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International Specialists in the Environment

1500 First Interstate Center, 999 Third Avenue
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

'00 OCT -3 AM 9:14

October 2, 2000

Beth Sheldrake
Deputy Project Officer
Environmental Protection Agency
1200 Sixth Avenue, M/S ECL-116
Seattle, WA 98101

Re: CleanCare Facility, Subsurface Soil Data
Contract 68-W6-0008, TDD: 00-01-0008

Dear Ms. Sheldrake:

As requested by On-Scene Coordinator Michael Szerlog, enclosed please find the following documents:

1) Three figures showing sample locations;
2) Table 1: Analytical Results Summary Table;
3) Table 2: Soil Screening Data for Total Petroleum Hydrocarbons (TPH);
4) Table 3: Comparison of Laboratory TPH Data and Soil Screening Data for TPH;
5) Memo describing correlation between field screening and laboratory confirmation for TPH data; and
6) Data Validation Memoranda.

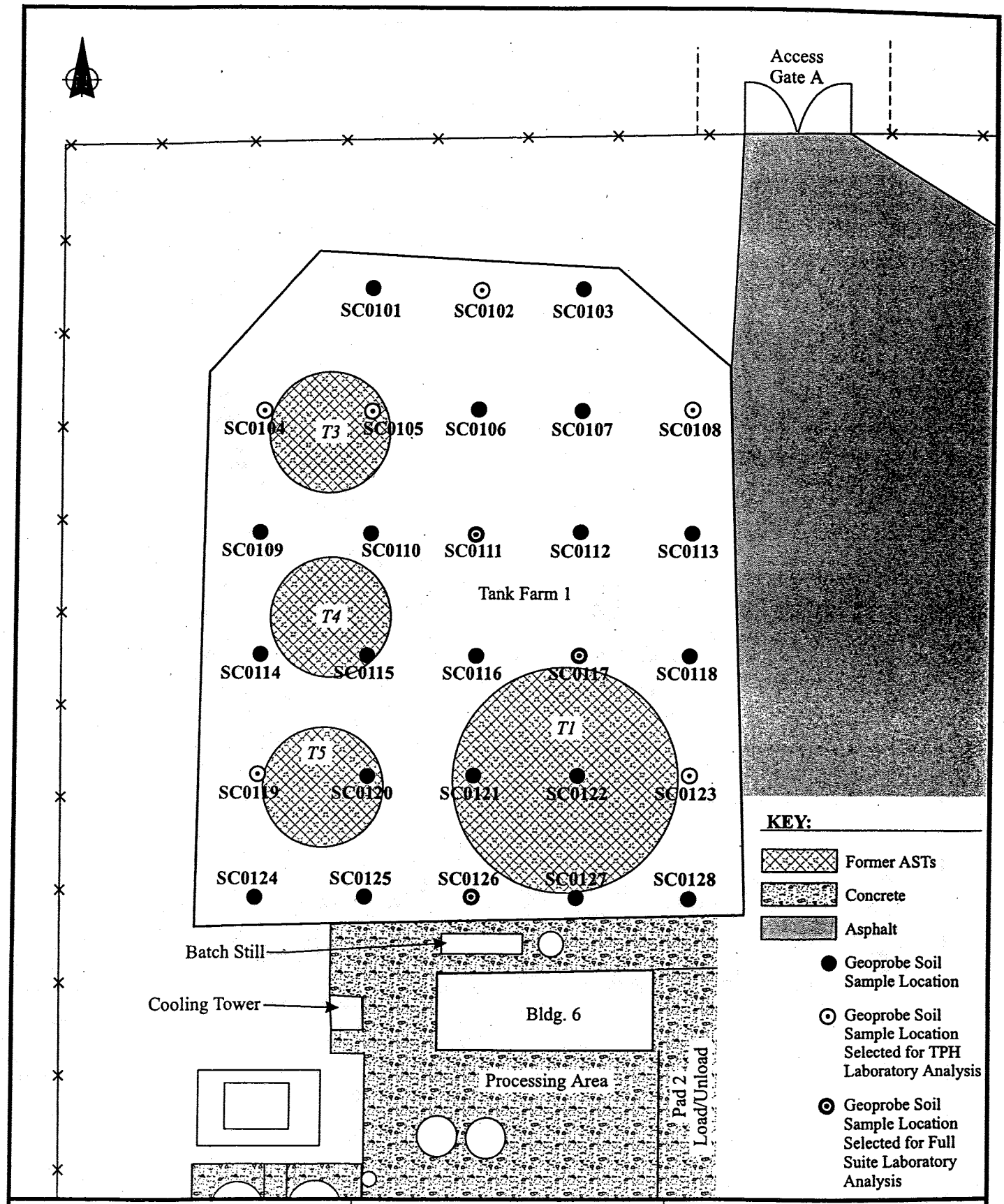
If you have any questions or comments, please contact me at (206) 624-9537.

Sincerely,

Jeff Fowlow
START Project Leader

Enclosure

cc: Michael Szerlog, EPA, On-Scene Coordinator, Seattle, WA
Charlie Gregory, E&E, START, Seattle, WA
Kerry Graber, Washington State Department of Ecology
Kia Peterson, Washington State Department of Ecology
Bradley Martin, Martin & Brown, Seattle, WA



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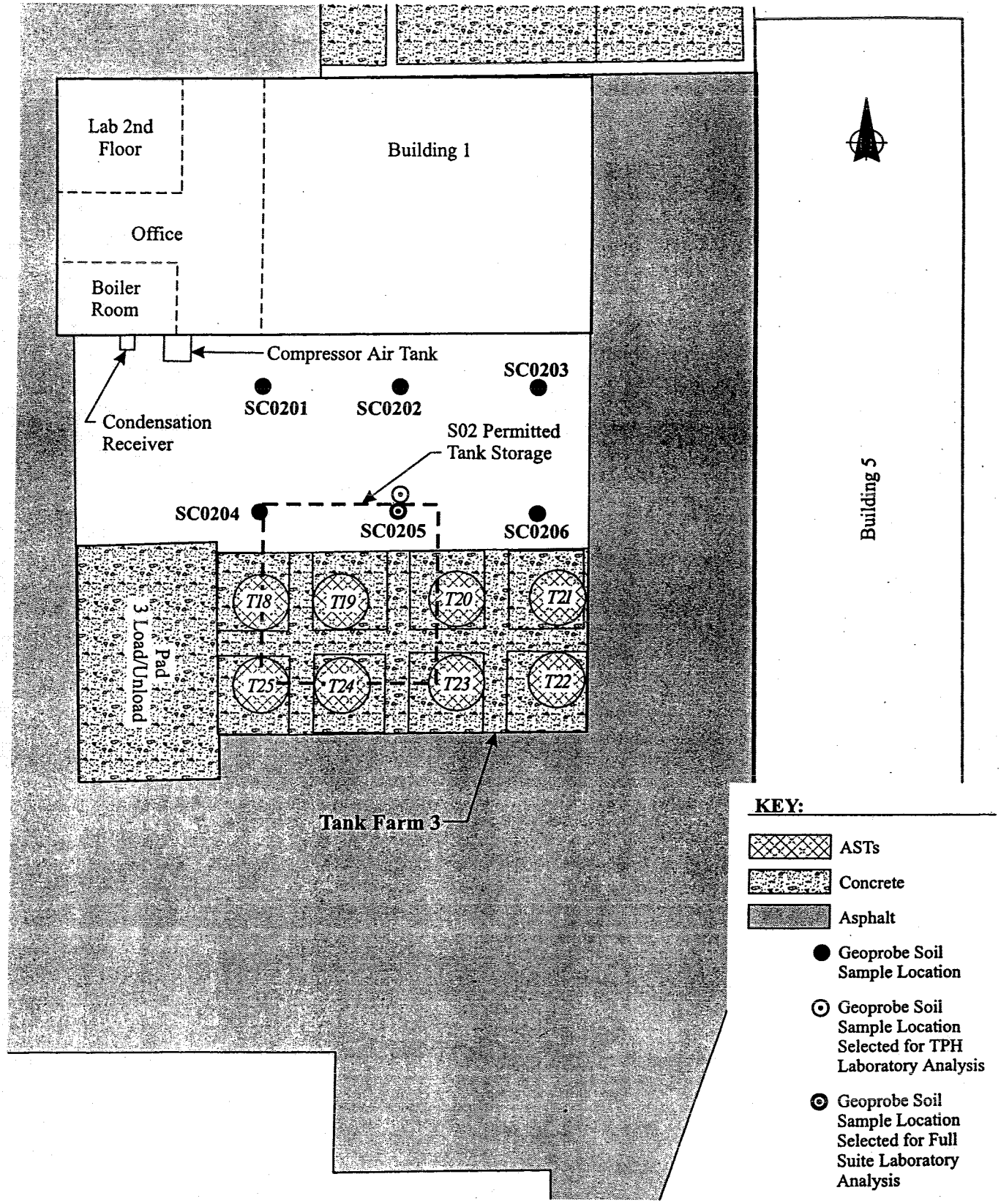
CleanCare
Tacoma, Washington

