Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether _____	5	U

3/90

 092 037

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-TB03-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-009

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YS813

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
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02/21/96

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW19D-04MS

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-005S

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB06

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	45	
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	320	
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	47	
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	320	E
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	44	
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	43	
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

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5/2/96

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW19D-04MS

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-0055

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB06

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether _____	5	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW19D-04MSD

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-005T

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB07

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	42	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	320	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	47	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	320	E
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	44	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	43	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

Handwritten signature and date
3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW19D-04MSD

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Matrix: (soil/water) WATER Lab Sample ID: 9604G931-005T

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSB07

Level: (low/med) LOW Date Received: 04/29/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-.....	Methyl-tert-butylether_____		5 U

MULTI-MEDIA VOLATILE ORGANIC FRACTION

CASE NUMBER: _____ SDG NUMBER: 9604G931

LABORATORY: Weston

CLIENT: Baker PROJECT: Camp Lejeune

REVIEWER: UP DATE: 5-29-96

QA/QC LEVEL

- NEESA C
- NEESA D
- DQO LEVEL III
- DQO LEVEL IV
- _____

Statement Of Work (SOW)

- CLP 3/90
- CLP 2/88
- SW846 8240
- SW846 8240 Appendix IX
- _____

ANALYSIS MODIFICATIONS: _____

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931
 Lab File ID: NB426 BFB Injection Date: 04/26/96
 Instrument ID: GCL6 BFB Injection Time: 1922
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.9
75	30.0 - 66.0% of mass 95	45.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	73.1
175	4.0 - 9.0% of mass 174	5.8 (7.9)1
176	93.0 - 101.0% of mass 174	71.6 (97.9)1
177	5.0 - 9.0% of mass 176	4.8 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	VSTD010	OB426	04/26/96	2003
02	VSTD020	VSTD020	OC426	04/26/96	2042
03	VSTD050	VSTD050	OD426	04/26/96	2120
04	VSTD100	VSTD100	OE426	04/26/96	2158
05	VSTD200	VSTD200	OF426	04/26/96	2236
06					
07					
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6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Instrument ID: GCL6 Calibration Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Calibration Time(s): 2003 2236

GC Column: CAP ID: 0.53 (mm)

LAB FILE ID:	RRF10 =OB426	RRF20 =OC426					%
RRF50 =OD426	RRF100=OE426	RRF200=OF426					RSD
COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	RRF	
Chloromethane	1.335	1.091	1.085	0.997	0.918	1.085	14.4
Vinyl Chloride	* 1.468	1.184	1.199	1.061	1.044	1.191	14.2*
Bromomethane	* 2.403	1.935	1.890	1.733	1.769	1.946	13.8*
Chloroethane	0.863	0.732	0.706	0.637	0.630	0.714	13.2
1,1-Dichloroethene	* 1.294	1.108	1.154	1.056	1.031	1.129	9.2*
Acetone	0.319	0.247	0.213	0.190	0.181	0.230	24.2
Carbon Disulfide	3.919	3.165	3.262	3.049	2.966	3.272	11.6
Methylene Chloride	1.416	1.206	1.192	1.146	1.091	1.210	10.2
1,2-Dichloroethene (total)	1.685	1.416	1.465	1.368	1.331	1.453	9.6
1,1-Dichloroethane	* 2.871	2.497	2.458	2.330	2.263	2.484	9.5*
2-Butanone	0.395	0.422	0.401	0.373	0.334	0.385	8.8
Chloroform	* 3.506	3.091	3.055	2.905	2.805	3.072	8.7*
1,1,1-Trichloroethane	* 0.729	0.652	0.637	0.645	0.616	0.656	6.6*
Carbon Tetrachloride	* 0.738	0.645	0.641	0.645	0.624	0.659	6.9*
Benzene	* 0.878	0.773	0.759	0.743	0.739	0.778	7.4*
1,2-Dichloroethane	* 1.873	1.703	1.671	1.643	1.624	1.703	5.9*
Trichloroethene	* 0.508	0.458	0.447	0.446	0.454	0.463	5.5*
1,2-Dichloropropane	0.387	0.355	0.338	0.348	0.342	0.354	5.5
Bromodichloromethane	* 0.870	0.753	0.770	0.772	0.749	0.783	6.4*
cis-1,3-Dichloropropene	* 0.552	0.480	0.481	0.490	0.466	0.494	6.8*
4-Methyl-2-pentanone	0.291	0.273	0.288	0.282	0.274	0.282	2.9
Toluene	* 1.235	1.065	1.120	1.059	1.064	1.109	6.7*
trans-1,3-Dichloropropene	* 0.444	0.374	0.390	0.394	0.382	0.397	6.9*
1,1,2-Trichloroethane	* 0.408	0.331	0.345	0.359	0.338	0.356	8.6*
Tetrachloroethene	* 0.508	0.471	0.478	0.451	0.451	0.472	4.9*
2-Hexanone	0.200	0.204	0.188	0.189	0.179	0.192	5.1
Dibromochloromethane	* 0.768	0.690	0.682	0.719	0.675	0.707	5.4*
Chlorobenzene	* 1.061	0.962	0.945	0.945	0.895	0.962	6.3*
Ethylbenzene	* 0.428	0.395	0.410	0.377	0.384	0.399	5.2*
Styrene	* 1.031	0.869	0.885	0.848	0.807	0.888	9.6*
Bromoform	* 0.597	0.505	0.524	0.534	0.513	0.535	6.8*
1,1,2,2-Tetrachloroethane	* 0.711	0.583	0.636	0.607	0.607	0.629	7.9*
Xylene (total)	* 1.231	1.037	1.081	1.003	0.993	1.069	9.1*
Methyl-tert-butylether	2.695	2.260	2.290	2.197	2.000	2.288	11.1
1,2-Dichloroethane-d4	1.410	1.364	1.391	1.329	1.324	1.364	2.8
Toluene-d8	1.067	0.981	1.029	0.943	1.008	1.006	4.7

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

VB
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046

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931
 Instrument ID: GCL6 Calibration Date: 05/01/96 Time: 1811
 Lab File ID: OB501 Init. Calib. Date(s): 04/26/96 04/26/96
 Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236
 GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.085	0.854		21.3	
Vinyl Chloride	1.191	0.969	0.100	18.6	25.0
Bromomethane	1.946	1.650	0.100	15.2	25.0
Chloroethane	0.714	0.612		14.3	
1,1-Dichloroethene	1.129	1.226	0.100	8.6	25.0
Acetone	0.230	0.161		30.0	
Carbon Disulfide	3.272	3.860		18.0	
Methylene Chloride	1.210	1.270		5.0	
1,2-Dichloroethene (total)	1.453	1.473		1.4	
1,1-Dichloroethane	2.484	2.454	0.200	1.2	25.0
2-Butanone	0.385	0.262		31.9	
Chloroform	3.072	3.041	0.200	1.0	25.0
1,1,1-Trichloroethane	0.656	0.673	0.100	2.6	25.0
Carbon Tetrachloride	0.659	0.690	0.100	4.7	25.0
Benzene	0.778	0.775	0.500	0.4	25.0
1,2-Dichloroethane	1.703	1.588	0.100	6.8	25.0
Trichloroethene	0.463	0.479	0.300	3.4	25.0
1,2-Dichloropropane	0.354	0.343		3.1	
Bromodichloromethane	0.783	0.775	0.200	1.0	25.0
cis-1,3-Dichloropropene	0.494	0.471	0.200	4.6	25.0
4-Methyl-2-pentanone	0.282	0.206		27.0	
Toluene	1.109	1.112	0.400	0.3	25.0
trans-1,3-Dichloropropene	0.397	0.363	0.100	8.6	25.0
1,1,2-Trichloroethane	0.356	0.312	0.100	12.4	25.0
Tetrachloroethene	0.472	0.475	0.200	0.6	25.0
2-Hexanone	0.192	0.137		28.6	
Dibromochloromethane	0.707	0.666	0.100	5.8	25.0
Chlorobenzene	0.962	0.982	0.500	2.1	25.0
Ethylbenzene	0.399	0.412	0.100	3.2	25.0
Styrene	0.888	0.907	0.300	2.1	25.0
Bromoform	0.535	0.470	0.100	12.1	25.0
1,1,2,2-Tetrachloroethane	0.629	0.508	0.500	19.2	25.0
Xylene (total)	1.069	1.100	0.300	2.9	25.0
Methyl-tert-butylether	2.288	1.759		23.1	
1,2-Dichloroethane-d4	1.364	1.316		3.5	
Toluene-d8	1.006	1.057		5.1	

ALL other compounds must meet a minimum RRF of 0.010.

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VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Instrument ID: GCL6 Calibration Date: 05/01/96 Time: 1811

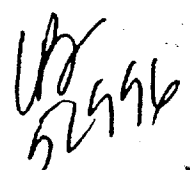
Lab File ID: OB501 Init. Calib. Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Bromofluorobenzene	0.755	0.822	0.200	8.9	25.0

All other compounds must meet a minimum RRF of 0.010.



 5/29/96

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931
 Lab File ID: NA502 BFB Injection Date: 05/02/96
 Instrument ID: GCL6 BFB Injection Time: 0828
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.6
75	30.0 - 66.0% of mass 95	45.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.1)I
174	50.0 - 120.0% of mass 95	72.2
175	4.0 - 9.0% of mass 174	3.0 (4.2)I
176	93.0 - 101.0% of mass 174	69.9 (96.8)1
177	5.0 - 9.0% of mass 176	4.4 (6.4)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS. MSD. BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	OA502	05/02/96	0856
02	VBLKNY	96GVF138-MB1	PA502	05/02/96	0936
03	VBLKNYBS	96GVF138-MB1S	PB502	05/02/96	1016
04	35-MW35A-04	9604G931-007	YSB12	05/02/96	1132
05	35-TB03-04	9604G931-009	YSB13	05/02/96	1211
06	35-MW19D-04D	9604G931-006	YSB14	05/02/96	1249
07	35-MW19D-04D	9604G931-005	YSB15	05/02/96	1327
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Handwritten signature and date: 5/2/96

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931
 Instrument ID: GCL6 Calibration Date: 05/02/96 Time: 0856
 Lab File ID: OA502 Init. Calib. Date(s): 04/26/96 04/26/96
 Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236
 GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.085	0.827		23.8	
Vinyl Chloride	1.191	0.971	0.100	18.5	25.0
Bromomethane	1.946	1.688	0.100	13.2	25.0
Chloroethane	0.714	0.618		13.4	
1,1-Dichloroethene	1.129	1.086	0.100	3.8	25.0
Acetone	0.230	0.163		29.1	
Carbon Disulfide	3.272	3.515		7.4	
Methylene Chloride	1.210	1.250		3.3	
1,2-Dichloroethene (total)	1.453	1.369		5.8	
1,1-Dichloroethane	2.484	2.331	0.200	6.2	25.0
2-Butanone	0.385	0.251		34.8	
Chloroform	3.072	2.883	0.200	6.2	25.0
1,1,1-Trichloroethane	0.656	0.612	0.100	6.7	25.0
Carbon Tetrachloride	0.659	0.628	0.100	4.7	25.0
Benzene	0.778	0.708	0.500	9.0	25.0
1,2-Dichloroethane	1.703	1.539	0.100	9.6	25.0
Trichloroethene	0.463	0.423	0.300	8.6	25.0
1,2-Dichloropropane	0.354	0.317		10.4	
Bromodichloromethane	0.783	0.709	0.200	9.4	25.0
cis-1,3-Dichloropropene	0.494	0.432	0.200	12.6	25.0
4-Methyl-2-pentanone	0.282	0.183		35.1	
Toluene	1.109	0.999	0.400	9.9	25.0
trans-1,3-Dichloropropene	0.397	0.347	0.100	12.6	25.0
1,1,2-Trichloroethane	0.356	0.292	0.100	18.0	25.0
Tetrachloroethene	0.472	0.438	0.200	7.2	25.0
2-Hexanone	0.192	0.120		37.5	
Dibromochloromethane	0.707	0.596	0.100	15.7	25.0
Chlorobenzene	0.962	0.857	0.500	10.9	25.0
Ethylbenzene	0.399	0.374	0.100	6.3	25.0
Styrene	0.888	0.803	0.300	9.6	25.0
Bromoform	0.535	0.433	0.100	19.1	25.0
1,1,2,2-Tetrachloroethane	0.629	0.463	0.500	26.4	25.0
Xylene (total)	1.069	0.966	0.300	9.6	25.0
Methyl-tert-butylether	2.288	2.014		12.0	
1,2-Dichloroethane-d4	1.364	1.332		2.3	
Toluene-d8	1.006	1.020		1.4	

ALL other compounds must meet a minimum RRF of 0.010.

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7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Instrument ID: GCL6 Calibration Date: 05/02/96 Time: 0856

Lab File ID: OA502 Init. Calib. Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Bromofluorobenzene	0.755	0.775	0.200	2.6	25.0

All other compounds must meet a minimum RRF of 0.010.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931
 Lab File ID (Standard): 08501 Date Analyzed: 05/01/96
 Instrument ID: GCL6 Time Analyzed: 1811
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

	ISI(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	793468	18.48	3211826	20.23	2710922	26.14
UPPER LIMIT	1586936	18.98	6423652	20.73	5421844	26.64
LOWER LIMIT	396734	17.98	1605913	19.73	1355461	25.64
EPA SAMPLE NO.						
01 VBLKGO	782310	18.45	3033805	20.20	2682271	26.11
02 VBLKGOBS	969539	18.43	4034421	20.18	3457230	26.09
03 35-MW14D-04	931806	18.43	4076238	20.18	3258294	26.09
04 35-MW36B-04	975268	18.44	3936909	20.19	3283900	26.09
05 35-MW36A-04	854920	18.44	3423180	20.20	2847141	26.11
06 35-MW19S-04	965685	18.45	3763629	20.20	3158427	26.10
07 35-MW19D-04	973464	18.48	3956490	20.23	3320138	26.13
08 35-MW19D-04M	975304	18.48	3998960	20.23	3406635	26.13
09 35-MW19D-04M	843000	18.48	3355337	20.23	2794938	26.13
10 35-MW19D-04D	747724	18.44	2926006	20.19	2527353	26.12
11 35-MW09D-04	922747	18.42	3725936	20.17	3219261	26.08
12						
13						
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22						

IS1 (BCM) = Bromochloromethane
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits.

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52946

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931
 Lab File ID (Standard): 0A502 Date Analyzed: 05/02/96
 Instrument ID: GCL6 Time Analyzed: 0856
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

	IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12-HOUR STD	931768	18.49	3873139	20.24	3299297	26.15
UPPER LIMIT	1863536	18.99	7746278	20.74	6598594	26.65
LOWER LIMIT	465884	17.99	1936570	19.74	1649648	25.65
EPA SAMPLE NO.						
01 VBLKNY	988844	18.50	4101427	20.24	3463743	26.16
02 VBLKNYBS	964073	18.49	4019084	20.24	3427179	26.16
03 35-MW35A-04	907504	18.51	3762611	20.26	3228922	26.17
04 35-TB03-04	897838	18.50	3738761	20.26	3175921	26.17
05 35-MW19D-04D	917888	18.52	3888729	20.27	3286297	26.19
06 35-MW19D-04D	946942	18.50	3966317	20.25	3411815	26.17
07						
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IS1 (BCM) = Bromochloromethane
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits.