SOIL SAMPLE LOCATIONS
TANK FARM 1

0 20 40
Approximate Scale in Feet

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	9/27/00	EA08101RAT0	EA0801 5



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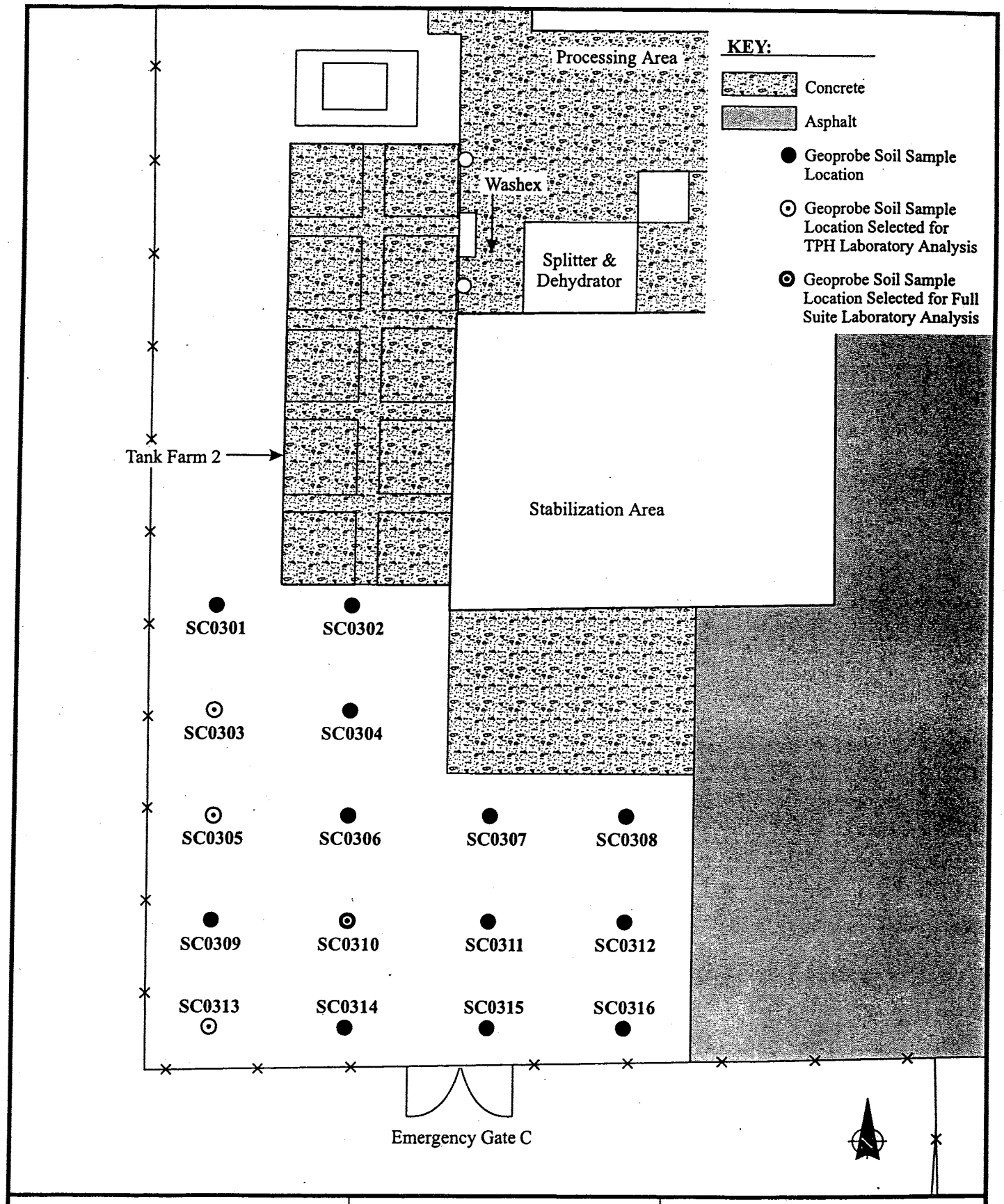
Tacoma, Washington

SOIL SAMPLE LOCATIONS
NORTH OF TANK FARM 3

0 20 40
Approximate Scale in Feet

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	9/27/00	EA0801RAT0	EA0801 6



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Tacoma, Washington

SOIL SAMPLE LOCATIONS
SOUTH OF TANK FARM #2

0 20 40
Approximate Scale in Feet

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	9/27/00	EA0801RAT0	EA0801 4

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TABLE 1

ANALYTICAL RESULTS SUMMARY
SOIL SAMPLES
CLEANCARE SITE
TACOMA WASHINGTON

EPA Sample Number	0020223	0020224	0020225	0020226	0020227	MTCA	PRG
Sample Location Number	SC0117 2'-4'	SC0111 2'-4'	SC0126 2'-4'	SC0310 3'-5'	SC0205 2'-4'		
Metals (mg/kg)							
Aluminum	9,400	5,300	5,900	11,000	13,000	--	100,000
Antimony	23	14	46	10 U	14 U	--	820
Arsenic	69 J	75 J	160 J	10 UJ	19 UJ	200	440, 2.7 (1)
Barium	270 J	150 J	210 J	500 J	370 J	--	100,000
Beryllium	0.18 J	0.4 U	0.39 U	0.41 U	0.56 U	--	2,200
Cadmium	16 J	7.9 J	32 J	16 J	5.4 J	10	810
Calcium	26,000	13,000	43,000	27,000	57,000	--	--
Chromium	92	43	140	53	62	500	450
Cobalt	12	8.2	12	22	12	--	100,000
Copper	200 J	190 J	780 J	150 J	99 J	--	76,000
Iron	74,000	42,000	140,000	26,000	22,000	--	100,000
Lead	500 J	300 J	720 J	860 J	760 J	1,000	1,000
Magnesium	12,000 J	5,200 J	6,100 J	15,000 J	9,400 J	--	--
Manganese	590 J	270 J	890 J	360 J	360 J	--	32,000
Mercury	1.4	0.37	12	0.35	1.5	1	610
Nickel	67	50	110	57	60	--	41,000
Potassium	1,100 J	570 J	640 J	930 J	820 J	--	--
Selenium	11 J	13 J	9 J	10 UJ	14 UJ	--	10,000
Sodium	820	790	1,500	1,200	300 J	--	--
Vanadium	250	140	680	39	71	--	14,000
Zinc	1,500 J	860 J	1,700 J	1,100 J	1,500 J	--	100,000
Pest/ PCBs (mg/kg)							
4,4'-DDD	0.11	0.093	0.048 J	0.0023 U	0.15 U	--	17
4,4'-DDE	0.0023 U	0.042	0.019 J	0.11	0.05 U	--	12
4,4'-DDT	0.032 J	0.031	0.0023 U	0.086 J	0.6 U	5	12
Aroclor 1254	0.43	0.3	0.42 J	5.8	0.015 U	--	1
Aroclor 1260	0.19	0.14	0.21 J	1.5	0.015 U	--	1
SVOCs (mg/kg)							
1,2,4-Trichlorobenzene	R	R	0.098 U	0.047 J	0.5	--	3,000
1,2-Dichlorobenzene	R	R	0.098 U	0.15	0.13 U	--	370
1,4-Dichlorobenzene	R	R	0.098 U	0.12	0.13 U	--	8.1
2,4-Dimethylphenol	1	R	0.098 U	0.094 U	0.13 UJ	--	18,000
2-Methylnaphthalene	29	58	4.2	0.29	0.61	--	--
2-Nitrophenol	0.096 U	R	0.098 U	0.094 U	1 J	--	--
3- & 4-Methylphenol	0.096 U	R	0.11	0.094 U	48	--	4,400 (2)
Acenaphthene	1.5 J	1.7	4.9	0.051	0.41	--	38,000
Acenaphthylene	R	R	0.28	0.019 U	0.069	--	--
Anthracene	0.83 J	0.72 J	4.5	0.066	0.56 J	--	390,000
Benzo(a)anthracene	0.7 J	0.75 J	3.5	0.11 J	0.38 J	20	2.9
Benzo(a)pyrene	0.43 J	0.58 J	1.8 J	0.21 J	0.26 J	20	0.29
Benzo(b)fluoranthene	0.38 J	0.63 J	1.2 J	0.019 U	0.21 J	20	2.9
Benzo(g,h,i)perylene	0.24 J	0.27 J	0.94 J	0.019 U	0.026 U	--	--
Benzo(k)fluoranthene	R	0.19 J	0.78 J	0.019 U	0.069 J	20	29
2-Methylphenol	0.096 U	R	.06 J	0.094 U	0.13 UJ	--	44,000

TABLE 1 (CONTINUED)

ANALYTICAL RESULTS SUMMARY
SOIL SAMPLES
CLEANCARE SITE
TACOMA WASHINGTON

EPA Sample Number	0020223	0020224	0020225	0020226	0020227	MTCA	PRG
Sample Location Number	SC0117 2'-4'	SC0111 2'-4'	SC0126 2'-4'	SC0310 3'-5'	SC0205 2'-4'		
SVOCs continued (mg/kg)							
bis(2-Ethylhexyl)phthalate	3.2 J	0.97 J	0.28 U	7.5 J	0.15 U	--	180
Butylbenzylphthalate	R	R	0.098 U	8.3 J	0.13 U	--	100,000
Chrysene	0.86 J	1.1 J	3	0.21 J	0.36 J	20	290
Di-n-butylphthalate	R	R	0.2 U	0.58	0.26 U	--	--
Di-n-octylphthalate	R	R	0.098 U	1.1 J	0.13 U	--	10,000
Dibenzofuran	0.68 J	0.63	3.7	0.094 U	0.23	--	5,100
Fluoranthene	3.6 J	3.1 J	13	0.2	1.6 J	--	30,000
Fluorene	1.7 J	1.6	4.8	0.071	0.51	--	33,000
Hexachlorobenzene	R	R	0.098 U	0.094 U	1.1 J	--	1.5
Hexachlorobutadiene	R	R	0.098 U	0.13	250	--	32
Hexachloroethane	R	R	0.098 U	0.094 U	450	--	180
Indeno(1,2,3-cd)pyrene	0.18 J	0.27 J	0.71 J	0.019 U	0.026 U	20	2.9
Naphthalene	15	33	11	0.09	0.47	--	190
Phenanthrene	4.7 J	2.6 J	17 J	0.28 J	2.3 J	--	--
Pyrene	2.6 J	2 J	8.8	0.51	1.3 J	--	54,000
VOCs (mg/kg)							
1,2,4-Trichlorobenzene	0.44 U	0.41 U	0.47 U	0.45 U	12	--	3,000
1,2,4-Trimethylbenzene	44	43	0.35 J	1.2	3	--	5.7
1,2-Dichlorobenzene	0.44 U	0.41 U	0.47 U	0.39 J	0.6 U	--	370
1,3,5-Trimethylbenzene	16	15	0.47 U	0.46	0.9	--	70
1,4-Dichlorobenzene	0.44 U	0.41 U	0.47 U	0.24 J	0.6 U	--	8.1
4-Isopropyltoluene	3	3.1	0.44 J	0.45 U	0.6 U	--	--
Benzene	0.53	0.41 U	0.47 U	0.45 U	0.6 U	0.5	1.5
cis-1,2-Dichloroethene	0.44 U	0.41 U	0.47 U	0.45 U	15	--	150
Ethylbenzene	3.5	0.7	0.47 U	0.45 U	0.5 J	20	230
Hexachlorobutadiene	0.44 U	0.41 U	0.47 U	0.75	580	--	32
Isopropylbenzene	1.2	0.61	0.47 U	0.45 U	0.6 U	--	520
m,p-Xylene	18	2.6	0.95 U	0.89 U	2.1	20 (3)	210 (3)
Methylene chloride	0.44 U	0.41 U	0.47 U	0.45 U	0.6 U	0.5	21
n-Propylbenzene	2.9	1.2	0.47 U	0.45 U	0.3 J	--	240
Naphthalene	26	29	26	0.45 U	15	--	190
o-Xylene	7.9	1.9	0.47 U	0.45 U	0.93	20 (3)	210 (3)
sec-Butylbenzene	4.8	4.3	0.47 U	0.45 U	0.6 U	--	220
Tetrachloroethene	0.44 U	0.41 U	0.47 U	0.45 U	4,900	0.5	19
Toluene	5.7	0.36 J	0.47 U	0.45 U	5.9	40	520
trans-1,2-Dichloroethene	0.44 U	0.41 U	0.47 U	0.45 U	0.320 J	--	210
Trichloroethene	0.44 U	0.41 U	0.47 U	0.45 U	370	0.5	6.1
Diesel Range (mg/kg)							
#2 Diesel	4,000	7,700	2,000	2,100	11,000	200	--
Motor Oil	2,600	1,900	3,200	7,200	2,600	--	--

Note:	Bold type indicates concentrations above sample quantitation limits or detection limits Underlined type indicates result is elevated above Region 9 PRGs and/or MTCA Method A Cleanup Levels for Industrial Soil.
Key:	
B	= Detected below the Contract Required Detection limit but equal to or greater than the instrument detection limit.
DRO	= Diesel Range Organics.
EPA	= Environmental Protection Agency.
GRO	= Gasoline Range Organics.
H	= High bias.
J	= Estimated concentration.
K	= Unknown bias.
L	= Low bias.
mg/kg	= Milligrams per kilogram.
MTCA	= Washington State Model Toxics Control Act.
PRG	= EPA Region 9 Preliminary Remedial Goals for idustrial soil, as updated November 9, 1999.
R	= The sample results are rejected (analyte may or may not be present) due to gross deficiencies in quality control criteria. Any reported value is unusable. Resampling and/or reanalysis is necessary for verification.
RRO	= Residual Range Organics.
SVOC	= Semi Volatile Organic Compounds.
U	= The analyte was analyzed for, but was not detected at the reported sample quantitation limit.
VOC	= Volatile Organic Compounds.
(1)	= PRG values for arsenic as non-cancer end point (440 mg/kg) and cancer end point (2.7 mg/kg).
(2)	= PRG reported is for 4-methylphenol. The PRG for 3-methylphenol is 44,000 mg/kg. The more conservative PRG has been used.
(3)	= The MTCA and PRG values for xylene are for total xylene. The data is reported as m, p-xylene and o-xylene.

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TABLE 2
SOIL SCREENING DATA FOR TOTAL PETROLEUM HYDROCARBON (TPH)
CLEANCARE REMOVAL SITE
JULY, 2000
TACOMA WASHINGTON

Sample Location	Depth Range	TPH Screening Concentration
SC0101	0' to 2'	300 J
SC0101	2' to 4'	7,700
SC0102	0' to 2'	1,150
SC0102	2' to 4'	2,710
SC0103	0' to 2'	500 J
SC0103	2' to 4'	6,530
SC0104	0' to 2'	3,020
SC0104	2' to 4'	2,490
SC0105	0' to 2'	3,320
SC0105	2' to 4'	10,190
SC0106	0' to 2'	3,440
SC0106	2' to 4'	21,040 J
SC0107	0' to 2'	10,580
SC0107	2' to 4'	14,180
SC0108	0' to 2'	14,730
SC0108	2' to 4'	15,980
SC0109	0' to 2'	2,800
SC0109	2' to 4'	3,800
SC0110	0' to 2'	1,820
SC0110	2' to 4'	12,310
SC0111	0' to 2'	>14,000
SC0111	2' to 4'	>14,000
SC0112	0' to 2'	17,090
SC0112	2' to 4'	10,640
SC0113	0' to 2'	16,720
SC0113	2' to 4'	4,810
SC0114	0' to 2'	over range
SC0114	2' to 4'	5,600
SC0115	0' to 2'	2,660
SC0115	2' to 4'	2,580
SC0116	0' to 2'	20,640 J
SC0116	2' to 4'	not collected
SC0117	0' to 2'	5,970

Sample Location	Depth Range	TPH Screening Concentration
SC0117	2' to 4'	over range
SC0118	0' to 2'	6,500
SC0118	2' to 4'	16,990
SC0119	0' to 2'	2,650
SC0119	2' to 4'	3,480
SC0120	0' to 2'	400 J
SC0120	2' to 4'	1,690
SC0121	0' to 2'	7,210
SC0121	2' to 4'	13,590
SC0122	0' to 2'	600 J
SC0122	2' to 4'	1,303
SC0123	0' to 2'	5,080
SC0123	2' to 4'	690 J
SC0124	0' to 2'	2,420
SC0124	2' to 4'	1,910
SC0125	0' to 2'	2,170
SC0125	2' to 4'	23,880 J
SC0126	0' to 2'	over range
SC0126	2' to 4'	over range
SC0127	0' to 2'	13,990
SC0127	2' to 4'	16,590
SC0128	0' to 2'	1,850
SC0128	2' to 4'	over range
SC0201	0' to 2'	2,840
SC0201	2' to 4'	6,250
SC0202	0' to 2'	290 J
SC0202	2' to 4'	160 J
SC0203	0' to 2'	under range
SC0203	2' to 4'	under range
SC0204	0' to 2'	460 J
SC0204	2' to 4'	1,000 J
SC0205	0' to 2'	4,290
SC0205	2' to 4'	over range

Sample Location	Depth Range	TPH Screening Concentration
SC0206	0' to 2'	1,420
SC0206	2' to 4'	11,140
SC0301	1' to 3'	2,610
SC0301	3' to 5'	2,780
SC0302	0' to 2'	5,350
SC0302	2' to 4'	380 J
SC0303	1' to 3'	700 J
SC0303	3' to 5'	1,970
SC0304	0' to 2'	600 J
SC0304	2' to 4'	14,200
SC0305	1' to 3'	750 J
SC0305	3' to 5'	17,830
SC0306	0' to 2'	5,960
SC0306	2' to 4'	12,000
SC0307	0' to 2'	2,370
SC0307	2' to 4'	3,920
SC0308	1' to 3'	250 J
SC0308	3' to 5'	3,840
SC0309	1' to 3'	2,150
SC0309	3' to 5'	no result
SC0310	1' to 3'	zero J
SC0310	3' to 5'	20,100 J
SC0311	1' to 3'	2,960
SC0311	3' to 5'	2,830
SC0312	1' to 3'	3,650
SC0312	3' to 5'	6,000
SC0313	1' to 3'	21,240 J
SC0313	3' to 5'	no result
SC0314	1' to 3'	2,390
SC0314	3' to 5'	15,690
SC0315	1' to 3'	210 J
SC0315	3' to 5'	13,230
SC0316	1' to 3'	1,760
SC0316	3' to 5'	2,760