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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKGQ

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

Lab File ID: PC501 Lab Sample ID: 96GVF137-MB1

Date Analyzed: 05/01/96 Time Analyzed: 1907

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCL6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES. MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKGQBS	96GVF137-MB1S	PD501	1955
02	35-MW140-04	9604G931-001	YSB01	2240
03	35-MW368-04	9604G931-002	YSB02	0001
04	35-MW36A-04	9604G931-003	YSB03	0042
05	35-MW19S-04	9604G931-004	YSB04	0122
06	35-MW19D-04	9604G931-005	YSB05	0202
07	35-MW19D-04M	9604G931-005S	YSB06	0243
08	35-MW19D-04M	9604G931-005T	YSB07	0323
09	35-MW19D-04D	9604G931-006	YSB08	0404
10	35-MW09D-04	9604G931-008	YSB10	0525
11				
12				
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COMMENTS:

NO contamination or TICs

VJ
5/2/96

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKNY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 04G931

Lab File ID: PA502 Lab Sample ID: 96GVF138-MB1

Date Analyzed: 05/02/96 Time Analyzed: 0936

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCL6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES. MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKNYBS	96GVF138-MB1S	PB502	1016
02	35-MW35A-04	9604G931-007	YSB12	1132
03	35-TB03-04	9604G931-009	YSB13	1211
04	35-MW19D-04D	9604G931-006	YSB14	1249
05	35-MW19D-04D	9604G931-005	YSB15	1327
06				
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COMMENTS:

NO Contamination or TICs

VB
52994

BLANK SUMMARY - TCL SUMMARY
VOLATILE ORGANIC FRACTION

Method Blank Trip Blank Rinseate Blank Field Blank Other

Sample ID: 35-TB03-04 File ID: _____

COMPOUND	CONCENTRATION	CRQL

EPA SAMPLE ID				

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G931

	EPA SAMPLE NO.	SMC1 (DCE)#	SMC2 (TOL)#	SMC3 (BFB)#	OTHER	TOT OUT
01	VBLKGO	102	92	96		0
02	VBLKGQBS	97	93	92		0
03	35-MW14D-04	105	97	96		0
04	35-MW36B-04	98	96	94		0
05	35-MW36A-04	100	97	91		0
06	35-MW19S-04	100	100	94		0
07	35-MW19D-04	103	94	94		0
08	35-MW19D-04M	102	96	92		0
09	35-MW19D-04M	106	100	98		0
10	35-MW19D-04D	102	94	93		0
11	35-MW09D-04	106	95	96		0
12	VBLKNY	97	95	96		0
13	VBLKNYBS	96	94	94		0
14	35-MW35A-04	100	97	98		0
15	35-TB03-04	103	101	102		0
16	35-MW19D-04D	105	102	101		0
17	35-MW19D-04D	104	100	101		0
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QC LIMITS

SMC1 (DCE) = 1,2-Dichloroethane-d4 (76-114)
 SMC2 (TOL) = Toluene-d8 (88-110)
 SMC3 (BFB) = Bromofluorobenzene (86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

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52996

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 9604G931-005

Matrix Spike - EPA Sample No.: 35-MW19D-04

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	44.601	89	61-145
Benzene	50.000	0.0000	47.130	94	76-127
Trichloroethene	50.000	288.49	315.59	54*	71-120
Toluene	50.000	0.0000	43.511	87	76-125
Chlorobenzene	50.000	0.0000	42.773	86	75-130

NA

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
1,1-Dichloroethene	50.000	42.475	85	4	14	61-145
Benzene	50.000	47.429	95	1	11	76-127
Trichloroethene	50.000	322.34	68*	23*	14	71-120
Toluene	50.000	44.038	88	1	13	76-125
Chlorobenzene	50.000	43.044	86	0	13	75-130

NA

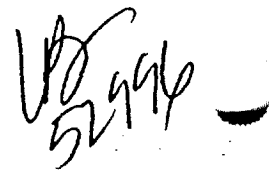
Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 5 outside limits

Spike Recovery: 2 out of 10 outside limits

COMMENTS:


 5/2/94

3A
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 96GVF137-MB1

Matrix Spike - EPA Sample No.: VBLKGQ

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	45.668	91	61-145
Benzene	50.000	0.0000	47.298	94	76-127
Trichloroethene	50.000	0.0000	42.348	85	71-120
Toluene	50.000	0.0000	43.707	87	76-125
Chlorobenzene	50.000	0.0000	43.295	86	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS: _____

VP
52996

3A
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 96GVF138-MB1

Matrix Spike - EPA Sample No.: VBLKNY

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	54.468	109	61-145
Benzene	50.000	0.0000	54.647	109	76-127
Trichloroethene	50.000	0.0000	47.891	96	71-120
Toluene	50.000	0.0000	51.029	102	76-125
Chlorobenzene	50.000	0.0000	51.854	104	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS: _____

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5/29/94

FIELD DUPLICATE SAMPLE SUMMARY
VOLATILE ORGANIC FRACTION

Sample ID: 35-MW19D-04 Duplicate Sample ID: 35-MW19D-04D

Matrix: aqueous / non aqueous

Units: ug/L ug/Kg

Compound Name	Sample Concentration	Duplicate Concentration	RPD	Action
1,2-DCE	330E	290E	14	NA
Trichloro	290E	270E	7	J

Water RPDs < 20% RPD

Soil RPDs < 35% RPD

Comments: _____

**SAMPLE RESULT VERIFICATION
VOLATILE ORGANIC FRACTION**

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Were the percent moistures reported? Yes No NR
- 3. Were the data reported on a dry weight basis? Yes No NR
- 4. Did the GC/MS RIC and TIC exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments: _____

35-MW19D-04DDL
35-MW19D-04DDL

Reviewer: *Karna Paese*

Date: 5, 29, 94



HEARTLAND

ENVIRONMENTAL SERVICES, INC.

X

Data Validation Report

SDG#: 9605G023
Date: May 20, 1996
Client Name: Baker Environmental, Inc.
Project/Site Name: Camp Lejeune - #232
Date Sampled: May 1-2, 1996
Number of Samples: 5 Aqueous Sample(s) with 1 MS/MSD(s)
Laboratory: Weston Environmental Metrics, Inc.
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level: NEESA Level C
Method(s) Utilized: CLP Low Concentration SOW
Analytical Fractions: Volatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Kimberly S. Stapp
for Eugene M. Watson Vice President

29 May 1996
Date

SDG# 9605G023

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

Baker ID	Matrix	VOA	
35-ERW07-04	WATER	X	
35-MW39B-04	WATER	X	
35MW40B-04	WATER	X	
35-MW41B-04	WATER	X	
35-MW41B-04MS	WATER	X	
35-MW41B-04MSD	WATER	X	
35-TB06-04	WATER	X	
Total Billable Samples (Water/Soil)		7	0

VOA = CLP Volatiles

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; National Functional Guidelines for Organic Data Review, and NEESA C. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 9605G023

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples was acceptable for all %RSDs and RRFs. No qualifications are required.

Continuing calibrations

The continuing calibrations that were analyzed with this data package was not acceptable for all %Ds. All average RRFs were within criteria. Qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations (continued)

Specific Finding:

1. The continuing calibration, OA507, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

VBLKOH	acetone
35-ERW07-04	2-butanone
35-MW39B-04	4-methyl-2-pentanone
35-MW40B-04	2-hexanone
35-MW41B-04	1,1,2,2-tetrachloroethane
35-TB06-04	
35-MW41B-04MS	
35-MW41B-04MSD	

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed exhibited no contamination and TICs. No qualifications are required.

Trip Blanks

The associated trip blank, 35-TB06-04 exhibited no contamination. No qualifications are required.

Rinseate Blanks

The associated rinseate blank, 35-ERW07-04 exhibited no contamination. No qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Field Blanks

The associated field blank was not identified for this SDG. No qualifications are required.

Surrogates

Surrogate recoveries for all samples and blanks met QA/QC criteria. The SOW and the National Functional Guidelines allow one surrogate for each fraction to fall outside the QA/QC criteria as long as the recovery is greater than 10%. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All spike and RPD recoveries were within the QA/QC criteria for MS/MSD 35-MW41B-04. No qualifications are required.

Field Duplicate

No qualifications are required.

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
VBLKOH	acetone	+	J	1
35-ERW07-04	2-butanone			
35-MW39B-04	4-methyl-2-pentanone			
35-MW40B-04	2-hexanone			
35-MW41B-04	1,1,2,2-tetrachloroethane			
35-TB06-04				
35-MW41B-04MS				
35-MW41B-04MSD				

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-ERW07-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ01

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

W.D. 5/9/96

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-ERW07-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ01

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4------	Methyl-tert-butylether _____	5	U
-----------------	------------------------------	---	---

W. Smith

0007

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-ERW07-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ01

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW39B-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ03

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	12	
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	4	J
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	10	U
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW398-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ03

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether_____	5	U

LW
5/2/96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW39B-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ03

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 1 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	17.06	7	✓ NJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW408-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ04

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	180	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	16	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

V. S. G. T.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW40B-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ04

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether	5	U

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24

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW408-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ04

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW418-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: I104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ05

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	Q
74-87-3	-----Chloromethane	10 U
75-01-4	-----Vinyl Chloride	10 U
74-83-9	-----Bromomethane	10 U
75-00-3	-----Chloroethane	10 U
75-35-4	-----1,1-Dichloroethene	10 U
67-64-1	-----Acetone	10 U
75-15-0	-----Carbon Disulfide	10 U
75-09-2	-----Methylene Chloride	10 U
540-59-0	-----1,2-Dichloroethene (total)	10 U
75-34-3	-----1,1-Dichloroethane	10 U
78-93-3	-----2-Butanone	10 U
67-66-3	-----Chloroform	10 U
71-55-6	-----1,1,1-Trichloroethane	10 U
56-23-5	-----Carbon Tetrachloride	10 U
71-43-2	-----Benzene	10 U
107-06-2	-----1,2-Dichloroethane	10 U
79-01-6	-----Trichloroethene	10 U
78-87-5	-----1,2-Dichloropropane	10 U
75-27-4	-----Bromodichloromethane	10 U
10061-01-5	-----cis-1,3-Dichloropropene	10 U
108-10-1	-----4-Methyl-2-pentanone	10 U
108-88-3	-----Toluene	10 U
10061-02-6	-----trans-1,3-Dichloropropene	10 U
79-00-5	-----1,1,2-Trichloroethane	10 U
127-18-4	-----Tetrachloroethene	10 U
591-78-6	-----2-Hexanone	10 U
124-48-1	-----Dibromochloromethane	10 U
108-90-7	-----Chlorobenzene	10 U
100-41-4	-----Ethylbenzene	10 U
100-42-5	-----Styrene	10 U
75-25-2	-----Bromoform	10 U
79-34-5	-----1,1,2,2-Tetrachloroethane	10 U
1330-20-7	-----Xylene (total)	10 U

3/90
015 32

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW418-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ05

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether_____		5 U

Handwritten signature
5/21/96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW41B-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ05

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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34

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-TB06-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ06

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	10	U
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	10	U
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

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52996

IA
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-TB06-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ06

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4-----Methyl-tert-butylether_____	5	U	
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-TB06-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ06

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANAL DATA SHEET

EPA SAMPLE NO.

35-MW418-04MS

Lab Name: WESTON/ENV. METRICS, INC Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-005S

Sample wt/vol: 5.000 (g/mL) Lab File ID: YTJ07

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (m Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethane	58	
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethane (total)	10	
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	58	
107-06-2	-----1,2-Dichlorobenzene	10	U
79-01-6	-----Trichloroethylene	52	
78-87-5	-----1,2-Dichlorobenzene	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	53	
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	54	
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

WJ
DM

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW418-04MS

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: AS No.: SDG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-005S

Sample wt/vol: 5.000 (g/mL) Lab File ID: YTJ07

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

1634-04-4-----	Methyl-tert-ether	5	U
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FOR QA:

3/90
[Handwritten Signature]
46

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

35-MW41B-04MSD

Lab Code: WESTON Case No.: SAS No.: SOG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-005T

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ08

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	55	
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	10	
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	57	
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	50	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	54	
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	53	
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

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5/2/96

IA
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW418-04MSD

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 05G023

Matrix: (soil/water) WATER Lab Sample ID: 9605G023-005T

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTJ08

Level: (low/med) LOW Date Received: 05/03/96

% Moisture: not dec. Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4-----	Methyl-tert-butylether	5	U
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MULTI-MEDIA VOLATILE ORGANIC FRACTION

CASE NUMBER: _____ SDG NUMBER: 96056023

LABORATORY: Woston

CLIENT: Burke PROJECT: Camp Lej.

REVIEWER: WJ DATE: 5-29-96

QA/QC LEVEL

- NEESA C
- NEESA D
- DQO LEVEL III
- DQO LEVEL IV
- _____

Statement Of Work (SOW)

- CLP 3/90
- CLP 2/88
- SW846 8240
- SW846 8240 Appendix IX
- _____

ANALYSIS MODIFICATIONS: _____

5A
VOLATILE ORGANIC INSTRUMENTANCE CHECK
(BROMOFLUOROBENZ)

Lab Name: WESTON/ENV. METRICS, INact: 1104-09-001
 Lab Code: WESTON Case No.: No.: SDG No.: 05G023
 Lab File ID: NB426 BFB Injection Date: 04/26/96
 Instrument ID: GCL6 BFB Injection Time: -1922
 GC Column: CAP ID: 0-53 (m Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.9
75	30.0 - 66.0% of mass 95	45.3
95	Base Peak, 100% relative	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	73.1
175	4.0 - 9.0% of mass 174	5.8 (7.9)1
176	93.0 - 101.0% of mass 174	71.6 (97.9)1
177	5.0 - 9.0% of mass 176	4.8 (6.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING: MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	VSTD010	6	04/26/96	2003
02	VSTD020	VSTD020	6	04/26/96	2042
03	VSTD050	VSTD050	6	04/26/96	2120
04	VSTD100	VSTD100	6	04/26/96	2158
05	VSTD200	VSTD200	6	04/26/96	2236
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VOLATILE ORGANICS TIAL CALIBRATION DATA

Lab Name: WESTON/ENV. METRICS, INC Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG N.: 05G023

Instrument ID: GCL6 Calibra Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Calibra Time(s): 2003 26

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF1	RRF20	RRF50	RRF100	RRF	RSD	
Chloromethane	1.3	1.091	1.085	0.997	1.18	1.085	14.4
Vinyl Chloride	1.4	1.184	1.199	1.061	1.44	1.191	14.2*
Bromomethane	2.4	1.935	1.890	1.733	2.69	1.946	13.8*
Chloroethane	0.8	0.732	0.706	0.637	0.830	0.714	13.2
1,1-Dichloroethene	1.2	1.108	1.154	1.056	1.31	1.129	9.2*
Acetone	0.3	0.247	0.213	0.190	0.381	0.230	24.2
Carbon Disulfide	3.9	3.165	3.262	3.049	3.66	3.272	11.6
Methylene Chloride	1.4	1.206	1.192	1.146	1.91	1.210	10.2
1,2-Dichloroethene (total)	1.6	1.416	1.465	1.368	1.831	1.453	9.6
1,1-Dichloroethane	2.8	2.497	2.458	2.330	2.63	2.484	9.5*
2-Butanone	0.3	0.422	0.401	0.373	0.334	0.385	8.8
Chloroform	3.5	3.091	3.055	2.90	3.05	3.072	8.7*
1,1,1-Trichloroethane	0.7	0.652	0.637	0.64	0.616	0.656	6.6*
Carbon Tetrachloride	0.7	0.645	0.641	0.64	0.624	0.659	6.9*
Benzene	0.8	0.773	0.759	0.74	0.739	0.778	7.4*
1,2-Dichloroethane	1.8	1.703	1.671	1.64	1.624	1.703	5.9*
Trichloroethene	0.5	0.458	0.447	0.44	0.454	0.463	5.5*
1,2-Dichloropropane	0.3	0.355	0.338	0.3	0.342	0.354	5.5
Bromodichloromethane	0.8	0.753	0.770	0.7	0.749	0.783	6.4*
cis-1,3-Dichloropropene	0.5	0.480	0.481	0.4	0.466	0.494	6.8*
4-Methyl-2-pentanone	0.2	0.273	0.288	0.2	0.274	0.282	2.9
Toluene	1.2	1.065	1.120	1.0	1.064	1.109	6.7*
trans-1,3-Dichloropropene	0.4	0.374	0.390	0.3	0.382	0.397	6.9*
1,1,2-Trichloroethane	0.4	0.331	0.345	0.3	0.338	0.356	8.6*
Tetrachloroethene	0.5	0.471	0.478	0.4	0.451	0.472	4.9*
2-Hexanone	0.2	0.204	0.188	0.1	0.179	0.192	5.1
Dibromochloromethane	0.7	0.690	0.682	0.6	0.675	0.707	5.4*
Chlorobenzene	1.0	0.962	0.945	0.8	0.895	0.962	6.3*
Ethylbenzene	0.4	0.395	0.410	0.3	0.384	0.399	5.2*
Styrene	1.0	0.869	0.885	0.8	0.807	0.888	9.6*
Bromoform	0.5	0.505	0.524	0.4	0.513	0.535	6.8*
1,1,2,2-Tetrachloroethane	0.7	0.583	0.636	0.6	0.607	0.629	7.9*
Xylene (total)	1.2	1.037	1.081	1.0	1.093	1.069	9.1*
Methyl-tert-butyl Ether	2.6	2.260	2.290	2.0	2.000	2.288	11.1
1,2-Dichloroethane-d4	1.4	1.364	1.391	1.3	1.324	1.364	2.8
Toluene-d8	1.0	0.981	1.029	1.0	1.008	1.006	4.7

* Compounds with required minimum RRF and maximum %RSD.
All other compounds must meet a minimum RRF of 0.0

Handwritten signature and date: 5/29/96

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Lab File ID: NA507 BFB Injection Date: 05/07/96