All samples were screened for TPH using the PetroFLAG Hydrocarbon Analyzer manufactured by Drexil Corporation

TPH = Total Petroleum Hydrocarbons

J = Sample data less than 1,000 ppm or greater than 20,000 is considered unreliable by the manufacturer

over range = field screening method did not provide a numerical value but did indicate that the concentration was higher than 20,000 mg/kg

under range = the data was below the reliable concentration range for the instrument

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TABLE 3
COMPARISON OF LABORATORY TPH DATA AND SOIL SECREENING DATA FOR TPH
CLEANCARE REMOVAL SITE
TACOMA, WASHINGTON

Sample #	Collection		Sample Location Number And Depth	Laboratory data (mg/kg)			Screening data (mg/kg)
	Date	Time		#2 Diesel	Motor Oil	Total	
00020213	00/07/19	1115	SC0119 0-2	740	230	970	2,650
00020214	00/07/18	1227	SC0104 2-4	2,300	5,000	7,300	2,490
00020215	00/07/18	1210	SC0105 2-4	45,000	6,300	51,300	10,190
00020216	00/07/20	1302	SC0205 2-4	310	880	1,190	over range
00020217	00/07/19	800	SC0123 2-4	1,300	750	2,050	690 J
00020218	00/07/19	1430	SC0303 3-5	310	610	920	1,970
00020219	00/07/18	1040	SC0108 0-2	8,400	1,900	10,300	14,730
00020220	00/07/19	1527	SC0313 1-3	4,300	10,000	14,300	21,240 J
00020221	00/07/19	1449	SC0305 3-5	2,400	7,800	10,200	17,830
00020222	00/07/18	1005	SC0102 0-2	120	110	230	1,150

J = Sample data less than 1,000 ppm or greater than 20,000 is considered unreliable by the manufacturer

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1500 First Interstate Center, 999 Third Avenue
Seattle, Washington 98104
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MEMORANDUM

DATE: September 29, 2000

TO: Charlie Gregory, Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START Chemist, E & E, Seattle, WA MW

SUBJ: TDD: 00-01-0008

Attached is a correlation between commercial laboratory and field screening data (listed below) for Total petroleum Hydrocarbons for the Clean Care Removal site located in Tacoma, Washington. The commercial laboratory data diesel and motor oil ranges were summed to allow comparison to the field screening method. The samples included in this correlation were those that were typically within the calibration ranges for both methods.

Sample #	Laboratory data (mg/kg)			Screening data (mg/kg)
	#2 Diesel	Motor Oil	Total	
00020213	740	230	**970**	**2,650**
00020214	2,300	5,000	**7,300**	**2,490**
00020217	1,300	750	**2,050**	**690**
00020219	8,400	1,900	**10,300**	**14,730**
00020220	4,300	10,000	**14,300**	**21,240**
00020221	2,400	7,800	**10,200**	**17,830**
00020222	120	110	**230**	**1,150**

The correlation coefficient (r^2) for the seven pairs of results is 0.834. A correlation of 0.700 or greater is required for field screening results when compared to commercial laboratory confirmation. The results for the Clean Care site listed above exceed the 0.700 limit.

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1500 First Interstate Center, 999 Third Avenue
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: August 28, 2000

TO: Charlie Gregory, Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-Chemist, E & E, Seattle, WA MW

THRU: Leatta Dahlhoff, START-Chemist, E & E, Seattle, WA LD

SUBJ: **Data Quality Assurance Review, Cleancare Corporation Site, Tacoma, Washington**

REF: TDD: 00-08-0001 PAN: EA-08-01-RA-DM

The data quality assurance review of 15 solid samples collected from the Cleancare Corporation site located in Tacoma, Washington, has been completed. Diesel range total petroleum hydrocarbon analysis (WDOE Method NWTPH-Dx) was performed by Sound Analytical Services, Inc., Tacoma, Washington.

The samples were numbered:

00020213	00020214	00020215	00020216	00020217
00020218	00020219	00020220	00020221	00020222
00020223	00020224	00020225	00020226	00020227

Data Qualifications:

The samples were maintained at 4°C (± 2°C). The samples were collected between July 18 and 25, 2000, were extracted on July 26, 2000, and were analyzed by July 30, 2000. All extractions and analyses were performed within QC holding time limits.

The initial and continuing calibration results were within QC limits. All surrogate recoveries were within QC limits except when diluted out due to high sample results. There were no detections in the method blank. The matrix spike, blank spike, and duplicate sample results were within QC limits.

In the reviewers' professional judgment, all sample results were acceptable except as noted.

The overall usefulness of the data is based on the criteria outlined in the OSWER Directive "Quality Assurance/Quality Control Guidance for Removal Activities, Data Validation Procedures" (EPA/540/G-90/004) and the analytical method. Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the contract required detection limits/sample quantitation limits or because quality control criteria limits were not met.

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020213
Lab ID:	91315-01
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/29/00
% Solids	92.23
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	82.6		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	740	21	10	X1
Motor Oil	230	42	21	

MW 8/2/00

X1 - Chromatogram suggests this might be aged or degraded diesel

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020214
Lab ID:	91315-02
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/29/00
% Solids	29.67
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	75.9		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	2300	67	33	
Motor Oil	5000	130	67	

JMN
8-28-00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020215
Lab ID:	91315-03
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/29/00
% Solids	56.28
Dilution Factor	400

Diesel and Motor Oil by NWTPH-Dx Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
o-terphenyl	-	X8	50	150

Sample results are on a dry weight basis.

Analyte	**Result (mg/kg)**	**PQL**	**MDL**	**Flags**
#2 Diesel	45000	3400	1700	~~X1~~
Motor Oil	6300 J	6700	3400	~~J~~

MW
7/28/00

X1 - Chromatogram suggests this might be overlap from gasoline range

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020216
Lab ID:	91315-04
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/29/00
% Solids	88.63
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	84.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	310	21	10	~~X1~~
Motor Oil	880	41	21	

MW 8-28-00

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020217
Lab ID:	91315-05
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/29/00
% Solids	90.75
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
o-terphenyl	119		50	150

Sample results are on a dry weight basis.

Analyte	**Result (mg/kg)**	**PQL**	**MDL**	**Flags**
#2 Diesel	1300	21	10	
Motor Oil	750	41	21	

MW
7-28-00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020218
Lab ID:	91315-06
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/29/00
% Solids	92.12
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	78.1		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	310	20	9.9	X1
Motor Oil	610	40	20	

7/28-00

X1 - Chromatogram suggests this might be aged or degraded diesel

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020219
Lab ID:	91315-07
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/26/00
% Solids	92.75
Dilution Factor	20

Diesel and Motor Oil by NWTPH-Dx Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
o-terphenyl	128		50	150

Sample results are on a dry weight basis.

Analyte	**Result (mg/kg)**	**PQL**	**MDL**	**Flags**
#2 Diesel	8400	100	52	X1
Motor Oil	1900	210	100	

MW
8/28/00

X1 - Chromatogram suggests this might be aged or degraded diesel

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020220
Lab ID:	91315-08
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/30/00
% Solids	92.55
Dilution Factor	100

Diesel and Motor Oil by NWTPH-Dx Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
o-terphenyl	-	X8	50	150

Sample results are on a dry weight basis.

Analyte	**Result (mg/kg)**	**PQL**	**MDL**	**Flags**
#2 Diesel	4300	540	270	XT, X1
Motor Oil	10000	1100	540	XT, X1

MW
8-28-00

X1 - Chromatogram suggests this might be hydraulic fluid

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020221
Lab ID:	91315-09
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/27/00
% Solids	85.13
Dilution Factor	20

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	112		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	2400	110	54	X1
Motor Oil	7800	210	110	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020222
Lab ID:	91315-10
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/27/00
% Solids	91.76
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
o-terphenyl	100		50	150

Sample results are on a dry weight basis.

Analyte	**Result (mg/kg)**	**PQL**	**MDL**	**Flags**
#2 Diesel	120	20	10	X1 mw
Motor Oil	110	41	20	

MW
8-28-00

X1 - Chromatogram suggests this might be aged or degraded diesel

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020223
Lab ID:	91315-11
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/27/00
% Solids	84.54
Dilution Factor	20

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	141		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	4000	110	55	X1
Motor Oil	2600	220	110	

MW 7-28-00

X1 - Chromatogram suggests this might be jet fuel, kerosene or similar product

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020224
Lab ID:	91315-12
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/27/00
% Solids	85.93
Dilution Factor	20

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	103		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	7700	110	56	X1
Motor Oil	1900	220	110	

MW
7/28/00

X1 - Chromatogram suggests this might be jet fuel, kerosene or similar product

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020225
Lab ID:	91315-13
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/27/00
% Solids	81.45
Dilution Factor	20

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	84		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	2000	110	57	X1
Motor Oil	3200	230	110	

8-28-00

X1 - Chromatogram suggests this might be aged or degraded diesel

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020226
Lab ID:	91315-14
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/30/00
% Solids	85.66
Dilution Factor	20

Diesel and Motor Oil by NWTPH-Dx Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
o-terphenyl	67.1		50	150

Sample results are on a dry weight basis.

Analyte	**Result (mg/kg)**	**PQL**	**MDL**	**Flags**
#2 Diesel	2100	120	58	X1
Motor Oil	7200	230	120	

MN
8/28/00

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020227
Lab ID:	91315-15
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/30/00
% Solids	63.01
Dilution Factor	20

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	95		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	11000	150	75	X1
Motor Oil	2600	300	150	

MW 8-28-00

X1 - Chromatogram suggests this might be jet fuel, kerosene or similar product

ecology and environment, inc.
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MEMORANDUM

DATE: August 28, 2000

TO: Charlie Gregory, Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-Chemist, E & E, Seattle, WA MW

THRU: Leatta Dahlhoff, START-Chemist, E & E, Seattle, WA LD

SUBJ: **Organic Data Quality Assurance Review, Cleancare Corporation Site, Tacoma, Washington**

REF: TDD: 00-01-0008 PAN: EA-08-01-RA-DM

The data quality assurance review of five solid samples collected from the Cleancare Corporation site located in Tacoma, Washington, has been completed. Analysis for Volatile Organic Compounds (VOCs - EPA Method 8260) was performed by Sound Analytical Services, Inc., Tacoma, WA.

The samples were numbered: 00020223 00020224 00020225 00020226 00020227

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The samples were collected on July 25, 2000, and were analyzed by July 31, 2000, therefore meeting QC holding time criteria of less than 14 days between collection and analysis.

2. **GC/MS Tuning Criteria: Acceptable.**

Bromofluorobenzene (BFB) tuning of the mass spectrometer was conducted at the beginning of the 12-hour analytical sequence. All calculations were verified as correct, all results were normalized to m/z 95 and were within the required criteria.

3. **Initial Calibration: Satisfactory.**

Calculations were verified as correct for at least one analyte per internal standard. All applicable individual relative response factors (RRFs) and average RRFs for the initial calibration were greater than the 0.050 control limit. All applicable relative percent differences (RPDs) were $\leq$ the control limit of 30.0% except bromomethane; no action was taken as this analyte was not detected.

4. **Continuing Calibration: Satisfactory.**

Calculations were verified as correct for at least one analyte per internal standard. All individual RRFs for the continuing calibrations were greater than the 0.050 control limit. All applicable percent differences (% Ds) were $\leq$ the control limits of 25.0% except bromomethane (increasing response factor) in both calibrations; no action was taken as this analyte was not detected.

5. **Internal Standards: Acceptable.**

Areas of the internal standards were within the control limits of 50 % to 200 % of the associated 12-hour calibration standard. Retention times were within 30 seconds of the 12-hour standard retention times.

6. **Error Determination: Not Performed.**

Samples necessary for bias and precision determination were not provided to the laboratory. All samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although the flags are not found on the Form I's.

7. **Blanks: Acceptable.**

A method blank was analyzed at the required frequency of every 12 hours beginning with the BFB injection for each matrix, preparation technique, and analysis system. No target analytes were detected in the associated blank.

8. **System Monitoring Compounds (SMC): Acceptable.**

Recoveries of the system monitoring compounds (surrogates) were greater than 10% and all recoveries were within QC limits.

9. **Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

10. **Matrix and Blank Spikes: Acceptable.**

All matrix and blank spike results were within laboratory QC limits.

11. **Target Compound Identification: Acceptable.**

All spiked target compounds reported by the laboratory met identification criteria of relative retention times (RRT) within 0.06 RRT units of the 12 hour standard. All ions present in the standard mass spectrum were present in the sample mass spectrum and the abundance of these ions agreed within $\pm$ 20 % between the standard and sample spectrum. All ions present at greater than 10 % in the sample mass spectrum but not in the standard mass spectrum were accounted for.

12. **Tentatively Identified Compounds: Not Requested.**

Tentatively Identified Compounds were not requested.

13. **Target Compound Quantitation and Quantitation Limits: Acceptable.**

Concentrations of all reported analytes and quantitation limits were correctly calculated.

14. **Laboratory Contact: Not Required.**

No laboratory contact was required.

15. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the OSWER Directive "Quality Assurance/Quality Control Guidance for Removal Activities, Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (EPA 540/R-94/012). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the practical quantitation limits or because quality control criteria limits were not met.

U - The material was analyzed for but was not detected. The associated numerical value is the estimated sample quantitation limit.

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020223
Lab ID:	91315-11
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/28/00
% Solids	84.54
Dilution Factor	25

Volatile Organics by USEPA Method 5030/8260B Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Dibromofluoromethane	102		82	113
Fluorobenzene	98.5		75	112
Toluene-D8	111		81	125
Ethylbenzene-d10	100		86	121
Bromofluorobenzene	95.6		80	113

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorodifluoromethane	ND	440	220	
Chloromethane	ND	440	220	
Vinyl chloride	ND	440	220	
Bromomethane	ND	440	220	
Chloroethane	ND	440	220	
Trichlorofluoromethane	ND	440	220	
1,1-Dichloroethene	ND	440	220	
Methylene chloride	ND	440	220	
trans-1,2-Dichloroethene	ND	440	220	
1,1-Dichloroethane	ND	440	220	
2,2-Dichloropropane	ND	440	220	
cis-1,2-Dichloroethene	ND	440	220	
Bromochloromethane	ND	440	220	
Chloroform	ND	440	220	
1,1,1-Trichloroethane	ND	440	220	
Carbon Tetrachloride	ND	440	220	
1,1-Dichloropropene	ND	440	220	
Benzene	530	440	220	
1,2-Dichloroethane	ND	440	220	
Trichloroethene	ND	440	220	
1,2-Dichloropropane	ND	440	220	
Dibromomethane	ND	440	220	
Bromodichloromethane	ND	440	220	
cis-1,3-Dichloropropene	ND	440	220	
Toluene	5700	440	220	
trans-1,3-Dichloropropene	ND	440	220	

MW 8/2/00

SOUND ANALYTICAL SERVICES, INC.

Volatile Organics by USEPA Method 5030/8260B Modified data for 91315-11 continued...

Analyte	Result (ug/kg)	PQL	MDL	
1,1,2-Trichloroethane	ND	440 U	220	
Tetrachloroethene	ND	440	220	
1,3-Dichloropropane	ND	440	220	
Dibromochloromethane	ND	440	220	
1,2-Dibromoethane	ND	440	220	
Chlorobenzene	ND	440	220	
Ethylbenzene	3500	440	220	
1,1,1,2-Tetrachloroethane	ND	440 U	220	
m,p-Xylene	18000	890	440	
o-Xylene	7900	440	220	
Styrene	ND	440 U	220	
Bromoform	ND	440	220	
Isopropylbenzene	1200	440	220	
Bromobenzene	ND	440 U	220	
n-Propylbenzene	2900	440	220	
1,1,2,2-Tetrachloroethane	ND	440 U	220	
1,2,3-Trichloropropane	ND	440	220	
2-Chlorotoluene	ND	440	220	
1,3,5-Trimethylbenzene	16000	440	220	
4-Chlorotoluene	ND	440 U	220	
t-Butylbenzene	ND	440 U	220	
1,2,4-Trimethylbenzene	44000	440	220	~~D10~~
sec-Butylbenzene	4800	440	220	
1,3-Dichlorobenzene	ND	440 U	220	
4-Isopropyltoluene	3000	440	220	
1,4-Dichlorobenzene	ND	440 U	220	
n-Butylbenzene	ND	440	220	
1,2-Dichlorobenzene	ND	440	220	
1,2-Dibromo-3-chloropropane	ND	440	220	
1,2,4-Trichlorobenzene	ND	440	220	
Hexachlorobutadiene	ND	440	220	
Naphthalene	26000	440	220	~~D10~~
1,2,3-Trichlorobenzene	ND	440 U	220	

MW
8-28-00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020224
Lab ID:	91315-12
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/28/00
% Solids	85.93
Dilution Factor	25

Volatile Organics by USEPA Method 5030/8260B Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Dibromofluoromethane	100		82	113
Fluorobenzene	93.8		75	112
Toluene-D8	106		81	125
Ethylbenzene-d10	98.4		86	121
Bromofluorobenzene	95.8		80	113

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorodifluoromethane	ND	410 U	210	
Chloromethane	ND	410	210	
Vinyl chloride	ND	410	210	
Bromomethane	ND	410	210	
Chloroethane	ND	410	210	
Trichlorofluoromethane	ND	410	210	
1,1-Dichloroethene	ND	410	210	
Methylene chloride	ND	410	210	
trans-1,2-Dichloroethene	ND	410	210	
1,1-Dichloroethane	ND	410	210	
2,2-Dichloropropane	ND	410	210	
cis-1,2-Dichloroethene	ND	410	210	
Bromochloromethane	ND	410	210	
Chloroform	ND	410	210	
1,1,1-Trichloroethane	ND	410	210	
Carbon Tetrachloride	ND	410	210	
1,1-Dichloropropene	ND	410	210	
Benzene	ND	410	210	
1,2-Dichloroethane	ND	410	210	
Trichloroethene	ND	410	210	
1,2-Dichloropropane	ND	410	210	
Dibromomethane	ND	410	210	
Bromodichloromethane	ND	410	210	
cis-1,3-Dichloropropene	ND	410	210	
Toluene	360 J	410	210	J N 4
trans-1,3-Dichloropropene	ND	410 U	210	

MW 8-2-00

SOUND ANALYTICAL SERVICES, INC.