Instrument ID: GCL6 BFB Injection Time: 0901

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.4
75	30.0 - 66.0% of mass 95	44.8
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	71.3
175	4.0 - 9.0% of mass 174	3.7 (5.2)1
176	93.0 - 101.0% of mass 174	71.6 (100.5)1
177	5.0 - 9.0% of mass 176	4.9 (6.8)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	0A507	05/07/96	0943
02	VBLKOH	96GVF145-MB1	PA507	05/07/96	1035
03	VBLKOHBS	96GVF145-MB1S	PB507	05/07/96	1122
04	35-ERW07-04	9605G023-001	YTJ01	05/07/96	1210
05	35-MW398-04	9605G023-003	YTJ03	05/07/96	1328
06	35-MW408-04	9605G023-004	YTJ04	05/07/96	1408
07	35-MW41B-04	9605G023-005	YTJ05	05/07/96	1447
08	35-TB06-04	9605G023-006	YTJ06	05/07/96	1525
09	35-MW41B-04M	9605G023-005S	YTJ07	05/07/96	1603
10	35-MW41B-04M	9605G023-005T	YTJ08	05/07/96	1641
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7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Instrument ID: GCL6 Calibration Date: 05/07/96 Time: 0943

Lab File ID: OA507 Init. Calib. Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.085	0.992		8.6	
Vinyl Chloride	1.191	1.122	0.100	5.8	25.0
Bromomethane	1.946	1.881	0.100	3.3	25.0
Chloroethane	0.714	0.702		1.7	
1,1-Dichloroethene	1.129	1.006	0.100	10.9	25.0
Acetone	0.230	0.142		38.3	
Carbon Disulfide	3.272	3.005		8.2	
Methylene Chloride	1.210	1.104		8.8	
1,2-Dichloroethene (total)	1.453	1.316		9.4	
1,1-Dichloroethane	2.484	2.231	0.200	10.2	25.0
2-Butanone	0.385	0.227		41.0	
Chloroform	3.072	2.871	0.200	6.5	25.0
1,1,1-Trichloroethane	0.656	0.586	0.100	10.7	25.0
Carbon Tetrachloride	0.659	0.599	0.100	9.1	25.0
Benzene	0.778	0.682	0.500	12.3	25.0
1,2-Dichloroethane	1.703	1.484	0.100	12.8	25.0
Trichloroethene	0.463	0.411	0.300	11.2	25.0
1,2-Dichloropropane	0.354	0.305		13.8	
Bromodichloromethane	0.783	0.690	0.200	11.9	25.0
cis-1,3-Dichloropropene	0.494	0.414	0.200	16.2	25.0
4-Methyl-2-pentanone	0.282	0.173		38.6	
Toluene	1.109	0.974	0.400	12.2	25.0
trans-1,3-Dichloropropene	0.397	0.323	0.100	18.6	25.0
1,1,2-Trichloroethane	0.356	0.276	0.100	22.5	25.0
Tetrachloroethene	0.472	0.437	0.200	7.4	25.0
2-Hexanone	0.192	0.111		42.2	
Dibromochloromethane	0.707	0.588	0.100	16.8	25.0
Chlorobenzene	0.962	0.871	0.500	9.4	25.0
Ethylbenzene	0.399	0.370	0.100	7.3	25.0
Styrene	0.888	0.805	0.300	9.3	25.0
Bromoform	0.535	0.419	0.100	21.7	25.0
1,1,2,2-Tetrachloroethane	0.629	0.447	0.500	28.9	25.0
Xylene (total)	1.069	0.992	0.300	7.2	25.0
Methyl-tert-butylether	2.288	1.739		24.0	
1,2-Dichloroethane-d4	1.364	1.407		3.2	
Toluene-d8	1.006	1.087		8.0	

ALL other compounds must meet a minimum RRF of 0.010.

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7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Instrument ID: GCL6 Calibration Date: 05/07/96 Time: 0943

Lab File ID: OA507 Init. Calib. Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236

GC-Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Bromofluorobenzene	0.755	0.863	0.200	14.3	25.0

All other compounds must meet a minimum RRF of 0.010.

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8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Lab File ID (Standard): 0A507 Date Analyzed: 05/07/96

Instrument ID: GCL6 Time Analyzed: 0943

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

	ISI(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	880273	18.48	3669643	20.23	3107721	26.14
UPPER LIMIT	1760546	18.98	7339286	20.73	6215442	26.64
LOWER LIMIT	440136	17.98	1834822	19.73	1553860	25.64
EPA SAMPLE NO.						
01 VBLKOH	882231	18.48	3728226	20.24	3282064	26.14
02 VBLKOHBS	902830	18.48	3859004	20.23	3244601	26.15
03 35-ERW07-04	796455	18.48	3242578	20.24	2839337	26.14
04 35-MW39B-04	912808	18.48	3812550	20.23	3284757	26.14
05 35-MW40B-04	884774	18.48	3702115	20.23	3193322	26.14
06 35-MW41B-04	816935	18.48	3487362	20.23	2923691	26.14
07 35-TB06-04	859056	18.48	3587062	20.23	2981590	26.14
08 35-MW41B-04M	876539	18.49	3638945	20.24	3135213	26.14
09 35-MW41B-04M	827143	18.48	3419974	20.24	2898712	26.14
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IS1 (BCM) = Bromochloromethane
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits.

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**BLANK SUMMARY
VOLATILE ORGANIC FRACTION**

1. Blank qualification guidelines:

- a) If a compound is found in the blank but not in the sample, no action is taken.
- b) Any compound (other than the four (4) listed below) detected in the sample, which was also detected in the associated blank, must be qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than five (5) times the blank concentration. For the following four (4) compounds, the results are qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than ten (10) times the blank concentration.

Common laboratory contaminants: methylene chloride
 acetone
 2-butanone

- c) The reviewer should take note that the blank analysis may not involve the same weights, volumes or dilution factors as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria.
- d) In addition, the reviewer must review the trip blanks, rinseate blanks and field blanks (if they were submitted with the data package) and all associated samples. Apply the same data validation guidelines used in assessing the method blanks.
- e) Qualification/Action codes:

U - The sample result is greater than the CRQL and less than ten times (10X) the blank value. Cross out the "B" flag and qualify the sample result with a "U".

CRQL - The sample result is less than the CRQL and less than ten times (10X) the blank value. Reject the sample result, cross out the "B" flag, and report the CRQL.

No Action - The sample result is greater than the CRQL and greater than ten times (10X) the blank value.

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKOH

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G023

Lab File ID: PA507 Lab Sample ID: 96GVF145-MB1

Date Analyzed: 05/07/96 Time Analyzed: 1035

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCL6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES. MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKOHBS	96GVF145-MB1S	PB507	1122
02	35-ERW07-04	9605G023-001	YTJ01	1210
03	35-MW398-04	9605G023-003	YTJ03	1328
04	35-MW408-04	9605G023-004	YTJ04	1408
05	35-MW41B-04	9605G023-005	YTJ05	1447
06	35-TB06-04	9605G023-006	YTJ06	1525
07	35-MW41B-04M	9605G023-005S	YTJ07	1603
08	35-MW41B-04M	9605G023-005T	YTJ08	1641
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COMMENTS:

No Contamination or TICs

US 52996

2A
WATER VOLATILE SYSTEM MONITOR COMPOUND RECOVERY

Lab Name: WESTON/ENV. METRICS, INC. Contact: 1104-09-001

Lab Code: WESTON Case No.: No.: SDC No.: 05G023

	EPA SAMPLE NO.	SMC1 (DCE)#	SMC2 #	SMC3 (BFB)#	OTHER	TOT OUT
01	VBLKOH	102		95		0
02	VBLKOHBS	94		89		0
03	35-ERW07-04	106		100		0
04	35-MW398-04	96		90		0
05	35-MW408-04	98		92		0
06	35-MW418-04	96		89		0
07	35-TB06-04	97		94		0
08	35-MW418-04M	99		95		0
09	35-MW418-04M	100		93		0
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QC LIMITS

SMC1 (DCE) = 1,2-Dichloroethane-d4 (76-11)
 SMC2 (TOL) = Toluene-d8 (88-11)
 SMC3 (BFB) = Bromofluorobenzene (86-11)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

W. B. ...

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

L Code: WESTON Case No.: SAS No.: Lab ID: 9605G023-005

Matrix Spike - EPA Sample No.: 35-MW418-04

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	58.149	116	61-145
Benzene	50.000	0.0000	58.076	116	76-127
Trichloroethene	50.000	0.0000	52.376	105	71-120
Toluene	50.000	0.0000	53.400	107	76-125
Chlorobenzene	50.000	0.0000	54.193	108	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
1,1-Dichloroethene	50.000	55.046	110	5	14	61-145
Benzene	50.000	57.280	114	2	11	76-127
Trichloroethene	50.000	50.375	101	4	14	71-120
Toluene	50.000	53.528	107	0	13	76-125
Chlorobenzene	50.000	53.425	107	1	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

WJ
5/2/94

3A
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 96GVF145-MB1

Matrix Spike - EPA Sample No.: VBLKOH

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	53.947	108	61-145
Benzene	50.000	0.0000	53.648	107	76-127
Trichloroethene	50.000	0.0000	47.304	95	71-120
Toluene	50.000	0.0000	49.658	99	76-125
Chlorobenzene	50.000	0.0000	50.258	100	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS:

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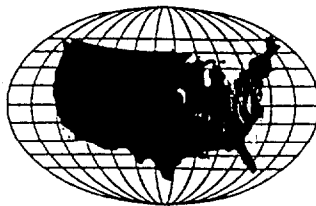
**SAMPLE RESULT VERIFICATION
VOLATILE ORGANIC FRACTION**

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Were the percent moistures reported? Yes No NR
- 3. Were the data reported on a dry weight basis? Yes No NR
- 4. Did the GC/MS RIC and TIC exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments: _____

Reviewer: *Laura Pese*

Date: 5.29.96



HEARTLAND

ENVIRONMENTAL SERVICES, INC.

X

Data Validation Report

SDG#: 9604G949
Date: May 20, 1996
Client Name: Baker Environmental, Inc.
Project/Site Name: Camp Lejeune - #232
Date Sampled: April 27-29, 1996
Number of Samples: 7 Aqueous Sample(s) with 1 MS/MSD(s)
Laboratory: Weston Environmental Metrics, Inc.
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level: NEESA Level C
Method(s) Utilized: CLP Low Concentration SOW
Analytical Fractions: Volatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Kimberly S. Stapp
for Eugene M. Watson, Vice President

29 May 1996
Date

SDG# 9604G949

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

Baker ID	Matrix	VOA	
35-MW32A-04	WATER	X	
35-MW32A-04MS	WATER	X	
35-MW32A-04MSD	WATER	X	
35-MW37B-04	WATER	X	
35-MW10D-04	WATER	X	
35-MW10D-04D	WATER	X	
35-ERW03-04	WATER	X	
35-ERW05-04	WATER	X	
35-TB04-04	WATER	X	
Total Billable Samples (Water/Soil)		9	0

VOA = CLP Volatiles

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; National Functional Guidelines for Organic Data Review, and NEESA C. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 9604G949

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples was acceptable for all %RSDs and RRFs. No qualifications are required.

Continuing calibrations

The continuing calibrations that were analyzed with this data package was not acceptable for all %Ds. All average RRFs were within criteria. Qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations (continued)

Specific Finding:

1. The continuing calibration, OA502, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

VBLKNY	acetone
35-MW32A-04	2-butanone
35-MW37B-04	4-methyl-2-pentanone
35-MW10D-04	2-hexanone
35-MW10D-04D	1,1,2,2-tetrachloroethane
35-ERW05-04	
35-TB04-04	
35-MW32A-04MS	
35-MW32A-04MSD	

2. The continuing calibration, OB502; contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

VBLKJA	acetone
35-MW10D-04DDL	trans-1,3-dichloropropene
	1,1,2,2-tetrachloroethane

3. The continuing calibration, OB502, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

VBLKJA	2-hexanone
35-MW10D-04DDL	

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Continuing calibrations (continued)

Specific Finding:

4. The continuing calibration, OA503, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

VBLKIY	acetone
35-MW10D-04DL	2-butanone
	4-methyl-2-pentanone
	2-hexanone

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed exhibited no contamination and TICs. No qualifications are required.

Trip Blanks

The associated trip blank, 35-TB04-04 exhibited no contamination. No qualifications are required.

Rinseate Blanks

The associated rinseate blank, 35-ERW03-04 exhibited contamination for benzene. Rinseate blank, 35-ERW05-04, exhibited no contamination. Qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 4

Rinseate Blanks (continued)

Specific Finding:

5. The following samples have been qualified for rinseate blank contamination. Qualifications are for all rinseate blanks.

35-MW37B-04	benzene	CRQL
35-MW10D-04		
35-MW10D-04D		

Field Blanks

The associated field blank was not identified for this SDG. No qualifications are required.

Surrogates

Surrogate recoveries for all samples and blanks met QA/QC criteria. The SOW and the National Functional Guidelines allow one surrogate for each fraction to fall outside the QA/QC criteria as long as the recovery is greater than 10%. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All spike and RPD recoveries were within the QA/QC criteria for MS/MSD 35-MW32A-04. No qualifications are required.

Field Duplicate

No qualifications are required.

Compound Identification/Quantitation

6. Reject all E-flagged analytes in samples 35-MW10D-04 and 35-MW10D-04D, in favor of the dilution.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
VBLKNY	acetone	+	J	1
35-MW32A-04	2-butanone			
35-MW37B-04	4-methyl-2-pentanone			
35-MW10D-04	2-hexanone			
35-MW10D-04D	1,1,2,2-tetrachloroethane			
35-ERW05-04				
35-TB04-04				
35-MW32A-04MS				
35-MW32A-04MSD				
VBLKJA	acetone	+	J	2
35-MW10D-04DDL	trans-1,3-dichloropropene			
	1,1,2,2-tetrachloroethane			
VBLKJA	2-hexanone	+/-	J/UJ	3
35-MW10D-04DDL				
VBLKIY	acetone	+	J	4
35-MW10D-04DL	2-butanone			
	4-methyl-2-pentanone			
	2-hexanone			
35-MW37B-04	benzene	+	CRQL	5
35-MW10D-04				
35-MW10D-04D				
35-MW10D-04	All E-flagged analytes	+	R	6
35-MW10D-04D				
35-MW10D-04DL	All analytes except	+/-	R	6
35-MW10D-04DDL	D-flagged analytes			

* DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW32A-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD01

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO. COMPOUND Q

74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	10	U
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	10	U
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

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3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW32A-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD01

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether_____	5	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW32A-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: 008 No.: 048949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD01

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: - _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW378-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-002 ✓

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD02

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	10	U
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	10	U
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	4	J
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

10-7 JUS

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW37B-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER

Lab Sample ID: 9604G949-002

Sample wt/vol: 5.000 (g/mL) ML

Lab File ID: YSD02

Level: (low/med) LOW

Date Received: 04/30/96

% Moisture: not dec. _____

Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm)


Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q.
---------	----------	--	----

1634-04-4-----	Methyl-tert-butylether_____	5	U
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 3/90
 01315

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW37B-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD02

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	17.08	77	JNJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW10D-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-003 ✓

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD03

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	13	
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	6	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	1000	U ✓ R4
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U ✓
71-43-2	Benzene	10-5	U + u5 R4
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	660	U ✓ R4
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	2	J
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

Handwritten signature and number:
52944

IA
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW100-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD03

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) - Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-.....	Methyl-tert-butylether		5 U

10
 52946
 011

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW10D-04

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD03

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 1 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	HYDROCARBON C9H10	32.52	6	+ NJ
2.				
3.				
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WJ
02/30/96

IA
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW100-04DL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD13

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. Date Analyzed: 05/03/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	100	U
74-83-9	Bromomethane	100	U
75-00-3	Chloroethane	100	U
75-35-4	1,1-Dichloroethene	100	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	100	U
540-59-0	1,2-Dichloroethene (total)	1200	D
75-34-3	1,1-Dichloroethane	100	U
78-93-3	2-Butanone	100	U
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	100	U
79-01-6	Trichloroethene	740	D
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-pentanone	100	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
79-00-5	1,1,2-Trichloroethane	100	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	100	U
124-48-1	Dibromochloromethane	100	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	100	U
100-42-5	Styrene	100	U
75-25-2	Bromoform	100	U
79-34-5	1,1,2,2-Tetrachloroethane	100	U
1330-20-7	Xylene (total)	100	U

Handwritten signature and date: 05/03/96

IA
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW100-04DL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD13

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/03/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether_____	50	<i>RLY</i>

WJ
3/90
52916

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW100-04DL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD13

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/03/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
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52996

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW10D-040

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD04

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	6	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	1100	U RL ✓
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	105	U US
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	740	U RL ✓
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	2	J
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

Handwritten signature and date:
WJ
5/2/96

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW100-04D

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD04

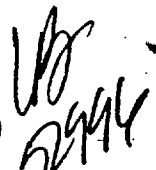
Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether		5 U


 3/90
 0.45 020

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW100-040

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YS004

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 1 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	HYDROCARBON C9H10	32.51	6	JNJ
2.				
3.				
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5/2/96