Volatile Organics by USEPA Method 5030/8260B Modified data for 91315-12 continued...

Analyte	Result (ug/kg)	PQL	MDL	
1,1,2-Trichloroethane	ND	410 U	210	
Tetrachloroethene	ND	410	210	
1,3-Dichloropropane	ND	410	210	
Dibromochloromethane	ND	410	210	
1,2-Dibromoethane	ND	410	210	
Chlorobenzene	ND	410	210	
Ethylbenzene	700	410	210	
1,1,1,2-Tetrachloroethane	ND	410 U	210	
m,p-Xylene	2600	830	410	
o-Xylene	1900	410	210	
Styrene	ND	410 U	210	
Bromoform	ND	410	210	
Isopropylbenzene	610	410	210	
Bromobenzene	ND	410 U	210	
n-Propylbenzene	1200	410	210	
1,1,2,2-Tetrachloroethane	ND	410 U	210	
1,2,3-Trichloropropane	ND	410	210	
2-Chlorotoluene	ND	410	210	
1,3,5-Trimethylbenzene	15000	410	210	
4-Chlorotoluene	ND	410 U	210	
t-Butylbenzene	ND	410	210	
1,2,4-Trimethylbenzene	43000	410	210	~~D10~~
sec-Butylbenzene	4300	410	210	
1,3-Dichlorobenzene	ND	410 U	210	
4-Isopropyltoluene	3100	410	210	
1,4-Dichlorobenzene	ND	410 U	210	
n-Butylbenzene	ND	410	210	
1,2-Dichlorobenzene	ND	410	210	
1,2-Dibromo-3-chloropropane	ND	410	210	
1,2,4-Trichlorobenzene	ND	410	210	
Hexachlorobutadiene	ND	410	210	
Naphthalene	29000	410	210	~~D10~~
1,2,3-Trichlorobenzene	ND	410 U	210	

MW
8-28-02

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020225
Lab ID:	91315-13
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/28/00
% Solids	81.45
Dilution Factor	25

Volatile Organics by USEPA Method 5030/8260B Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Dibromofluoromethane	100		82	113
Fluorobenzene	95.4		75	112
Toluene-D8	99.1		81	125
Ethylbenzene-d10	95.9		86	121
Bromofluorobenzene	96.4		80	113

Sample results are on a dry weight basis.

Analyte	**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Dichlorodifluoromethane	ND	470	240	
Chloromethane	ND	470	240	
Vinyl chloride	ND	470	240	
Bromomethane	ND	470	240	
Chloroethane	ND	470	240	
Trichlorofluoromethane	ND	470	240	
1,1-Dichloroethene	ND	470	240	
Methylene chloride	ND	470	240	
trans-1,2-Dichloroethene	ND	470	240	
1,1-Dichloroethane	ND	470	240	
2,2-Dichloropropane	ND	470	240	
cis-1,2-Dichloroethene	ND	470	240	
Bromochloromethane	ND	470	240	
Chloroform	ND	470	240	
1,1,1-Trichloroethane	ND	470	240	
Carbon Tetrachloride	ND	470	240	
1,1-Dichloropropene	ND	470	240	
Benzene	ND	470	240	
1,2-Dichloroethane	ND	470	240	
Trichloroethene	ND	470	240	
1,2-Dichloropropane	ND	470	240	
Dibromomethane	ND	470	240	
Bromodichloromethane	ND	470	240	
cis-1,3-Dichloropropene	ND	470	240	
Toluene	ND	470	240	
trans-1,3-Dichloropropene	ND	470	240	

MW 8-28-00

SOUND ANALYTICAL SERVICES, INC.

Volatile Organics by USEPA Method 5030/8260B Modified data for 91315-13 continued...

Analyte	Result (ug/kg)	PQL	MDL	
1,1,2-Trichloroethane	ND	470 U	240	
Tetrachloroethene	ND	470	240	
1,3-Dichloropropane	ND	470	240	
Dibromochloromethane	ND	470	240	
1,2-Dibromoethane	ND	470	240	
Chlorobenzene	ND	470	240	
Ethylbenzene	ND	470	240	
1,1,1,2-Tetrachloroethane	ND	470	240	
m,p-Xylene	ND	950	470	
o-Xylene	ND	470	240	
Styrene	ND	470	240	
Bromoform	ND	470	240	
Isopropylbenzene	ND	470	240	
Bromobenzene	ND	470	240	
n-Propylbenzene	ND	470	240	
1,1,2,2-Tetrachloroethane	ND	470	240	
1,2,3-Trichloropropane	ND	470	240	
2-Chlorotoluene	ND	470	240	
1,3,5-Trimethylbenzene	ND	470	240	
4-Chlorotoluene	ND	470	240	
t-Butylbenzene	ND	470 U	240	
1,2,4-Trimethylbenzene	350 J	470	240	JMV
sec-Butylbenzene	ND	470 U	240	
1,3-Dichlorobenzene	ND	470 U	240	
4-Isopropyltoluene	440 J	470	240	JMV
1,4-Dichlorobenzene	ND	470 U	240	
n-Butylbenzene	ND	470	240	
1,2-Dichlorobenzene	ND	470	240	
1,2-Dibromo-3-chloropropane	ND	470	240	
1,2,4-Trichlorobenzene	ND	470	240	
Hexachlorobutadiene	ND	470 U	240	
Naphthalene	26000	470	240	~~D10~~ MV
1,2,3-Trichlorobenzene	ND	470 U	240	

MV
8-28-08

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020226
Lab ID:	91315-14
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/31/00
% Solids	85.66
Dilution Factor	25

Volatile Organics by USEPA Method 5030/8260B Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Dibromofluoromethane	100		82	113
Fluorobenzene	96.7		75	112
Toluene-D8	98.7		81	125
Ethylbenzene-d10	99.2		86	121
Bromofluorobenzene	103		80	113

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorodifluoromethane	ND	450	220	
Chloromethane	ND	450	220	
Vinyl chloride	ND	450	220	
Bromomethane	ND	450	220	
Chloroethane	ND	450	220	
Trichlorofluoromethane	ND	450	220	
1,1-Dichloroethene	ND	450	220	
Methylene chloride	ND	450	220	
trans-1,2-Dichloroethene	ND	450	220	
1,1-Dichloroethane	ND	450	220	
2,2-Dichloropropane	ND	450	220	
cis-1,2-Dichloroethene	ND	450	220	
Bromochloromethane	ND	450	220	
Chloroform	ND	450	220	
1,1,1-Trichloroethane	ND	450	220	
Carbon Tetrachloride	ND	450	220	
1,1-Dichloropropene	ND	450	220	
Benzene	ND	450	220	
1,2-Dichloroethane	ND	450	220	
Trichloroethene	ND	450	220	
1,2-Dichloropropane	ND	450	220	
Dibromomethane	ND	450	220	
Bromodichloromethane	ND	450	220	
cis-1,3-Dichloropropene	ND	450	220	
Toluene	ND	450	220	
trans-1,3-Dichloropropene	ND	450	220	

MW 8260

SOUND ANALYTICAL SERVICES, INC.

Volatile Organics by USEPA Method 5030/8260B Modified data for 91315-14 continued...

Analyte	Result (ug/kg)	PQL	MDL
1,1,2-Trichloroethane	ND	450 U	220
Tetrachloroethene	ND	450	220
1,3-Dichloropropane	ND	450	220
Dibromochloromethane	ND	450	220
1,2-Dibromoethane	ND	450	220
Chlorobenzene	ND	450	220
Ethylbenzene	ND	450	220
1,1,1,2-Tetrachloroethane	ND	450	220
m,p-Xylene	ND	890	450
o-Xylene	ND	450	220
Styrene	ND	450	220
Bromoform	ND	450	220
Isopropylbenzene	ND	450	220
Bromobenzene	ND	450	220
n-Propylbenzene	ND	450	220
1,1,2,2-Tetrachloroethane	ND	450	220
1,2,3-Trichloropropane	ND	450	220
2-Chlorotoluene	ND	450	220
1,3,5-Trimethylbenzene	460	450	220
4-Chlorotoluene	ND	450 U	220
t-Butylbenzene	ND	450 U	220
1,2,4-Trimethylbenzene	1200	450	220
sec-Butylbenzene	ND	450 U	220
1,3-Dichlorobenzene	ND	450	220
4-Isopropyltoluene	ND	450	220
1,4-Dichlorobenzene	240 J	450	220
n-Butylbenzene	ND	450 U	220
1,2-Dichlorobenzene	390 J	450	220
1,2-Dibromo-3-chloropropane	ND	450 U	220
1,2,4-Trichlorobenzene	ND	450 U	220
Hexachlorobutadiene	750	450	220
Naphthalene	ND	450 U	220
1,2,3-Trichlorobenzene	ND	450 U	220

JMW
9/28/00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020227
Lab ID:	91315-15
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/29/00
% Solids	63.01
Dilution Factor	25

Volatile Organics by USEPA Method 5030/8260B Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Dibromofluoromethane	100		82	113
Fluorobenzene	95.9		75	112
Toluene-D8	104		81	125
Ethylbenzene-d10	96.9		86	121
Bromofluorobenzene	107		80	113

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorodifluoromethane	ND	600	300	
Chloromethane	ND	600	300	
Vinyl chloride	ND	600	300	
Bromomethane	ND	600	300	
Chloroethane	ND	600	300	
Trichlorofluoromethane	ND	600	300	
1,1-Dichloroethene	ND	600	300	
Methylene chloride	ND	600	300	
trans-1,2-Dichloroethene	320 J	600	300	
1,1-Dichloroethane	ND	600	300	
2,2-Dichloropropane	ND	600	300	
cis-1,2-Dichloroethene	15000	600	300	
Bromochloromethane	ND	600	300	
Chloroform	ND	600	300	
1,1,1-Trichloroethane	ND	600	300	
Carbon Tetrachloride	ND	600	300	
1,1-Dichloropropene	ND	600	300	
Benzene	ND	600	300	
1,2-Dichloroethane	ND	600	300	
Trichloroethene	370000	600	300	D20
1,2-Dichloropropane	ND	600	300	
Dibromomethane	ND	600	300	
Bromodichloromethane	ND	600	300	
cis-1,3-Dichloropropene	ND	600	300	
Toluene	5900	600	300	
trans-1,3-Dichloropropene	ND	600	300	

MW 8-28-00

SOUND ANALYTICAL SERVICES, INC.

Volatile Organics by USEPA Method 5030/8260B Modified data for 91315-15 continued...

Analyte	Result (ug/kg)	PQL	MDL	
1,1,2-Trichloroethane	ND	600 U	300	
Tetrachloroethene	4900000	600	300	~~D200~~
1,3-Dichloropropane	ND	600 U	300	
Dibromochloromethane	ND	600	300	
1,2-Dibromoethane	ND	600	300	
Chlorobenzene	ND	600	300	
Ethylbenzene	500 J	600	300	
1,1,1,2-Tetrachloroethane	ND	600 U	300	
m,p-Xylene	2100	1200	600	
o-Xylene	930	600	300	
Styrene	ND	600 U	300	
Bromoform	ND	600	300	
Isopropylbenzene	ND	600	300	
Bromobenzene	ND	600	300	
n-Propylbenzene	300 J	600	300	
1,1,2,2-Tetrachloroethane	ND	600 U	300	
1,2,3-Trichloropropane	ND	600	300	
2-Chlorotoluene	ND	600	300	
1,3,5-Trimethylbenzene	900	600	300	
4-Chlorotoluene	ND	600 U	300	
t-Butylbenzene	ND	600 U	300	
1,2,4-Trimethylbenzene	3000	600	300	
sec-Butylbenzene	ND	600 U	300	
1,3-Dichlorobenzene	ND	600	300	
4-Isopropyltoluene	ND	600	300	
1,4-Dichlorobenzene	ND	600	300	
n-Butylbenzene	ND	600	300	
1,2-Dichlorobenzene	ND	600	300	
1,2-Dibromo-3-chloropropane	ND	600	300	
1,2,4-Trichlorobenzene	12000	600	300	~~D20~~
Hexachlorobutadiene	580000	600	300	~~D200~~
Naphthalene	15000	600	300	~~D20~~
1,2,3-Trichlorobenzene	ND	600 U	300	

MN
8-28-00

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MEMORANDUM

DATE: August 28, 2000

TO: Charlie Gregory, Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-Chemist, E & E, Seattle, WA MW

THRU: Leatta Dahlhoff, START-Chemist, E & E, Seattle, WA LD

SUBJ: **Organic Data Quality Assurance Review, Cleancare Corporation Site, Tacoma, Washington**

REF: TDD: 00-01-0008 PAN: EA-08-01-RA-DM

The data quality assurance review of five solid samples collected from the Cleancare Corporation site located in Tacoma, Washington, has been completed. Analysis for Semivolatile Organic Compounds (EPA Method 8270) was performed by Sound Analytical Services, Inc., Tacoma, Washington.

The samples were numbered: 00020223 00020224 00020225 00020226 00020227

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The samples were maintained at 4°C (± 2°C). The samples were collected on July 25, 2000, were extracted on July 26, 2000, and were analyzed on July 27, 2000, therefore meeting QC criteria of less than 14 days between collection and sample extraction and less than 40 days between extraction and semivolatile analysis.

2. **GC/MS Tuning Criteria: Acceptable.**

Decafluorotriphenylphosphine (DFTPP) tuning of the mass spectrometer was conducted at the beginning of every 12-hour analytical sequence. All calculations were verified as correct, all results were normalized to m/z 198 and were within the required criteria.

3. **Initial Calibration: Satisfactory.**

Calculations were verified as correct for at least one analyte per internal standard. All individual relative response factors (RRFs) and average RRFs were greater than the 0.050 control limit. All percent relative standard deviations (%RSDs) were ≤ the control limit of 30.0 % except 3,3'-dichlorobenzidine; no action was taken as this analyte was not detected in any sample.

4. **Continuing Calibration: Satisfactory.**

Calculations were verified as correct for at least one analyte per internal standard. All applicable individual RRFs were greater than the 0.050 control limit. All applicable percent differences (% Ds) were ≤ the control limit of 25.0 % except benzoic acid (increasing response factor - no action was taken as it was not detected in any sample) and phenanthrene (increasing response factor - positive results were qualified as estimated quantities [J]).

5. **Internal Standards: Satisfactory.**

Areas of the internal standards were within the control limits of 50% to 200% and the retention times were within 30 seconds of the associated 12-hour calibration standard except the following results which were greater than the QC limits: perylene in samples 00020223, 00020225, 00020226 (undiluted and 10* dilution), and 00020227 (undiluted and 10* dilution), chrysene in samples 00020226 (undiluted and 10* dilution) and 00020227, and phenanthrene in sample 00020227. Associated positive results were qualified as estimated quantities (J).

6. **Error Determination: Not Performed.**

Samples necessary for bias and precision determination were not provided to the laboratory. All samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although the flags are not found on the Form I's.

7. **Blanks: Satisfactory.**

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and concentration or every 20 samples (whichever is greater). No analytes were detected in any blank except bis(2-ethylhexyl)phthalate (28 ug/kg); sample results less than 10 times the blank result were qualified as not detected (U).

8. **System Monitoring Compounds (SMC): Satisfactory.**

All results were greater than 10% and were within QC limits except nitrobenzene (0%) and phenol (34%) in sample 00020223, nitrobenzene (0%), 2-fluorobiphenyl (0%), phenol (10%), and 2,4,-tribromophenol (0%) in sample 00020224, and phenol (42%), 2-fluorophenol (11%), and 2,4,6-tribromophenol (13%) in sample 00020227. Results associated with surrogate fractions (base/neutral or acid) that had less than 10% recovery were rejected (R) for quantitation limits or estimated (J) for positive results. For the other outliers, positive results and sample quantitation limits were qualified as estimated quantities (J or UJ) for fractions with two or more outliers.

9. **Performance Evaluation Samples: Not Provided.**

Performance evaluation samples were not provided to the laboratory.

10. **Matrix and Blank Spikes: Satisfactory.**

All matrix and blank spike results were within laboratory QC limits except n-nitroso-di-n-propylamine (201% and 207% recoveries), 1,2,4-trichlorobenzene (104% and 121% recoveries), and pyrene (212% and 162%). No action was taken based on spike outliers alone.

11. **Duplicates: Satisfactory.**

The Relative Percent Differences (RPDs) of all spiked analytes were acceptable except 1,4-dichlorobenzene (41% RPD). No action was taken based on the duplicate outlier alone.

12. Target Compound Identification: Acceptable.

All target compounds reported by the laboratory met identification criteria of relative retention times (RRT) within 0.06 RRT units of the 12 hour standard. All ions present in the standard mass spectrum were present in the sample mass spectrum and the abundance of these ions agreed within ± 20 % between the standard and sample spectrum. All ions present at greater than 10 % in the sample mass spectrum but not in the standard mass spectrum were accounted for.

13. Tentatively Identified Compounds (TICs): Not Requested.

TICs were not requested.

14. Target Compound Quantitation and Quantitation Limits: Acceptable.

Concentrations of all reported analytes and quantitation limits were correctly calculated.

15. Laboratory Contact: Not Required.

No laboratory contact was required.