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW100-04DDL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD12

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. Date Analyzed: 05/03/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	50	RL6
75-01-4	Vinyl Chloride	50	U
74-83-9	Bromomethane	50	U
75-00-3	Chloroethane	50	U
75-35-4	1,1-Dichloroethene	50	U
67-64-1	Acetone	50	U
75-15-0	Carbon Disulfide	50	U
75-09-2	Methylene Chloride	50	U
540-59-0	1,2-Dichloroethene (total)	960	D
75-34-3	1,1-Dichloroethane	50	U
78-93-3	2-Butanone	50	U
67-66-3	Chloroform	50	U
71-55-6	1,1,1-Trichloroethane	50	U
56-23-5	Carbon Tetrachloride	50	U
71-43-2	Benzene	50	U
107-06-2	1,2-Dichloroethane	50	U
79-01-6	Trichloroethene	630	D
78-87-5	1,2-Dichloropropane	50	U
75-27-4	Bromodichloromethane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
108-10-1	4-Methyl-2-pentanone	50	U
108-88-3	Toluene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
79-00-5	1,1,2-Trichloroethane	50	U
127-18-4	Tetrachloroethene	50	U
591-78-6	2-Hexanone	50	U
124-48-1	Dibromochloromethane	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
100-42-5	Styrene	50	U
75-25-2	Bromoform	50	U
79-34-5	1,1,2,2-Tetrachloroethane	50	U
1330-20-7	Xylene (total)	50	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW10D-04DDL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Job Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD12

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/03/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4-.....	Methyl-tert-butylether	25	<i>RL</i>
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW10D-04DDL

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD12

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. Date Analyzed: 05/03/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW32A-04MS

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

L Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-001S

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD09

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

1634-04-4------	Methyl-tert-butylether_____		5 U
-----------------	-----------------------------	--	-----

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02/96

IA
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW32A-04MSD

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-001T

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD10

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	56	
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	58	
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	52	
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	54	
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	55	
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW32A-04MSD

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Matrix: (soil/water) WATER Lab Sample ID: 9604G949-001T

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YSD10

Level: (low/med) LOW Date Received: 04/30/96

% Moisture: not dec. _____ Date Analyzed: 05/02/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4- - - - -	Methyl-tert-butylether _____		5 U

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2/11/96

HEARTLAND ESI VOA 1

HESI94.1

MULTI-MEDIA VOLATILE ORGANIC FRACTION

CASE NUMBER: _____ SDG NUMBER: 96046949

LABORATORY: Weston

CLIENT: Baker PROJECT: Camp Lejeune

REVIEWER: WJ DATE: 5-29-96

QA/QC LEVEL

- NEESA C
- NEESA D
- DQO LEVEL III
- DQO LEVEL IV
- _____

Statement Of Work (SOW)

- CLP 3/90
- CLP 2/88
- SW846 8240
- SW846 8240 Appendix IX
- _____

ANALYSIS MODIFICATIONS: _____

VOLATILE HOLDING TIMES

- CLP/SW846 : 14 days from date of sampling (If properly preserved)
- Region I : 10 days from VTsR
- Region III : 14 days from date of sampling (If properly preserved)
- NYSDEC : 7 days from date VTsR

1. Were the holding times met for the all volatile analysis? YES NO

If yes, complete the following form for all samples that exceeded holding times.

EPA SAMPLE NO.	MATRIX	VTsR OR DATE SAMPLED	DATE OF ANALYSIS	DA	Action

Action: DA - The number of days that the holding time was exceeded.

DA ≤ 5: Qualify all positive results as estimated (J).

DA > 5 ≤ 15: Qualify all positive results as estimated (J) and all non detects estimated (UJ).

DA > 15: Qualify all positive results estimated (J) and reject all non detects.

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949
 Lab File ID: NB426 BFB Injection Date: 04/26/96
 Instrument ID: GCL6 BFB Injection Time: 1922
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.9
75	30.0 - 66.0% of mass 95	45.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	73.1
175	4.0 - 9.0% of mass 174	5.8 (7.9)1
176	93.0 - 101.0% of mass 174	71.6 (97.9)1
177	5.0 - 9.0% of mass 176	4.8 (6.7)2

1-Value is % mass 174 2-Value is % mass 176 ..

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	VSTD010	OB426	04/26/96	2003
02	VSTD020	VSTD020	OC426	04/26/96	2042
03	VSTD050	VSTD050	OD426	04/26/96	2120
04	VSTD100	VSTD100	OE426	04/26/96	2158
05	VSTD200	VSTD200	OF426	04/26/96	2236
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6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Instrument ID: GCL6 Calibration Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Calibration Time(s): 2003 2236

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	RRF	% RSD
LAB FILE ID: RRF50 =00426	RRF10 =0B426	RRF20 =0C426	RRF50 =0E426	RRF100 =0F426	RRF200 =0F426		
Chloromethane	1.335	1.091	1.085	0.997	0.918	1.085	14.4
Vinyl Chloride *	1.468	1.184	1.199	1.061	1.044	1.191	14.2*
Bromomethane *	2.403	1.935	1.890	1.733	1.769	1.946	13.8*
Chloroethane	0.863	0.732	0.706	0.637	0.630	0.714	13.2
1,1-Dichloroethene *	1.294	1.108	1.154	1.056	1.031	1.129	9.2*
Acetone	0.319	0.247	0.213	0.190	0.181	0.230	24.2
Carbon Disulfide	3.919	3.165	3.262	3.049	2.966	3.272	11.6
Methylene Chloride	1.416	1.206	1.192	1.146	1.091	1.210	10.2
1,2-Dichloroethene (total)	1.685	1.416	1.465	1.368	1.331	1.453	9.6
1,1-Dichloroethane *	2.871	2.497	2.458	2.330	2.263	2.484	9.5*
2-Butanone	0.395	0.422	0.401	0.373	0.334	0.385	8.8
Chloroform *	3.506	3.091	3.055	2.905	2.805	3.072	8.7*
1,1,1-Trichloroethane *	0.729	0.652	0.637	0.645	0.616	0.656	6.6*
Carbon Tetrachloride *	0.738	0.645	0.641	0.645	0.624	0.659	6.9*
Benzene *	0.878	0.773	0.759	0.743	0.739	0.778	7.4*
1,2-Dichloroethane *	1.873	1.703	1.671	1.643	1.624	1.703	5.9*
Trichloroethene *	0.508	0.458	0.447	0.446	0.454	0.463	5.5*
1,2-Dichloropropane	0.387	0.355	0.338	0.348	0.342	0.354	5.5
Bromodichloromethane *	0.870	0.753	0.770	0.772	0.749	0.783	6.4*
cis-1,3-Dichloropropene *	0.552	0.480	0.481	0.490	0.466	0.494	6.8*
4-Methyl-2-pentanone	0.291	0.273	0.288	0.282	0.274	0.282	2.9
Toluene *	1.235	1.065	1.120	1.059	1.064	1.109	6.7*
trans-1,3-Dichloropropene *	0.444	0.374	0.390	0.394	0.382	0.397	6.9*
1,1,2-Trichloroethane *	0.408	0.331	0.345	0.359	0.338	0.356	8.6*
Tetrachloroethene *	0.508	0.471	0.478	0.451	0.451	0.472	4.9*
2-Hexanone	0.200	0.204	0.188	0.189	0.179	0.192	5.1
Dibromochloromethane *	0.768	0.690	0.682	0.719	0.675	0.707	5.4*
Chlorobenzene *	1.061	0.962	0.945	0.945	0.895	0.962	6.3*
Ethylbenzene *	0.428	0.395	0.410	0.377	0.384	0.399	5.2*
Styrene *	1.031	0.869	0.885	0.848	0.807	0.888	9.6*
Bromoform *	0.597	0.505	0.524	0.534	0.513	0.535	6.8*
1,1,2,2-Tetrachloroethane *	0.711	0.583	0.636	0.607	0.607	0.629	7.9*
Xylene (total) *	1.231	1.037	1.081	1.003	0.993	1.069	9.1*
Methyl-tert-butylether	2.695	2.260	2.290	2.197	2.000	2.288	11.1
1,2-Dichloroethane-d4	1.410	1.364	1.391	1.329	1.324	1.364	2.8
Toluene-d8	1.067	0.981	1.029	0.943	1.008	1.006	4.7

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

b Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Lab File ID: NA502 BFB Injection Date: 05/02/96

Instrument ID: GCL6 BFB Injection Time: 0828

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.6
75	30.0 - 66.0% of mass 95	45.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.1)1
174	50.0 - 120.0% of mass 95	72.2
175	4.0 - 9.0% of mass 174	3.0 (4.2)1
176	93.0 - 101.0% of mass 174	69.9 (96.8)1
177	5.0 - 9.0% of mass 176	4.4 (6.4)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	OA502	05/02/96	0856
02	VBLKNY	96GVF138-MB1	PA502	05/02/96	0936
03	VBLKNYBS	96GVF138-MB1S	PB502	05/02/96	1016
04	35-MW32A-04	9604G949-001	YSD01	05/02/96	1406
05	35-MW37B-04	9604G949-002	YSD02	05/02/96	1446
06	35-MW10D-04	9604G949-003	YSD03	05/02/96	1526
07	35-MW10D-04D	9604G949-004	YSD04	05/02/96	1605
08	35-ERW03-04	9604G949-005	YSD05	05/02/96	1644
09	35-ERW05-04	9604G949-007	YSD07	05/02/96	1803
10	35-TB04-04	9604G949-008	YSD08	05/02/96	1842
11	35-MW32A-04M	9604G949-001S	YSD09	05/02/96	1920
12	35-MW32A-04M	9604G949-001T	YSD10	05/02/96	1959
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7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Instrument ID: GCL6 Calibration Date: 05/02/96 Time: 0856

Lab File ID: OA502 Init. Calib. Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.085	0.827		23.8	
Vinyl Chloride	1.191	0.971	0.100	18.5	25.0
Bromomethane	1.946	1.688	0.100	13.2	25.0
Chloroethane	0.714	0.618		13.4	
1,1-Dichloroethene	1.129	1.086	0.100	3.8	25.0
Acetone	0.230	0.163		29.1	
Carbon Disulfide	3.272	3.515		7.4	
Methylene Chloride	1.210	1.250		3.3	
1,2-Dichloroethene (total)	1.453	1.369		5.8	
1,1-Dichloroethane	2.484	2.331	0.200	6.2	25.0
2-Butanone	0.385	0.251		34.8	
Chloroform	3.072	2.883	0.200	6.2	25.0
1,1,1-Trichloroethane	0.656	0.612	0.100	6.7	25.0
Carbon Tetrachloride	0.659	0.628	0.100	4.7	25.0
Benzene	0.778	0.708	0.500	9.0	25.0
1,2-Dichloroethane	1.703	1.539	0.100	9.6	25.0
Trichloroethene	0.463	0.423	0.300	8.6	25.0
1,2-Dichloropropane	0.354	0.317		10.4	
Bromodichloromethane	0.783	0.709	0.200	9.4	25.0
cis-1,3-Dichloropropene	0.494	0.432	0.200	12.6	25.0
4-Methyl-2-pentanone	0.282	0.183		35.1	
Toluene	1.109	0.999	0.400	9.9	25.0
trans-1,3-Dichloropropene	0.397	0.347	0.100	12.6	25.0
1,1,2-Trichloroethane	0.356	0.292	0.100	18.0	25.0
Tetrachloroethene	0.472	0.438	0.200	7.2	25.0
2-Hexanone	0.192	0.120		37.5	
Dibromochloromethane	0.707	0.596	0.100	15.7	25.0
Chlorobenzene	0.962	0.857	0.500	10.9	25.0
Ethylbenzene	0.399	0.374	0.100	6.3	25.0
Styrene	0.888	0.803	0.300	9.6	25.0
Bromoform	0.535	0.433	0.100	19.1	25.0
1,1,2,2-Tetrachloroethane	0.629	0.463	0.500	26.4	25.0
Xylene (total)	1.069	0.966	0.300	9.6	25.0
Methyl-tert-butylether	2.288	2.014		12.0	
1,2-Dichloroethane-d4	1.364	1.332		2.3	
Toluene-d8	1.006	1.020		1.4	

ALL other compounds must meet a minimum RRF of 0.010.

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5/2/96

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 046949

Instrument ID: GCL6 Calibration Date: 05/02/96 Time: 0856

Lab File ID: OA502 Init. Calib. Date(s): 04/26/96 - 04/26/96

Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Bromofluorobenzene	0.755	0.775	0.200	2.6	25.0

All other compounds must meet a minimum RRF of 0.010.

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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949
 Lab File ID: NB502 BFB Injection Date: 05/02/96
 Instrument ID: GCL6 BFB Injection Time: 2037
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	17.8
75	30.0 - 66.0% of mass 95	45.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.0
173	Less than 2.0% of mass 174	0.0 (0.0)I
174	50.0 - 120.0% of mass 95	72.6
175	4.0 - 9.0% of mass 174	5.2 (7.1)I
176	93.0 - 101.0% of mass 174	71.7 (98.8)I
177	5.0 - 9.0% of mass 176	4.8 (6.7)2

I-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	OB502	05/02/96	2109
02	VBLKJA	96GVF139-MB1	PE502	05/02/96	2229
03	VBLKJABS	96GVF139-MB1S	PD502	05/02/96	2325
04	35-MW10D-04D	9604G949-004	YSD12	05/03/96	0159
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VOLATILE CONTINUUM CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: S No.: SDG No.: 04G949

Instrument ID: GCL6 Calibration Date: 05/02/96 Time: 2109

Lab File ID: OB502 Init. C Date(s): 04/26/96 05/02/96

Heated Purge: (Y/N) N Init. C Times: 2003 2104

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.140		5.1	
Vinyl Chloride	1.191	0.100	0.2	25.0
Bromomethane	1.900	0.100	3.1	25.0
Chloroethane	0.699		2.4	
1,1-Dichloroethene	1.226	0.100	9.3	25.0
Acetone	0.152		35.0	
Carbon Disulfide	3.808		16.3	
Methylene Chloride	1.350		11.1	
1,2-Dichloroethene (total)	1.547		6.7	
1,1-Dichloroethane	2.572	0.200	3.3	25.0
2-Butanone	0.307		19.4	
Chloroform	3.298	0.200	7.2	25.0
1,1,1-Trichloroethane	0.694	0.100	9.2	25.0
Carbon Tetrachloride	0.683	0.100	8.8	25.0
Benzene	0.805	0.500	22.1	25.0
1,2-Dichloroethane	1.685	0.100	1.5	25.0
Trichloroethene	0.482	0.300	11.1	25.0
1,2-Dichloropropane	0.359		25.7	
Bromodichloromethane	0.805	0.200	11.4	25.0
cis-1,3-Dichloropropene	0.502	0.200	23.0	25.0
4-Methyl-2-pentanone	0.221		70.2	
Toluene	1.119	0.400	9.0	25.0
trans-1,3-Dichloropropene	0.389	0.100	28.8	25.0
1,1,2-Trichloroethane	0.341	0.100	23.2	25.0
Tetrachloroethene	0.472	0.200	23.5	25.0
2-Hexanone	0.144		74.2	
Dibromochloromethane	0.694	0.100	12.3	25.0
Chlorobenzene	1.119	0.966	16.6	25.0
Ethylbenzene	0.402	0.100	15.4	25.0
Styrene	1.085	0.886	18.3	25.0
Bromoform	0.628	0.504	19.7	25.0
1,1,2,2-Tetrachloroethane	0.854	0.562	34.2	25.0
Xylene (total)	1.369	1.107	19.1	25.0
Methyl-tert-butylether	2.288	2.052	10.3	
1,2-Dichloroethane-d4	1.357	1.364	0.5	
Toluene-d8	1.247	0.971	22.1	

ALL other compounds must meet a minimum RRF of 0.010.

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VOLATILE CONTINUUM CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: S No.: SDG No.: 04G949
 Instrument ID: GCL6 Calibrat Date: 05/02/96 Time: 2109
 Lab File ID: 08502 Init. Ca Date(s): 04/26/96 05/02/96
 Heated Purge: (Y/N) N Init. Ca Times: 2003 2104
 GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Bromofluorobenzene	0.	0.744	0.200	15.4	25.0

All other compounds must meet a minimum RRF of 0.010.

Handwritten signature and date: 05/02/96

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Lab File ID: NA503 BFB Injection Date: 05/03/96

Instrument ID: GCL6 BFB Injection Time: 0933

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	19.0
75	30.0 - 66.0% of mass 95	45.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.3
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	70.0
175	4.0 - 9.0% of mass 174	3.1 (4.4)1
176	93.0 - 101.0% of mass 174	70.7 (101.0)1
177	5.0 - 9.0% of mass 176	4.8 (6.8)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	0A503	05/03/96	1001
02	VBLKIY	96GVF140-MB1	PA503	05/03/96	1041
03	VBLKIYBS	96GVF140-MBIS	PB503	05/03/96	1129
04	35-MW100-040	9604G949-003	YSD13	05/03/96	1318
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7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949
 Instrument ID: GCL6 Calibration Date: 05/03/96 Time: 1001
 Lab File ID: OA503 Init. Calib. Date(s): 04/26/96 04/26/96
 Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236
 GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.085	0.872		19.6	
Vinyl Chloride	1.191	1.010	0.100	15.2	25.0
Bromomethane	1.946	1.792	0.100	7.9	25.0
Chloroethane	0.714	0.668		6.4	
1,1-Dichloroethene	1.129	1.291	0.100	14.3	25.0
Acetone	0.230	0.152		33.9	
Carbon Disulfide	3.272	3.999		22.2	
Methylene Chloride	1.210	1.392		15.0	
1,2-Dichloroethene (total)	1.453	1.612		10.9	
1,1-Dichloroethane	2.484	2.700	0.200	8.7	25.0
2-Butanone	0.385	0.254		34.0	
Chloroform	3.072	3.285	0.200	6.9	25.0
1,1,1-Trichloroethane	0.656	0.692	0.100	5.5	25.0
Carbon Tetrachloride	0.659	0.707	0.100	7.3	25.0
Benzene	0.778	0.817	0.500	5.0	25.0
1,2-Dichloroethane	1.703	1.776	0.100	4.3	25.0
Trichloroethene	0.463	0.482	0.300	4.1	25.0
1,2-Dichloropropane	0.354	0.352		0.6	
Bromodichloromethane	0.783	0.780	0.200	0.4	25.0
cis-1,3-Dichloropropene	0.494	0.478	0.200	3.2	25.0
4-Methyl-2-pentanone	0.282	0.183		35.1	
Toluene	1.109	1.121	0.400	1.1	25.0
trans-1,3-Dichloropropene	0.397	0.362	0.100	8.8	25.0
1,1,2-Trichloroethane	0.356	0.309	0.100	13.2	25.0
Tetrachloroethene	0.472	0.492	0.200	4.2	25.0
2-Hexanone	0.192	0.114		40.6	
Dibromochloromethane	0.707	0.648	0.100	8.3	25.0
Chlorobenzene	0.962	0.988	0.500	2.7	25.0
Ethylbenzene	0.399	0.410	0.100	2.8	25.0
Styrene	0.888	0.879	0.300	1.0	25.0
Bromoform	0.535	0.453	0.100	15.3	25.0
1,1,2,2-Tetrachloroethane	0.629	0.478	0.500	24.0	25.0
Xylene (total)	1.069	1.068	0.300	0.1	25.0
Methyl-tert-butylether	2.288	1.940		15.2	
1,2-Dichloroethane-d4	1.364	1.330		2.5	
Toluene-d8	1.006	0.949		5.7	

All other compounds must meet a minimum RRF of 0.010.

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VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Instrument ID: GCL6 Calibration Date: 05/03/96 Time: 1001

Lab File ID: OA503 Init. Calib. Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Bromofluorobenzene	0.755	0.759	0.200	0.5	25.0

All other compounds must meet a minimum RRF of 0.010.

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8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949
 Lab File ID (Standard): OA502 Date Analyzed: 05/02/96
 Instrument ID: GCL6 Time Analyzed: 0856
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

	IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
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12-HOUR STD	931768	18.49	3873139	20.24	3299297	26.15
UPPER LIMIT	1863536	18.99	7746278	20.74	6598594	26.65
LOWER LIMIT	465884	17.99	1936570	19.74	1649648	25.65
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EPA SAMPLE NO.						
-----	-----	-----	-----	-----	-----	-----
01 VBLKNY	988844	18.50	4101427	20.24	3463743	26.16
02 VBLKNYBS	964073	18.49	4019084	20.24	3427179	26.16
03 35-MW32A-04	920919	18.49	3796091	20.24	3264173	26.15
04 35-MW37B-04	972291	18.48	3937898	20.24	3374519	26.15
05 35-MW10D-04	863511	18.50	3629039	20.26	3023440	26.17
06 35-MW10D-04D	879592	18.50	3655782	20.25	3143750	26.16
07 35-ERW03-04	924805	18.48	3807379	20.23	3258675	26.14
08 35-ERW05-04	874187	18.49	3571962	20.24	3069904	26.15
09 35-TB04-04	900375	18.45	3706222	20.20	3159562	26.10
10 35-MW32A-04M	859704	18.44	3496707	20.19	3090187	26.09
11 35-MW32A-04M	882659	18.43	3606735	20.18	3095245	26.09
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22						

IS1 (BCM) = Bromochloromethane
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits.

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 02/99/96

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949
 Lab File ID (Standard): 0B502 Date Analyzed: 05/02/96
 Instrument ID: GCL6 Time Analyzed: 2109
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

	ISI(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
-12 HOUR STD	861358	18.44	3592375	20.19	3140970	26.09
UPPER LIMIT	1722716	18.94	7184750	20.69	6281940	26.59
LOWER LIMIT	430679	17.94	1796188	19.69	1570485	25.59
EPA SAMPLE NO.						
01 VBLKJA	885505	18.45	3690327	20.19	3223489	26.10
02 VBLKJABS	887000	18.43	3636489	20.19	3164610	26.11
03 35-MW100-04D	855168	18.43	3439468	20.18	2878637	26.09
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IS1 (BCM) = Bromochloromethane
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits.

Handwritten signature/initials
04G949

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949
 Lab File ID (Standard): 0A503 Date Analyzed: 05/03/96
 Instrument ID: GCL6 Time Analyzed: 1001
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

	ISI(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	819752	18.50	3562354	20.25	3043953	26.17
UPPER LIMIT	1639504	19.00	7124708	20.75	6087906	26.67
LOWER LIMIT	409876	18.00	1781177	19.75	1521976	25.67
EPA SAMPLE NO.						
01 VBLKIY	818871	18.49	3482269	20.24	3073870	26.15
02 VBLKIYBS	788692	18.51	3479982	20.26	2972293	26.18
03 35-MW100-04D	783924	18.54	3609770	20.28	3154213	26.19
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IS1 (BCM) = Bromochloromethane
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits.

Handwritten signature/initials

1854

**BLANK SUMMARY
VOLATILE ORGANIC FRACTION**

1. Blank qualification guidelines:

- a) If a compound is found in the blank but not in the sample, no action is taken.
- b) Any compound (other than the four (4) listed below) detected in the sample, which was also detected in the associated blank, must be qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than five (5) times the blank concentration. For the following four (4) compounds, the results are qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than ten (10) times the blank concentration.

Common laboratory contaminants: methylene chloride
 acetone
 2-butanone

- c) The reviewer should take note that the blank analysis may not involve the same weights, volumes or dilution factors as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria.
- d) In addition, the reviewer must review the trip blanks, rinseate blanks and field blanks (if they were submitted with the data package) and all associated samples. Apply the same data validation guidelines used in assessing the method blanks.
- e) Qualification/Action codes:

U - The sample result is greater than the CRQL and less than ten times (10X) the blank value. Cross out the "B" flag and qualify the sample result with a "U".

CRQL - The sample result is less than the CRQL and less than ten times (10X) the blank value. Reject the sample result, cross out the "B" flag, and report the CRQL.

No Action - The sample result is greater than the CRQL and greater than ten times (10X) the blank value.

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKNY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Lab File ID: PA502 Lab Sample ID: 96GVF138-MB1

Date Analyzed: 05/02/96 Time Analyzed: 0936

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCL6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES. MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKNYBS	96GVF138-MB1S	PB502	1016
02	35-MW32A-04	9604G949-001	YSD01	1406
03	35-MW378-04	9604G949-002	YSD02	1446
04	35-MW100-04	9604G949-003	YSD03	1526
05	35-MW100-04D	9604G949-004	YSD04	1605
06	35-ERW03-04	9604G949-005	YSD05	1644
07	35-ERW05-04	9604G949-007	YSD07	1803
08	35-TB04-04	9604G949-008	YSD08	1842
09	35-MW32A-04M	9604G949-001S	YSD09	1920
10	35-MW32A-04M	9604G949-001T	YSD10	1959
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COMMENTS:

NO CONTAMINATION OR TICS

*WJ
52994*

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKJA

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Lab File ID: PE502 Lab Sample ID: 96GVF139-MB1

Date Analyzed: 05/02/96 Time Analyzed: 2229

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCL6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES. MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKJABS	96GVF139-MB1S	PD502	2325
02	35-MW100-040	9604G949-004	YSD12	0159
03				
04				
05				
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COMMENTS:

No Contamination or TICs

VBLKJA

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKIY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

Lab File ID: PA503 Lab Sample ID: 96GVF140-MB1

Date Analyzed: 05/03/96 Time Analyzed: 1041

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCL6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES. MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKIYBS	96GVF140-MB1S	PB503	1129
02	35-MW100-04D	9604G949-003	YSD13	1318
03				
04				
05				
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COMMENTS: *NO Contamination or TICs*

UP 5/3/96

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 04G949

	EPA SAMPLE NO.	SMC1 (DCE)#	SMC2 (TOL)#	SMC3 (BFB)#	OTHER	TOT OUT
01	VBLKNY	97	95	96		0
02	VBLKNYBS	96	94	94		0
03	35-MW32A-04	101	96	98		0
04	35-MW37B-04	103	101	104		0
05	35-MW10D-04	103	95	104		0
06	35-MW10D-04D	103	96	97		0
07	35-ERW03-04	106	102	103		0
08	35-ERW05-04	100	94	98		0
09	35-TB04-04	98	92	96		0
10	35-MW32A-04M	102	99	102		0
11	35-MW32A-04M	102	97	100		0
12	VBLKJA	98	106	107		0
13	VBLKJABS	104	109	109		0
14	35-MW10D-04D	93	102	102		0
15	VBLKIY	109	108	108		0
16	VBLKIYBS	107	104	103		0
17	35-MW10D-04D	113	108	108		0
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QC LIMITS

SMC1 (DCE) = 1,2-Dichloroethane-d4 (76-114)
 SMC2 (TOL) = Toluene-d8 (88-110)
 SMC3 (BFB) = Bromofluorobenzene (86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

Handwritten signature/initials
52994

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 9604G949-001

Matrix Spike - EPA Sample No.: 35-MW32A-04

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	59.319	119	61-145
Benzene	50.000	0.0000	61.036	122	76-127
Trichloroethene	50.000	0.0000	53.584	107	71-120
Toluene	50.000	0.0000	57.088	114	76-125
Chlorobenzene	50.000	0.0000	55.831	112	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	REC.
1,1-Dichloroethene	50.000	55.550	111	7	14	61-145
Benzene	50.000	57.861	116	5	11	76-127
Trichloroethene	50.000	51.702	103	4	14	71-120
Toluene	50.000	54.589	109	4	13	76-125
Chlorobenzene	50.000	55.000	110	2	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

3A
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 96GVF138-MB1

Matrix Spike - EPA Sample No.: VBLKNY

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	54.468	109	61-145
Benzene	50.000	0.0000	54.647	109	76-127
Trichloroethene	50.000	0.0000	47.891	96	71-120
Toluene	50.000	0.0000	51.029	102	76-125
Chlorobenzene	50.000	0.0000	51.854	104	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS: _____

3
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: WESTON/ENV. METRICS INC Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 96GVF139-MB1

Matrix Spike - EPA Sample No.: VB

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.0	0.0000	47.588	95	61-145
Benzene	50.0	0.0000	49.690	99	76-127
Trichloroethene	50.0	0.0000	44.293	88	71-120
Toluene	50.0	0.0000	47.178	94	76-125
Chlorobenzene	50.0	0.0000	50.003	100	75-130

Column to be used to flag rec and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limit
Spike Recovery: 0 out of 5 out limits

COMMENTS: _____

3A
WATER VOLATILE BLANK RECOVERY

Lab Name: WESTON/ENV. METRICS INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: No.: Lab ID: 96GVF140-MB1

Matrix Spike - EPA Sample No.: VBLKI

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.000	55.100	110	61-145
Benzene	50.000	0.000	52.680	105	76-127
Trichloroethene	50.000	0.000	47.572	95	71-120
Toluene	50.000	0.000	49.570	99	76-125
Chlorobenzene	50.000	0.000	50.224	100	75-130

Column to be used to flag recovery and values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS:

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52994

**SAMPLE RESULT VERIFICATION
VOLATILE ORGANIC FRACTION**

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Were the percent moistures reported? Yes No NR
- 3. Were the data reported on a dry weight basis? Yes No NR
- 4. Did the GC/MS RIC and TIC exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments: _____

35-MW10D-04DL
35-MW10D-04DDL

Reviewer: *Lena Reese* Date: 5.29.96



HEARTLAND

ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 9605G044
Date: May 20, 1996
Client Name: Baker Environmental, Inc.
Project/Site Name: Camp Lejeune - #232
Date Sampled: May 3, 1996
Number of Samples: 6 Aqueous Sample(s) with 1 MS/MSD(s)
Laboratory: Weston Environmental Metrics, Inc.
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data, June 1991 and February, 1994, respectively
QA/QC Level: NEESA Level C
Method(s) Utilized: CLP Low Concentration SOW
Analytical Fractions: Volatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:

Kimberly S. Shopp
for Eugene M. Watson, Vice President

30 May 1996
Date

SDG# 9605G044

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

Baker ID	Matrix	VOA	
35-TB07-04	WATER	X	
35-ERW09-04	WATER	X	
35-SW89-04	WATER	X	
35-MW42B-04	WATER	X	
35-MW42B-04MS	WATER	X	
35-MW42B-04MSD	WATER	X	
35-MW42B-04D	WATER	X	
35-MW43B-04	WATER	X	
Total Billable Samples (Water/Soil)		8	0

VOA= CLP Volatiles

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; National Functional Guidelines for Organic Data Review, and NEESA C. All comments made within this report should be considered when examining the analytical results (Form I's).

SDG # 9605G044

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibrations that were analyzed by the laboratory for these samples was acceptable for all %RSDs and RRFs. No qualifications are required.

Continuing calibrations

The continuing calibrations that were analyzed with this data package was not acceptable for all %Ds. All average RRFs were within criteria. Qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations (continued)

Specific Finding:

1. The continuing calibration, OC507, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

VBLKRF	chloromethane
35-TB07-04	acetone
35-ERW09-04	2-butanone
35-MW42B-04D	4-methyl-2-pentanone
35-MW43B-04	1,1,2-trichloroethene
	2-hexanone
	1,1,2,2-tetrachloroethane

2. The continuing calibration, OA508, contained compounds with %Ds greater than 50%, but less than 90%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J) and non detects as estimated (UJ).

VBLKRD	acetone
35-MW42B-04	
35-SW89-04DL	
35-SW89-04	

3. The continuing calibration, OA508, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non-compliant compounds listed below, qualify all positive results as estimated (J).

VBLKRD	chloromethane
35-MW42B-04	2-butanone
35-SW89-04DL	4-methyl-2-pentanone
35-SW89-04	2-hexanone
	Bromoform
	1,1,2,2-tetrachloroethane
	Methyl-tert-butylether

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed exhibited no contamination and TICs. No qualifications are required.

Trip Blanks

The associated trip blank, 35-TB07-04 exhibited contamination for trichloroethene. Qualifications are required.

Specific Finding:

4. The following samples have been qualified for trip blank contamination. Qualifications are for all trip blanks.

35-MW43B-04	trichloroethene	U
-------------	-----------------	---

Rinseate Blanks

The associated rinseate blank, 35-EW09-04 exhibited no contamination. No qualifications are required.

Field Blanks

The associated field blank was not identified for this SDG. No qualifications are required.

Surrogates

Surrogate recoveries for all samples and blanks met QA/QC criteria. The SOW and the National Functional Guidelines allow one surrogate for each fraction to fall outside the QA/QC criteria as long as the recovery is greater than 10%. No qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 4

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All spike recoveries for 35-MW42B-04MSD were within QA/QC criteria. Sample 35-MW42B-04MS exhibited high recoveries for trichloroethene. High RPD recoveries were exhibited for benzene, trichloroethene, toluene, and chlorobenzene. No qualifications are required.

Field Duplicate

No qualifications are required.

Compound Identification/Quantitation

5. Reject all E-flagged analytes in samples 35-SW89-04, in favor of the dilution.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
VBLKRF	chloromethane	+	J	1
35-TB07-04	acetone			
35-ERW09-04	2-butanone			
35-MW42B-04D	4-methyl-2-pentanone			
35-MW43B-04	1,1,2-trichloroethene			
	2-hexanone			
	1,1,2,2-tetrachloroethane			
VBLKRD	acetone	+/-	J/UJ	2
35-MW42B-04				
35-SW89-04DL				
35-SW89-04				
VBLKRD	chloromethane	+	J	3
35-MW42B-04	2-butanone			
35-SW89-04DL	4-methyl-2-pentanone			
35-SW89-04	2-hexanone			
	Bromoform			
	1,1,2,2-tetrachloroethane			
	Methyl-tert-butylether			
35-MW43B-04	trichloroethene	+	U	4
35-SW89-04	all E-flagged analytes	+	R	5
35-SW89-04DL	all results except D-flagged analytes	+/-	R	5

* DL denotes the Form I qualifier supplied by the laboratory
 QL denotes the qualifier used by the data validation firm
 + in the DL column denotes a positive result
 - in the DL column denotes a non detect result

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-TB07-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP01

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO. COMPOUND CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q

74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	10	U
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	3	J
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

Handwritten: 35-TB07-04

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-T807-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP01

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4-----	Methyl-tert-butylether	5	U
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5/20/96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-TB07-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP01

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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05/07/96

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-ERW09-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP02

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-ERW09-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Job Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP02

Level: (low/med) LOW Date Received: 05/04/96


% Moisture: not dec. Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4-----Methyl-tert-butylether	5	U
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 53094
 011

IE
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-ERW09-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP02

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/07/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-SW89-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP12

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO. COMPOUND Q

74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	30	
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U <i>UJZ</i>
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	610	<i>ER5</i>
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	630	<i>ER5</i>
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	16	
127-18-4	Tetrachloroethene	10	
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	1400	<i>ER5</i>
1330-20-7	Xylene (total)	10	U

WJZ
5/8/96
012

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-SW89-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044
 Matrix: (soil/water) WATER Lab Sample ID: 9605G044-003
 Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP12
 Level: (low/med) LOW Date Received: 05/04/96
 % Moisture: not dec. _____ Date Analyzed: 05/08/96
 GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0
 Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether_____	5	U

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 3096
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-SW89-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP12

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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015

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-SW89-04DL

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044 ✓

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP09

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	100	U R5
75-01-4	Vinyl Chloride	100	U
74-83-9	Bromomethane	100	U
75-00-3	Chloroethane	100	U
75-35-4	1,1-Dichloroethene	100	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	100	U
540-59-0	1,2-Dichloroethene (total)	620	D
75-34-3	1,1-Dichloroethane	100	U R5
78-93-3	2-Butanone	100	U
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	100	U
79-01-6	Trichloroethene	650	D
78-87-5	1,2-Dichloropropane	100	U R5
75-27-4	Bromodichloromethane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-pentanone	100	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
79-00-5	1,1,2-Trichloroethane	100	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	100	U
124-48-1	Dibromochloromethane	100	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	100	U
100-42-5	Styrene	100	U
75-25-2	Bromoform	100	U
79-34-5	1,1,2,2-Tetrachloroethane	1600	D
1330-20-7	Xylene (total)	100	U R5

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VW
3/27/96
018

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-SW89-04DL

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP09

Level: (low/med) LOW Date Received: 05/04/96

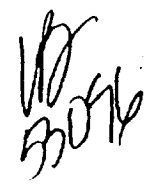
% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4- - - - -	Methyl-tert-butylether _____	50	15 25
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3/90


1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-SW89-04DL

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP09

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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Handwritten signature and date:
5/30/96
017

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW42B-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP10

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U <i>UJ2</i>
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	48	
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	83	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

Handwritten signature and date:
3/90
018

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW42B-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP10

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether_____		5 U

WJ
5/20/96
019

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW42B-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP10

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VJ
5/20/96

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW42B-04D

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP07

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q

74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	62	
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	10	U
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	110	
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW428-04D

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP07

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4	-----Methyl-tert-butylether		5 U

V
5/10/96
022

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW42B-04D

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP07

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW43B-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP08

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	30	
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	12	U 4
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW43B-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP08

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1634-04-4-----	Methyl-tert-butylether_____	5	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW43B-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SOG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP08

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW42B-04MS

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-004S

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP05

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-35-4	1,1-Dichloroethene	55	
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-09-2	Methylene Chloride	10	U
540-59-0	1,2-Dichloroethene (total)	73	
75-34-3	1,1-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	61	
107-06-2	1,2-Dichloroethane	10	U
79-01-6	Trichloroethene	180	
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	57	
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
108-90-7	Chlorobenzene	57	
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
1330-20-7	Xylene (total)	10	U

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW42B-04MS

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-004S

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP05

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4------	Methyl-tert-butylether _____		5 U
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5028

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW42B-04MSD

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-004T

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP11

Level: (low/med) LOW Date Received: 05/04/96

% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
75-01-4	-----Vinyl Chloride	10	U
74-83-9	-----Bromomethane	10	U
75-00-3	-----Chloroethane	10	U
75-35-4	-----1,1-Dichloroethene	52	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-09-2	-----Methylene Chloride	10	U
540-59-0	-----1,2-Dichloroethene (total)	47	U
75-34-3	-----1,1-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
67-66-3	-----Chloroform	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
71-43-2	-----Benzene	54	U
107-06-2	-----1,2-Dichloroethane	10	U
79-01-6	-----Trichloroethene	130	U
78-87-5	-----1,2-Dichloropropane	10	U
75-27-4	-----Bromodichloromethane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
108-10-1	-----4-Methyl-2-pentanone	10	U
108-88-3	-----Toluene	47	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
127-18-4	-----Tetrachloroethene	10	U
591-78-6	-----2-Hexanone	10	U
124-48-1	-----Dibromochloromethane	10	U
108-90-7	-----Chlorobenzene	49	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
75-25-2	-----Bromoform	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
1330-20-7	-----Xylene (total)	10	U

Handwritten signature/initials

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35-MW428-04MSD

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Matrix: (soil/water) WATER Lab Sample ID: 9605G044-004T

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: YTP11

Level: (low/med) LOW Date Received: 05/04/96

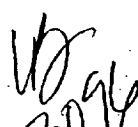
% Moisture: not dec. _____ Date Analyzed: 05/08/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
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1634-04-4-.....	Methyl-tert-butylether	5	U
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 3/90
 53096
 030
 065

WSDW

MULTI-MEDIA ~~SEMIVOLATILE~~ ORGANIC FRACTION

CASE NUMBER: _____ SDG NUMBER: 96056044

LABORATORY: Weston

CLIENT: Baker PROJECT: Camp Lejeune

REVIEWER: WJ DATE: 5-30-96

QA/QC LEVEL

- NEESA C
- NEESA D
- DQO LEVEL III
- DQO LEVEL IV
- _____

Statement Of Work (SOW)

- CLP 3/90
- CLP 2/88
- SW846 8270
- SW846 8270 Appendix IX
- _____

ANALYSIS MODIFICATIONS: _____

VOLATILE HOLDING TIMES

- CLP/SW846 : 14 days from date of sampling (If properly preserved)
- Region I : 10 days from VTsR
- Region III : 14 days from date of sampling (If properly preserved)
- NYSDEC : 7 days from date VTsR

1. Were the holding times met for the all volatile analysis? YES NO

If yes, complete the following form for all samples that exceeded holding times.

EPA SAMPLE NO.	MATRIX	VTsR OR DATE SAMPLED	DATE OF ANALYSIS	DA	Action

- Action: DA - The number of days that the holding time was exceeded.
- DA ≤ 5: Qualify all positive results as estimated (J).
- DA > 5 ≤ 15: Qualify all positive results as estimated (J) and all non detects estimated (UJ).
- DA > 15: Qualify all positive results estimated (J) and reject all non detects.

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044
 Lab File ID: NB426 BFB Injection Date: 04/26/96
 Instrument ID: GCL6 BFB Injection Time: 1922
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.9
75	30.0 - 66.0% of mass 95	45.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	73.1
175	4.0 - 9.0% of mass 174	5.8 (7.9)1
176	93.0 - 101.0% of mass 174	71.6 (97.9)1
177	5.0 - 9.0% of mass 176	4.8 (6.7)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	VSTD010	OB426	04/26/96	2003
02	VSTD020	VSTD020	OC426	04/26/96	2042
03	VSTD050	VSTD050	OD426	04/26/96	2120
04	VSTD100	VSTD100	OE426	04/26/96	2158
05	VSTD200	VSTD200	OF426	04/26/96	2236
06					
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VB
5304

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Instrument ID: GCL6 Calibration Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Calibration Time(s): 2003 2236

GC Column: CAP ID: 0.53 (mm)

LAB FILE ID:		RRF10 =OB426		RRF20 =OC426			
RRF50 =OD426		RRF100=OE426		RRF200=OF426			
COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	RRF	% RSD
Chloromethane	1.335	1.091	1.085	0.997	0.918	1.085	14.4
Vinyl Chloride	* 1.468	1.184	1.199	1.061	1.044	1.191	14.2*
Bromomethane	* 2.403	1.935	1.890	1.733	1.769	1.946	13.8*
Chloroethane	0.863	0.732	0.706	0.637	0.630	0.714	13.2
1,1-Dichloroethene	* 1.294	1.108	1.154	1.056	1.031	1.129	9.2*
Acetone	0.319	0.247	0.213	0.190	0.181	0.230	24.2
Carbon Disulfide	3.919	3.165	3.262	3.049	2.966	3.272	11.6
Methylene Chloride	1.416	1.206	1.192	1.146	1.091	1.210	10.2
1,2-Dichloroethene (total)	1.685	1.416	1.465	1.368	1.331	1.453	9.6
1,1-Dichloroethane	* 2.871	2.497	2.458	2.330	2.263	2.484	9.5*
2-Butanone	0.395	0.422	0.401	0.373	0.334	0.385	8.8
Chloroform	* 3.506	3.091	3.055	2.905	2.805	3.072	8.7*
1,1,1-Trichloroethane	* 0.729	0.652	0.637	0.645	0.616	0.656	6.6*
Carbon Tetrachloride	* 0.738	0.645	0.641	0.645	0.624	0.659	6.9*
Benzene	* 0.878	0.773	0.759	0.743	0.739	0.778	7.4*
1,2-Dichloroethane	* 1.873	1.703	1.671	1.643	1.624	1.703	5.9*
Trichloroethene	* 0.508	0.458	0.447	0.446	0.454	0.463	5.5*
1,2-Dichloropropane	0.387	0.355	0.338	0.348	0.342	0.354	5.5
Bromodichloromethane	* 0.870	0.753	0.770	0.772	0.749	0.783	6.4*
cis-1,3-Dichloropropene	* 0.552	0.480	0.481	0.490	0.466	0.494	6.8*
4-Methyl-2-pentanone	0.291	0.273	0.288	0.282	0.274	0.282	2.9
Toluene	* 1.235	1.065	1.120	1.059	1.064	1.109	6.7*
trans-1,3-Dichloropropene	* 0.444	0.374	0.390	0.394	0.382	0.397	6.9*
1,1,2-Trichloroethane	* 0.408	0.331	0.345	0.359	0.338	0.356	8.6*
Tetrachloroethene	* 0.508	0.471	0.478	0.451	0.451	0.472	4.9*
2-Hexanone	0.200	0.204	0.188	0.189	0.179	0.192	5.1
Dibromochloromethane	* 0.768	0.690	0.682	0.719	0.675	0.707	5.4*
Chlorobenzene	* 1.061	0.962	0.945	0.945	0.895	0.962	6.3*
Ethylbenzene	* 0.428	0.395	0.410	0.377	0.384	0.399	5.2*
Styrene	* 1.031	0.869	0.885	0.848	0.807	0.888	9.6*
Bromoform	* 0.597	0.505	0.524	0.534	0.513	0.535	6.8*
1,1,2,2-Tetrachloroethane	* 0.711	0.583	0.636	0.607	0.607	0.629	7.9*
Xylene (total)	* 1.231	1.037	1.081	1.003	0.993	1.069	9.1*
Methyl-tert-butylether	2.695	2.260	2.290	2.197	2.000	2.288	11.1
1,2-Dichloroethane-d4	1.410	1.364	1.391	1.329	1.324	1.364	2.8
Toluene-d8	1.067	0.981	1.029	0.943	1.008	1.006	4.7

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

Handwritten signature and date:
3/90
101 034

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (8FB)

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Lab File ID: NB507 BFB Injection Date: 05/07/96

Instrument ID: GCL6 BFB Injection Time: 1759

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.1
75	30.0 - 66.0% of mass 95	46.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.1 (0.1)1
174	50.0 - 120.0% of mass 95	72.8
175	4.0 - 9.0% of mass 174	4.2 (5.7)1
176	93.0 - 101.0% of mass 174	71.6 (98.4)1
177	5.0 - 9.0% of mass 176	4.9 (6.8)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	OC507	05/07/96	1955
02	VBLKRF	96GVF146-MB1	PC507	05/07/96	2054
03	VBLKRFBS	96GVF146-MB1S	PD507	05/07/96	2133
04	35-TB07-04	9605G044-001	YTP01	05/07/96	2252
05	35-ERW09-04	9605G044-002	YTP02	05/07/96	2338
06	35-MW42B-04M	9605G044-004S	YTP05	05/08/96	0149
07	35-MW42B-04D	9605G044-005	YTP07	05/08/96	0314
08	35-MW43B-04	9605G044-006	YTP08	05/08/96	0357
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Handwritten signature and date: 5/20/96

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Instrument ID: GCL6 Calibration Date: 05/07/96 Time: 1955

Lab File ID: OC507 Init. Calib. Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.085	0.765		29.5	
Vinyl Chloride	1.191	0.911	0.100	23.5	25.0
Bromomethane	1.946	1.556	0.100	20.0	25.0
Chloroethane	0.714	0.578		19.0	
1,1-Dichloroethene	1.129	0.979	0.100	13.3	25.0
Acetone	0.230	0.165		28.3	
Carbon Disulfide	3.272	2.897		11.5	
Methylene Chloride	1.210	1.056		12.7	
1,2-Dichloroethene (total)	1.453	1.247		14.2	
1,1-Dichloroethane	2.484	2.166	0.200	12.8	25.0
2-Butanone	0.385	0.261		32.2	
Chloroform	3.072	2.739	0.200	10.8	25.0
1,1,1-Trichloroethane	0.656	0.550	0.100	16.2	25.0
Carbon Tetrachloride	0.659	0.577	0.100	12.4	25.0
Benzene	0.778	0.634	0.500	18.5	25.0
1,2-Dichloroethane	1.703	1.419	0.100	16.7	25.0
Trichloroethene	0.463	0.378	0.300	18.4	25.0
1,2-Dichloropropane	0.354	0.286		19.2	
Bromodichloromethane	0.783	0.644	0.200	17.8	25.0
cis-1,3-Dichloropropene	0.494	0.390	0.200	21.0	25.0
4-Methyl-2-pentanone	0.282	0.176		37.6	
Toluene	1.109	0.896	0.400	19.2	25.0
trans-1,3-Dichloropropene	0.397	0.311	0.100	21.7	25.0
1,1,2-Trichloroethane	0.356	0.263	0.100	26.1	25.0
Tetrachloroethene	0.472	0.406	0.200	14.0	25.0
2-Hexanone	0.192	0.122		36.4	
Dibromochloromethane	0.707	0.550	0.100	22.2	25.0
Chlorobenzene	0.962	0.811	0.500	15.7	25.0
Ethylbenzene	0.399	0.323	0.100	19.0	25.0
Styrene	0.888	0.754	0.300	15.1	25.0
Bromoform	0.535	0.407	0.100	23.9	25.0
1,1,2,2-Tetrachloroethane	0.629	0.447	0.500	28.9	25.0
Xylene (total)	1.069	0.918	0.300	14.1	25.0
Methyl-tert-butylether	2.288	1.695		25.9	
1,2-Dichloroethane-d4	1.364	1.392		2.0	
Toluene-d8	1.006	1.051		4.5	

All other compounds must meet a minimum RRF of 0.010.

/A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Instrument ID: GCL6 Calibration Date: 05/07/96 Time: 1955

Lab File ID: OC507 Init. Calib. Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236

GG Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Bromofluorobenzene	0.755	0.834	0.200	10.5	25.0

All other compounds must meet a minimum RRF of 0.010.



5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Lab File ID: NA508 BFB Injection Date: 05/08/96

Instrument ID: GCL6 BFB Injection Time: 0823

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	18.3
75	30.0 - 66.0% of mass 95	45.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	72.2
175	4.0 - 9.0% of mass 174	3.7 (5.1)1
176	93.0 - 101.0% of mass 174	72.4 (100.4)1
177	5.0 - 9.0% of mass 176	4.7 (6.5)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	0A508	05/08/96	0906
02	VBLKRD	96GVF148-MB1	PA508	05/08/96	1011
03	VBLKRDBS	96GVF148-MB1S	PB508	05/08/96	1104
04	35-MW42B-04	9605G044-004	YTP10	05/08/96	1151
05	35-MW42B-04M	9605G044-004T	YTP11	05/08/96	1231
06	35-SW89-04DL	9605G044-003	YTP09	05/08/96	1311
07	35-SW89-04	9605G044-003	YTP12	05/08/96	1425
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7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Instrument ID: GCL6 Calibration Date: 05/08/96 Time: 0906

Lab File ID: OA508 Init. Calib. Date(s): 04/26/96 04/26/96

Heated Purge: (Y/N) N Init. Calib. Times: 2003 2236

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Bromofluorobenzene	0.755	0.810	0.200	7.3	25.0

All other compounds must meet a minimum RRF of 0.010.

Handwritten signature and date:
5/30/96

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Lab File ID (Standard): OC507 Date Analyzed: 05/07/96

Instrument ID: GCL6 Time Analyzed: 1955

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

	ISI(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	779914	18.39	3287123	20.15	2858136	26.07
UPPER LIMIT	1559828	18.89	6574246	20.65	5716272	26.57
LOWER LIMIT	389957	17.89	1643562	19.65	1429068	25.57
EPA SAMPLE NO.						
01 VBLKRF	811975	18.37	3427402	20.13	2990119	26.05
02 VBLKRFBS	896338	18.38	3532242	20.13	3246791	26.05
03 35-TB07-04	779791	18.39	3250349	20.16	2856112	26.07
04 35-ERW09-04	852919	18.38	3561855	20.13	3047613	26.07
05 35-MW42B-04M	845731	18.40	3400153	20.16	2953795	26.08
06 35-MW42B-04D	838456	18.41	3450656	20.16	3012522	26.07
07 35-MW43B-04	844123	18.41	3479345	20.16	2984968	26.07
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IS1 (BCM) = Bromochloromethane
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits.

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8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044
 Lab File ID (Standard): 0A508 Date Analyzed: 05/08/96
 Instrument ID: GCL6 Time Analyzed: 0906
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

	ISI(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	930153	18.47	3965822	20.22	3164362	26.14
UPPER LIMIT	1860306	18.97	7931644	20.72	6328724	26.64
LOWER LIMIT	465076	17.97	1982911	19.72	1582181	25.64
EPA SAMPLE NO.						
01 VBLKRD	956487	18.47	3939871	20.22	3295872	26.13
02 VBLKRDBS	920838	18.48	3799540	20.23	3180273	26.15
03 35-MW42B-04	805013	18.48	3318601	20.24	2829534	26.15
04 35-MW42B-04M	966923	18.47	3960094	20.23	3354359	26.14
05 35-SW89-04DL	951031	18.47	4034218	20.23	3341651	26.14
06 35-SW89-04	898945	18.45	3764973	20.21	3329156	26.12
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IS1 (BCM) = Bromochloromethane
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits.

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12/9/43

**BLANK SUMMARY
VOLATILE ORGANIC FRACTION**

1. Blank qualification guidelines:

- a) If a compound is found in the blank but not in the sample, no action is taken.
- b) Any compound (other than the four (4) listed below) detected in the sample, which was also detected in the associated blank, must be qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than five (5) times the blank concentration. For the following four (4) compounds, the results are qualified by elevating the limit of detection or adjusting the limit of detection to the sample result, when the sample concentration is less than ten (10) times the blank concentration.

Common laboratory contaminants: methylene chloride
 acetone
 2-butanone

- c) The reviewer should take note that the blank analysis may not involve the same weights, volumes or dilution factors as associated samples. These factors must be taken into consideration when applying the 5X and 10X criteria.
- d) In addition, the reviewer must review the trip blanks, rinseate blanks and field blanks (if they were submitted with the data package) and all associated samples. Apply the same data validation guidelines used in assessing the method blanks.
- e) Qualification/Action codes:

U - The sample result is greater than the CRQL and less than ten times (10X) the blank value. Cross out the "B" flag and qualify the sample result with a "U".

CRQL - The sample result is less than the CRQL and less than ten times (10X) the blank value. Reject the sample result, cross out the "B" flag, and report the CRQL.

No Action - The sample result is greater than the CRQL and greater than ten times (10X) the blank value.

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKRF

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Lab File ID: PC507 Lab Sample ID: 96GVF146-MB1

Date Analyzed: 05/07/96 Time Analyzed: 2054

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCL6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES. MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKRFBS	96GVF146-MB1S	PD507	2133
02	35-TB07-04	9605G044-001	YTP01	2252
03	35-ERW09-04	9605G044-002	YTP02	2338
04	35-MW42B-04M	9605G044-004S	YTP05	0149
05	35-MW42B-04D	9605G044-005	YTP07	0314
06	35-MW43B-04	9605G044-006	YTP08	0357
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COMMENTS:

NO CONTAMINATION OR TICs

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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKRD

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

Lab File ID: PA508 Lab Sample ID: 96GVF148-MB1

Date Analyzed: 05/08/96 Time Analyzed: 1011

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCL6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKRDBS	96GVF148-MB1S	PB508	1104
02	35-MW42B-04	9605G044-004	YTP10	1151
03	35-MW42B-04M	9605G044-004T	YTP11	1231
04	35-SW89-04DL	9605G044-003	YTP09	1311
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COMMENTS:

NO contamination or TICs

*WJ
5/8/96*

BLANK SUMMARY - TCL SUMMARY
VOLATILE ORGANIC FRACTION

Method Blank Trip Blank Rinseate Blank Field Blank Other

Sample ID: 35-TB07-04

File ID: _____

COMPOUND	CONCENTRATION	CRQL
Trichloroethene	3J	

EPA SAMPLE ID	TRICHL.			
35-SW89-04	NA			
+ DL	NA			
35-S				
35-MW42B-04	NA			
+ DL	NA			
35-MW43B-04	U			

53096

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 05G044

	EPA SAMPLE NO.	SMC1 (DCE)#	SMC2 (TOL)#	SMC3 (BFB)#	OTHER	TOT OUT
01	VBLKRF	99	95	94		0
02	VBLKRFBS	96	90	89		0
03	35-TB07-04	103	95	93		0
04	35-ERW09-04	96	96	94		0
05	35-MW42B-04M	96	94	94		0
06	35-MW42B-04D	101	95	94		0
07	35-MW43B-04	94	90	90		0
08	VBLKRD	104	94	98		0
09	VBLKRDBS	106	94	95		0
10	35-MW42B-04	99	90	96		0
11	35-MW42B-04M	99	92	94		0
12	35-SW89-04DL	103	93	95		0
13	35-SW89-04	104	89	93		0
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QC LIMITS

SMC1 (DCE) = 1,2-Dichloroethane-d4 (76-114)
 SMC2 (TOL) = Toluene-d8 (88-110)
 SMC3 (BFB) = Bromofluorobenzene (86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

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53094

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 9605G044-004

Matrix Spike - EPA Sample No.: 35-MW42B-04

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	55.457	111	61-145
Benzene	50.000	0.0000	60.859	122	76-127
Trichloroethene	50.000	82.918	176.92	188*	71-120
Toluene	50.000	0.0000	57.343	115	76-125
Chlorobenzene	50.000	0.0000	57.404	115	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD REC.
1,1-Dichloroethene	50.000	52.337	105	6	14 61-145
Benzene	50.000	53.998	108	12*	11 76-127
Trichloroethene	50.000	128.84	92	68*	14 71-120
Toluene	50.000	46.697	93	21*	13 76-125
Chlorobenzene	50.000	48.644	97	17*	13 75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 4 out of 5 outside limits

Spike Recovery: 1 out of 10 outside limits

COMMENTS:

3A
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 96GVF146-MB1

Matrix Spike - EPA Sample No.: VBLKRF

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	53.879	108	61-145
Benzene	50.000	0.0000	61.463	123	76-127
Trichloroethene	50.000	0.0000	54.155	108	71-120
Toluene	50.000	0.0000	53.852	108	76-125
Chlorobenzene	50.000	0.0000	51.252	102	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS: _____

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3A
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 96GVF148-MB1

Matrix Spike - EPA Sample No.: VBLKRD

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	51.789	104	61-145
Benzene	50.000	0.0000	54.306	109	76-127
Trichloroethene	50.000	0.0000	47.583	95	71-120
Toluene	50.000	0.0000	46.601	93	76-125
Chlorobenzene	50.000	0.0000	49.400	99	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS: _____

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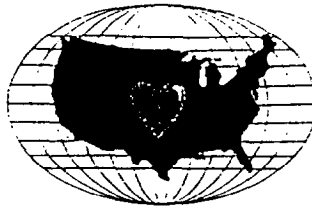
**SAMPLE RESULT VERIFICATION
VOLATILE ORGANIC FRACTION**

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Were the percent moistures reported? Yes No NR
- 3. Were the data reported on a dry weight basis? Yes No NR
- 4. Did the GC/MS RIC and TIC exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments: _____

35-SW89-04DL

Reviewer: *Diana Duese* Date: 5/30/96



HEARTLAND

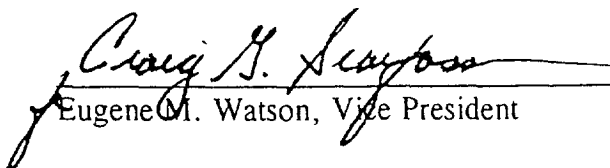
ENVIRONMENTAL SERVICES, INC.

Data Validation Report

SDG#: 9608G623
Date: August 21, 1996
Client Name: Baker Environmental, Inc.
Project/Site Name: Camp Lejeune #232
Date Sampled: August 3-5, 1996
Number of Samples: 11 Aqueous Sample(s) with 1 MS/MSD(s)
Laboratory: Weston Environmental Metrics, Inc.
Validation Guidance: National Functional Guidelines for Organic and Inorganic Data,
June 1991 and February, 1994, respectively
QA/QC Level: NEESA Level C
Method(s) Utilized: CLP Multimedia SOW
Analytical Fractions: Volatiles

Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to these requirements and deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. A minimum of 10% of all laboratory calculations have been verified as part of this validation. All instrument output, i.e. spectra, chromatograms, etc., for each sample have been carefully reviewed. The end-user is urged to review the Specific Findings and associated Data Qualifications presented in this report. Annotated Form 1s or spreadsheets for all samples reviewed are included after the Data Assessment Narratives. Form 1s for MS/MSD samples or spreadsheets are not annotated.

The release of this Data Validation Report is authorized by the following signature:


Eugene M. Watson, Vice President

8-27-96
Date

SDG# 9608G623

Samples and Fractions Reviewed

Sample Identifications Analytical Fractions

BAKER ID	MATRIX	VOA	
35-TB08-04	WATER	X	
35-TW31A-04	WATER	X	
35-TW31B-04	WATER	X	
35-GWD07-04	WATER	X	
35-MW60B-04	WATER	X	
35-MW60B-04MS	WATER	X	
35-MW60B-04MSD	WATER	X	
35-MW60A-04	WATER	X	
35-MW60B-04D	WATER	X	
35-TW30A-04	WATER	X	
35-TW30B-04	WATER	X	
35-ERW10-04	WATER	X	
35-FB-04	WATER	X	
Total Billable Samples (Water/Soil)			13 0

VOA = CLP Volatiles

DATA ASSESSMENT NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and are based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the CLP OLM01.8 Method; the National Functional Guidelines for Organic Data Validation, June 1991, and NEESA Level C requirements. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 9608G623

Holding Times

All analysis holding times were met. No qualifications were required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

All of the initial calibrations that were analyzed by the laboratory for these samples were acceptable for all compound %RSDs. The average RRFs for all of the criteria compounds did meet the initial calibration criteria. No qualifications were required.

Continuing Calibrations

The continuing calibrations that were analyzed by the laboratory for these samples were not acceptable for all compound %Ds. However, all of the non-compliant compounds exhibited %Ds between 25% and 50%, which require qualifications for positive results only. There were no positive results reported for the non-compliant compounds. All compound average RRFs were acceptable. No qualifications were required.

**DATA ASSESSMENT NARRATIVE
VOLATILE ANALYSIS**

PAGE - 2

Internal Standards

Internal standard areas were acceptable for all samples. No qualifications were required.

Method Blanks

The method blanks that were analyzed did not exhibit contamination. No qualifications were required.

Field QC Blanks

The trip blank and rinseate blank did not exhibit positive results for target compounds. The field blank exhibited positive results below the CRQL for two (2) compounds. Positive results were not reported in the associated samples, so qualifications were not required.

Surrogates

Surrogate recoveries for all samples and blanks did meet QA/QC criteria. No qualifications were required.

Matrix Spike/Matrix Spike Duplicate

The MS/MSD of sample 35-MW60B-04 exhibited acceptable recoveries and RPDs for all compounds. The LCS spikes exhibited acceptable recoveries. No qualifications were required.

Field Duplicates

The field duplicate pair of samples 35-MW60B-04/35-MW60B-04D did not exhibit positive results for target compounds.

Compound Identification/Quantitation

Positive results were reported in the samples. No qualifications were required.

System Performance and Overall Assessment

Overall performance was acceptable. The data did not require qualifications.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>COMPOUND ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
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NO QUALIFICATIONS WERE REQUIRED

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-TB08-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Matrix: (soil/water) WATER Lab Sample ID: 9608G623-001

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZJF01

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: not dec. _____ Date Analyzed: 08/12/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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3/20/90

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-TW31A-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Matrix: (soil/water) WATER Lab Sample ID: 9608G623-002

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZJF02

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: not dec. _____ Date Analyzed: 08/12/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-TW31B-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Matrix: (soil/water) WATER Lab Sample ID: 9608G623-003

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZJF03

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: not dec. _____ Date Analyzed: 08/12/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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3/20/96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-GWD07-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Matrix: (soil/water) WATER Lab Sample ID: 9608G623-004

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZJF11

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: not dec. _____ Date Analyzed: 08/16/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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8/20/96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW608-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Matrix: (soil/water) WATER Lab Sample ID: 9608G623-005

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZJF10

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: not dec. _____ Date Analyzed: 08/12/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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8/26/96

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW60A-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Matrix: (soil/water) WATER Lab Sample ID: 9608G623-006

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZJF08

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: not dec. _____ Date Analyzed: 08/12/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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JAC
8/12/96

IE
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-MW608-04D

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Matrix: (soil/water) WATER Lab Sample ID: 9608G623-007

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZJF09

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: not dec. _____ Date Analyzed: 08/12/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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JAC
8/26/96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-TW30A-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Matrix: (soil/water) WATER Lab Sample ID: 9608G623-008

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZJF12

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: not dec. _____ Date Analyzed: 08/16/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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JAC
8/16/96

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-TW308-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Matrix: (soil/water) WATER Lab Sample ID: 9608G623-009

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZJF13

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: not dec. _____ Date Analyzed: 08/16/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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JAC
8/20/96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-ERW10-04

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Matrix: (soil/water) WATER Lab Sample ID: 9608G623-010

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZJF14

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: not dec. _____ Date Analyzed: 08/16/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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JAC
8/16/96

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

35-FB-04

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Matrix: (soil/water) WATER Lab Sample ID: 9608G623-011

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: ZJF15

Level: (low/med) LOW Date Received: 08/06/96

% Moisture: not dec. _____ Date Analyzed: 08/16/96

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
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JAC
8/26/96

MULTI-MEDIA VOLATILE ORGANIC FRACTION

CASE NUMBER: _____ SDG NUMBER: 90φ84623

LABORATORY: Roy F Weston

CLIENT: Baker PROJECT: Camp Lejeune

REVIEWER: JACleveland DATE: 8/26/96

QA/QC LEVEL

- NEESA C
- NEESA D
- DQO LEVEL III
- DQO LEVEL IV
- _____

Statement Of Work (SOW)

- CLP 3/90
- CLP 2/88
- SW846 8240
- SW846 8240 Appendix IX
- _____

ANALYSIS MODIFICATIONS: _____

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS. INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Lab File ID: AB426 BFB Injection Date: 04/26/96

Instrument ID: GCL5 BFB Injection Time: 2248

GC Column: CAPILLARY ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	25.7
75	30.0 - 66.0% of mass 95	49.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	62.0
175	4.0 - 9.0% of mass 174	5.0 (8.0)1
176	93.0 - 101.0% of mass 174	60.9 (98.3)1
177	5.0 - 9.0% of mass 176	3.9 (6.5)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD010	VSTD010	BB426	04/26/96	2333
02	VSTD020	VSTD020	BC426	04/27/96	0009
03	VSTD050	VSTD050	BD426	04/27/96	0045
04	VSTD100	VSTD100	BE426	04/27/96	0120
05	VSTD200	VSTD200	BF426	04/27/96	0158
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VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Instrument ID: GCL5 Calibration Date(s): 04/26/96 04/27/96

Heated Purge: (Y/N) N Calibration Time(s): 2333 0158

GC Column: CAP ID: 0.53 (mm)

LAB FILE ID:		RRF10 =BB426		RRF20 =BC426			
RRF50 =BD426		RRF100=BE426		RRF200=BF426			
COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	RRF	RSD
Chloromethane	1.404	1.092	0.949	0.831	0.886	1.032	22.2
Bromomethane	* 1.884	1.590	1.587	1.320	1.441	1.564	13.5*
Vinyl Chloride	* 1.395	1.209	1.131	0.892	1.036	1.133	16.6*
Chloroethane	0.909	0.756	0.745	0.605	0.682	0.739	15.2
Methylene Chloride	1.657	1.383	1.169	1.079	1.256	1.309	17.2
Acetone	0.701	0.507	0.374	0.443	0.381	0.481	27.9
Carbon Disulfide	4.184	3.604	3.101	2.687	3.196	3.354	16.9
1,1-Dichloroethene	* 1.344	1.162	1.005	0.842	1.003	1.071	17.7*
1,1-Dichloroethane	* 3.476	2.937	2.509	2.306	2.730	2.792	16.1*
1,2-Dichloroethene (total)	1.692	1.378	1.206	1.099	1.273	1.330	17.0
Chloroform	* 4.109	3.493	2.952	2.833	3.146	3.307	15.5*
1,2-Dichloroethane	* 3.468	2.882	2.498	2.471	2.557	2.775	15.2*
2-Butanone	1.099	0.714	0.595	0.704	0.645	0.751	26.6
1,1,1-Trichloroethane	* 0.834	0.710	0.623	0.665	0.639	0.694	12.2*
Carbon Tetrachloride	* 0.833	0.715	0.640	0.658	0.648	0.699	11.5*
Bromodichloromethane	* 1.059	0.925	0.803	0.898	0.850	0.907	10.7*
1,2-Dichloropropane	0.516	0.432	0.379	0.421	0.418	0.433	11.7
cis-1,3-Dichloropropene	* 0.612	0.560	0.489	0.561	0.544	0.553	8.0*
Trichloroethene	* 0.562	0.488	0.428	0.436	0.444	0.472	11.8*
Dibromochloromethane	* 0.874	0.772	0.671	0.790	0.728	0.767	9.8*
1,1,2-Trichloroethane	* 0.475	0.396	0.345	0.402	0.364	0.396	12.5*
Benzene	* 0.946	0.845	0.751	0.779	0.789	0.822	9.4*
trans-1,3-Dichloropropene	* 0.533	0.487	0.424	0.500	0.479	0.485	8.2*
Bromoform	* 0.770	0.673	0.570	0.724	0.621	0.672	11.8*
4-Methyl-2-pentanone	0.642	0.523	0.459	0.564	0.508	0.539	12.7
2-Hexanone	0.423	0.376	0.328	0.414	0.362	0.381	10.2
Tetrachloroethene	* 0.646	0.546	0.469	0.468	0.481	0.522	14.6*
1,1,2,2-Tetrachloroethane	* 1.006	0.798	0.678	0.857	0.754	0.819	15.1*
Toluene	* 1.356	1.246	1.045	1.064	1.122	1.167	11.3*
Chlorobenzene	* 1.168	0.984	0.844	0.873	0.896	0.953	13.7*
Ethylbenzene	* 0.496	0.431	0.367	0.379	0.396	0.414	12.6*
Styrene	* 1.077	0.927	0.776	0.831	0.866	0.895	12.9*
Xylene (total)	* 1.563	1.344	1.150	1.200	1.233	1.298	12.7*
=====							
1,2-Dichloroethane-d4	2.528	2.442	2.342	2.277	2.390	2.396	4.0
Toluene-d8	1.045	1.106	1.043	1.018	1.064	1.055	3.1
Bromofluorobenzene	* 1.042	1.068	0.963	0.991	1.026	1.018	4.1*

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Lab File ID: AB811 BFB Injection Date: 08/11/96

Instrument ID: GCL5 BFB Injection Time: 2241

GC Column: CAPILLARY ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	20.7
75	30.0 - 66.0% of mass 95	42.6
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	60.1
175	4.0 - 9.0% of mass 174	4.3 (7.1)1
176	93.0 - 101.0% of mass 174	57.7 (96.0)1
177	5.0 - 9.0% of mass 176	3.3 (5.7)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	BD811	08/11/96	2315
02	VBLKGB	96GVE264-MB1	CF811	08/12/96	0132
03	VBLKGBBS	96GVE264-MB1S	CG811	08/12/96	0217
04	35-TB08-04	9608G623-001	ZJF01	08/12/96	0345
05	35-TW31A-04	9608G623-002	ZJF02	08/12/96	0443
06	35-TW31B-04	9608G623-003	ZJF03	08/12/96	0603
07	35-MW60B-04	9608G623-005	ZJF10	08/12/96	0640
08	35-MW60B-04M	9608G623-005S	ZJF06	08/12/96	0718
09	35-MW60B-04M	9608G623-005T	ZJF07	08/12/96	0755
10	35-MW60A-04	9608G623-006	ZJF08	08/12/96	0833
11	35-MW60B-04D	9608G623-007	ZJF09	08/12/96	0948
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5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Lab File ID: AD816 BFB Injection Date: 08/16/96

Instrument ID: GCL5 BFB Injection Time: 0959

GC Column: CAPILLARY ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	24.7
75	30.0 - 66.0% of mass 95	51.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	68.7
175	4.0 - 9.0% of mass 174	5.4 (7.8)1
176	93.0 - 101.0% of mass 174	68.6 (99.8)1
177	5.0 - 9.0% of mass 176	5.1 (7.4)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	VSTD050	BB816	08/16/96	1124
02	VBLKGD	96GVE269-MB1	CA816	08/16/96	1215
03	VBLKGDBS	96GVE269-MB1S	CB816	08/16/96	1256
04	35-GWD07-04	9608G623-004	ZJF11	08/16/96	1346
05	35-TW30A-04	9608G623-008	ZJF12	08/16/96	1426
06	35-TW30B-04	9608G623-009	ZJF13	08/16/96	1503
07	35-ERW10-04	9608G623-010	ZJF14	08/16/96	1539
08	35-FB-04	9608G623-011	ZJF15	08/16/96	1619
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VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Instrument ID: GCL5 Calibration Date: 08/16/96 Time: 1124

Lab File ID: BB816 Init. Calib. Date(s): 02/13/96 02/13/96

Heated Purge: (Y/N) N Init. Calib. Times: 1043 1312

GC Column: CAP ID: 0.53 (mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.032	1.036		0.4	
Bromomethane	1.564	1.730	0.100	10.6	25.0
Vinyl Chloride	1.133	1.186	0.100	4.7	25.0
Chloroethane	0.739	0.789		6.8	
Methylene Chloride	1.309	1.242		5.1	
Acetone	0.481	0.374		22.2	
Carbon Disulfide	3.354	3.874		15.5	
1,1-Dichloroethene	1.071	1.062	0.100	0.8	25.0
1,1-Dichloroethane	2.792	2.734	0.200	2.1	25.0
1,2-Dichloroethene (total)	1.330	1.423		7.0	
Chloroform	3.307	3.420	0.200	3.4	25.0
1,2-Dichloroethane	2.775	2.680	0.100	3.4	25.0
2-Butanone	0.751	0.459		18.9	
1,1,1-Trichloroethane	0.694	0.680	0.100	2.0	25.0
Carbon Tetrachloride	0.699	0.705	0.100	0.8	25.0
Bromodichloromethane	0.907	0.852	0.200	6.1	25.0
1,2-Dichloropropane	0.433	0.358		17.3	
cis-1,3-Dichloropropene	0.553	0.472	0.200	14.6	25.0
Trichloroethene	0.472	0.505	0.300	7.0	25.0
Dibromochloromethane	0.767	0.685	0.100	10.7	25.0
1,1,2-Trichloroethane	0.396	0.323	0.100	18.4	25.0
Benzene	0.822	0.823	0.500	0.1	25.0
trans-1,3-Dichloropropene	0.485	0.384	0.100	20.8	25.0
Bromoform	0.672	0.531	0.100	21.0	25.0
4-Methyl-2-pentanone	0.539	0.282		47.7	
2-Hexanone	0.381	0.226		40.7	
Tetrachloroethene	0.522	0.611	0.200	17.0	25.0
1,1,2,2-Tetrachloroethane	0.819	0.548	0.500	33.1	25.0
Toluene	1.167	1.227	0.400	5.1	25.0
Chlorobenzene	0.953	0.960	0.500	0.7	25.0
Ethylbenzene	0.414	0.420	0.100	1.4	25.0
Styrene	0.895	0.898	0.300	0.3	25.0
Xylene (total)	1.298	1.285	0.300	1.0	25.0
=====					
1,2-Dichloroethane-d4	2.396	2.156		10.0	
Toluene-d8	1.055	1.089		3.2	
Bromofluorobenzene	1.018	1.013	0.200	0.5	25.0

JT-NA

JT-NA
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<-JT-NA

All other compounds must meet a minimum RRF of 0.010.

3A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Lab File ID (Standard): B0811 Date Analyzed: 08/11/96

Instrument ID: GCL5 Time Analyzed: 2315

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

	ISI(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12-HOUR STD	41867	16.27	173505	17.97	144545	23.69
UPPER LIMIT	83734	16.77	347010	18.47	289090	24.19
LOWER LIMIT	20934	15.77	86752	17.47	72272	23.19
EPA SAMPLE NO						
01 VBLKGB	32937	16.28	130156	17.97	112654	23.70
02 VBLKGBBS	36721	16.25	146712	17.97	125295	23.68
03 35-TB08-04	35887	16.28	144440	17.97	126008	23.72
04 35-TW31A-04	30946	16.26	128993	17.97	107578	23.70
05 35-TW31B-04	31056	16.27	120860	17.98	105110	23.72
06 35-MW60B-04	31477	16.27	128380	17.98	111573	23.72
07 35-MW60B-04M	30756	16.28	127382	17.99	106661	23.72
08 35-MW60B-04M	33808	16.28	134695	17.99	122312	23.71
09 35-MW60A-04	34491	16.28	144244	18.00	126523	23.71
10 35-MW60B-04D	35061	16.28	137924	17.99	119042	23.72
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

3A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: WESTON/ENV. METRICS. INC. Contract: I104-09-001
 Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623
 Lab File ID (Standard): BB816 Date Analyzed: 08/16/96
 Instrument ID: GCL5 Time Analyzed: 1124
 GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

	ISI(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
12 HOUR STD	48068	16.26	194711	17.96	160631	23.67
UPPER LIMIT	96136	16.76	389422	18.46	321262	24.17
LOWER LIMIT	24034	15.76	97356	17.46	80316	23.17
EPA SAMPLE NO						
01 VBLKGD	46733	16.26	183837	17.96	153326	23.66
02 VBLKGDBS	46356	16.29	184978	17.98	158743	23.70
03 35-GWD07-04	44904	16.26	191278	17.97	168817	23.67
04 35-TW30A-04	46244	16.27	187044	17.98	156348	23.69
05 35-TW30B-04	46555	16.29	182313	17.99	159686	23.69
06 35-ERW10-04	45833	16.30	179452	17.98	152312	23.70
07 35-FB-04	44860	16.27	169803	17.98	152873	23.68
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IS1 (BCM) = Bromochloromethane
 IS2 (DFB) = 1,4-Difluorobenzene
 IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
 * Values outside of QC limits.

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKGB

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Lab File ID: CF811 Lab Sample ID: 96GVE264-MB1

Date Analyzed: 08/12/96 Time Analyzed: 0132

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCL5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKGBBS	96GVE264-MB1S	CG811	0217
02	35-TB08-04	9608G623-001	ZJF01	0345
03	35-TW31A-04	9608G623-002	ZJF02	0443
04	35-TW31B-04	9608G623-003	ZJF03	0603
05	35-MW60B-04	9608G623-005	ZJF10	0640
06	35-MW60B-04M	9608G623-005S	ZJF06	0718
07	35-MW60B-04M	9608G623-005T	ZJF07	0755
08	35-MW60A-04	9608G623-006	ZJF08	0833
09	35-MW60B-04D	9608G623-007	ZJF09	0948
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COMMENTS:

No Contamination

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKGD

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

Lab File ID: CA816 Lab Sample ID: 96GVE269-MB1

Date Analyzed: 08/16/96 Time Analyzed: 1215

GC Column: CAP ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: GCL5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES. MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VBLKGDBS	96GVE269-MB1S	CB816	1256
02	35-GWD07-04	9608G623-004	ZJF11	1346
03	35-TW30A-04	9608G623-008	ZJF12	1426
04	35-TW30B-04	9608G623-009	ZJF13	1503
05	35-ERW10-04	9608G623-010	ZJF14	1539
06	35-FB-04	9608G623-011	ZJF15	1619
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COMMENTS:

No contamination

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: SDG No.: 08G623

	EPA SAMPLE NO.	SMC1 (DCE)#	SMC2 (TOL)#	SMC3 (BFB)#	OTHER	TOT OUT
01	VBLKGB	95	99	95		0
02	VBLKGBBS	102	105	101		0
03	35-TB08-04	100	102	94		0
04	35-TW31A-04	108	104	95		0
05	35-TW31B-04	105	104	99		0
06	35-MW60B-04	110	100	94		0
07	35-MW60B-04M	106	103	98		0
08	35-MW60B-04M	104	100	96		0
09	35-MW60A-04	100	100	91		0
10	35-MW60B-04D	90	90	86		0
11	VBLKGD	106	98	102		0
12	VBLKGDBS	109	99	105		0
13	35-GWD07-04	103	96	96		0
14	35-TW30A-04	105	99	103		0
15	35-TW30B-04	102	96	101		0
16	35-ERW10-04	104	98	102		0
17	35-FB-04	101	95	101		0
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QC LIMITS

SMC1 (DCE) = 1,2-Dichloroethane-d4 (76-114)
 SMC2 (TOL) = Toluene-d8 (88-110)
 SMC3 (BFB) = Bromofluorobenzene (86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 9608G623-005

Matrix Spike - EPA Sample No.: 35-MW60B-04

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	50.000	0.0000	61.826	124	61-145
Trichloroethene	50.000	0.0000	47.036	94	71-120
Benzene	50.000	0.0000	59.952	120	76-127
Toluene	50.000	0.0000	53.248	106	76-125
Chlorobenzene	50.000	0.0000	52.354	105	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD REC.
1,1-Dichloroethene	50.000	56.720	113	9	14 61-145
Trichloroethene	50.000	47.670	95	1	14 71-120
Benzene	50.000	56.006	112	7	11 76-127
Toluene	50.000	47.943	96	10	13 76-125
Chlorobenzene	50.000	47.953	96	9	13 75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

3A
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 96GVE264-MB1

Matrix Spike - EPA Sample No.: VBLKGB

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC LIMITS REC
1,1-Dichloroethene	50.000	0.0000	52.375	105	61-145
Trichloroethene	50.000	0.0000	44.456	89	71-120
Benzene	50.000	0.0000	52.956	106	76-127
Toluene	50.000	0.0000	50.045	100	76-125
Chlorobenzene	50.000	0.0000	47.727	95	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS: _____

3A
WATER VOLATILE BLANK SPIKE RECOVERY

Lab Name: WESTON/ENV. METRICS, INC. Contract: 1104-09-001

Lab Code: WESTON Case No.: SAS No.: Lab ID: 96GVE269-MB1

Matrix Spike - EPA Sample No.: VBLKGD

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC LIMITS REC
1,1-Dichloroethene	50.000	0.0000	59.076	118	61-145
Trichloroethene	50.000	0.0000	49.219	98	71-120
Benzene	50.000	0.0000	54.069	108	76-127
Toluene	50.000	0.0000	48.605	97	76-125
Chlorobenzene	50.000	0.0000	52.023	104	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS: _____

FIELD DUPLICATE SAMPLE SUMMARY
VOLATILE ORGANIC FRACTION

Sample ID: 35-MW-60B-04 Duplicate Sample ID: 35-MW06B-04D

Matrix: aqueous non aqueous

Units: ug/L ug/Kg

Compound Name	Sample Concentration	Duplicate Concentration	RPD	Action

Water RPDs < 20% RPD

Soil RPDs < 35% RPD

Comments: _____

SAMPLE RESULT VERIFICATION
VOLATILE ORGANIC FRACTION

- 1. Were the sample results reported within the calibration range? Yes No
- 2. Were the percent moistures reported? Yes No NR
- 3. Were the data reported on a dry weight basis? Yes No NR
- 4. Did the GC/MS RIC and TIC exhibit interferences, off scale peaks or elevated baseline? Yes No
- 5. Did the data contain elevated detection limits that could not be accounted for? Yes No
- 6. Were any computational or transcription errors found? Yes No

Specific Comments: Positive results reported

Level C review

No Qualifications were required

Reviewer: Jacqueline A. Cleveland Date: 8/26/16