16. Overall Assessment

The overall usefulness of the data is based on the criteria outlined in the OSWER Directive "Quality Assurance/Quality Control Guidance for Removal Activities, Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (EPA 540/R-94/012). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The material was analyzed for but was not detected. The associated numerical value is the estimated sample quantitation limit.

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because Quality Control criteria were not met.

R - The sample results are rejected (analyte may or may not be present) due to gross deficiencies in quality control criteria. Any reported value is unusable. Resampling and/or reanalysis is necessary for verification.

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020223
Lab ID:	91315-11
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/27/00
% Solids	84.54
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Nitrobenzene - d5	-	X9	49	151
2 - Fluorobiphenyl	99.4		54	131
p - Terphenyl - d14	92.2		45	134
Phenol - d5	33.8	X9	53	131
2 - Fluorophenol	101		54	139
2,4,6 - Tribromophenol	56.4		52	137

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Phenol	ND	96 U	35	
bis(2-Chloroethyl)ether	~~ND~~	~~96~~	~~20~~	R
2-Chlorophenol	ND	96 U	22	
1,3-Dichlorobenzene	~~ND~~	~~96~~	~~27~~	R
1,4-Dichlorobenzene	~~ND~~	~~96~~	~~23~~	R
Benzyl Alcohol	ND	96 U	29	
1,2-Dichlorobenzene	~~ND~~	~~96~~	~~19~~	R
2-Methylphenol	ND	96 U	14	
bis(2-Chloroisopropyl)ether	~~ND~~	~~96~~	~~27~~	R
3- & 4-Methylphenol	ND	96 U	25	
N-nitroso-di-n-propylamine	~~ND~~	~~96~~	~~23~~	R
Hexachloroethane	~~ND~~	~~96~~	~~29~~	R
Nitrobenzene	~~ND~~	~~96~~	~~16~~	R
Isophorone	~~ND~~	~~96~~	~~26~~	R
2-Nitrophenol	ND	96 U	17	
2,4-Dimethylphenol	1000	96	25	
Benzoic Acid	ND	96 U	11	
bis(2-Chloroethoxy)methane	~~ND~~	~~96~~	~~18~~	R
2,4-Dichlorophenol	ND	96 U	7	
1,2,4-Trichlorobenzene	~~ND~~	~~96~~	~~13~~	R
Naphthalene	15000 D	19	19	D10
4-Chloroaniline	~~ND~~	~~96~~	~~15~~	R
Hexachlorobutadiene	~~ND~~	~~96~~	~~21~~	R
4-Chloro-3-methylphenol	ND	96 U	29	
2-Methylnaphthalene	29000 D	19	14	D10
Hexachlorocyclopentadiene	~~ND~~	~~96~~	~~15~~	R

MW 8-28-00

SOUND ANALYTICAL SERVICES, INC.

Semivolatile Organics by USEPA Method 8270 data for 91315-11 continued...

Analyte	Result (ug/kg)	PQL	MDL
2,4,6-Trichlorophenol	ND	96 U	13
2,4,5-Trichlorophenol	ND	96	13
2-Chloronaphthalene	ND	19	8
2-Nitroaniline	ND	96	31
Dimethylphthalate	ND	96	30
Acenaphthylene	ND	19	7.8
2,6-Dinitrotoluene	ND	96	12
3-Nitroaniline	ND	96	11
Acenaphthene	1500 J	19	6.8
2,4-Dinitrophenol	ND	96 U	23
4-Nitrophenol	ND	96 U	24
Dibenzofuran	680 J	96	19
2,4-Dinitrotoluene	ND	96 U	17
Diethylphthalate	ND	96	20
4-Chlorophenylphenylether	ND	96	16
Fluorene	1700 J	19	7.8
4-Nitroaniline	ND	96 U	9
4,6-Dinitro-2-methylphenol	ND	96	13
N-Nitrosodiphenylamine	ND	96	7.1
4-Bromophenylphenylether	ND	96	14
Hexachlorobenzene	ND	96	24
Pentachlorophenol	ND	96 U	13
Phenanthrene	4700 J	19	6.3
Anthracene	830 J	19	9.3
Di-n-butylphthalate	ND	190 U	120
Fluoranthene	3600 J	19	6.1
Pyrene	2600 J	19	5.5
Butylbenzylphthalate	ND	96 U	14
3,3'-Dichlorobenzidine	ND	96 U	10
Benzo(a)anthracene	700 J	19	6.1
Chrysene	860 J	19	8
bis(2-Ethylhexyl)phthalate	3200 J	96	29
Di-n-octylphthalate	ND	96 U	23
Benzo(b)fluoranthene	380 J	19	5.5
Benzo(k)fluoranthene	ND	19 U	6.4
Benzo(a)pyrene	430 J	19	8
Indeno(1,2,3-cd)pyrene	180 J	19	7.2
Dibenz(a,h)anthracene	ND	19 U	4.5
Benzo(g,h,i)perylene	240 J	19	2.9

B2

MW
8-26-00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020224
Lab ID:	91315-12
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/27/00
% Solids	85.93
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Nitrobenzene - d5	-	X9	49	151
2 - Fluorobiphenyl	-	X9	54	131
p - Terphenyl - d14	95.6		45	134
Phenol - d5	10.4	X9	53	131
2 - Fluorophenol	102		54	139
2,4,6 - Tribromophenol	-	X9	52	137

Sample results are on a dry weight basis.

Analyte	**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Phenol	ND	95	35	
bis(2-Chloroethyl)ether	ND	95	20	
2-Chlorophenol	ND	95	22	
1,3-Dichlorobenzene	ND	95	27	
1,4-Dichlorobenzene	ND	95	22	
Benzyl Alcohol	ND	95	29	
1,2-Dichlorobenzene	ND	95	19	
2-Methylphenol	ND	95	14	
bis(2-Chloroisopropyl)ether	ND	95	26	
3- & 4-Methylphenol	ND	95	25	
N-nitroso-di-n-propylamine	ND	95	23	
Hexachloroethane	ND	95	29	
Nitrobenzene	ND	95	16	
Isophorone	ND	95	25	
2-Nitrophenol	ND	95	17	
2,4-Dimethylphenol	ND	95	25	
Benzoic Acid	ND	95	11	
bis(2-Chloroethoxy)methane	ND	95	17	
2,4-Dichlorophenol	ND	95	7	
1,2,4-Trichlorobenzene	ND	95	13	
Naphthalene	33000	19	19	
4-Chloroaniline	ND	95	15	
Hexachlorobutadiene	ND	95	21	
4-Chloro-3-methylphenol	ND	95	29	
2-Methylnaphthalene	58000	19	14	
Hexachlorocyclopentadiene	ND	95	15	

MW 8-28-00

SOUND ANALYTICAL SERVICES, INC.

Semivolatile Organics by USEPA Method 8270 data for 91315-12 continued...

Analyte	Result (ug/kg)	PQL	MDL	
2,4,6-Trichlorophenol	ND	95 U	13	R
2,4,5-Trichlorophenol	ND	95	13	
2-Chloronaphthalene	ND	19	8	
2-Nitroaniline	ND	95	31	
Dimethylphthalate	ND	95	30	
Acenaphthylene	ND	19	7.8	
2,6-Dinitrotoluene	ND	95	12	
3-Nitroaniline	ND	95	11	
Acenaphthene	1700	19	6.7	
2,4-Dinitrophenol	ND	95 U	23	R
4-Nitrophenol	ND	95 U	24	R
Dibenzofuran	630	95	19	
2,4-Dinitrotoluene	ND	95 U	17	R
Diethylphthalate	ND	95	20	
4-Chlorophenylphenylether	ND	95	16	
Fluorene	1600	19	7.8	
4-Nitroaniline	ND	95 U	8.9	R
4,6-Dinitro-2-methylphenol	ND	95	13	
N-Nitrosodiphenylamine	ND	95	7.1	
4-Bromophenylphenylether	ND	95	13	
Hexachlorobenzene	ND	95	24	
Pentachlorophenol	ND	95 U	13	
Phenanthrene	2600 J	19	6.3	
Anthracene	720 J	19	9.3	
Di-n-butylphthalate	ND	190 U	120	R
Fluoranthene	3100 J	19	6.1	
Pyrene	2000 J	19	5.4	
Butylbenzylphthalate	ND	95 U	14	R
3,3'-Dichlorobenzidine	ND	95 U	10	R
Benzo(a)anthracene	750 J	19	6.1	
Chrysene	1100	19	8	
bis(2-Ethylhexyl)phthalate	970	95	29	B2
Di-n-octylphthalate	ND	95 U	23	R
Benzo(b)fluoranthene	630 J	19	5.4	
Benzo(k)fluoranthene	190	19	6.4	
Benzo(a)pyrene	580	19	7.9	
Indeno(1,2,3-cd)pyrene	270	19	7.2	
Dibenz(a,h)anthracene	ND	19 U	4.4	R
Benzo(g,h,i)perylene	270 J	19	2.9	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020225
Lab ID:	91315-13
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/27/00
% Solids	81.45
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Nitrobenzene - d5	87.6		49	151
2 - Fluorobiphenyl	96.4		54	131
p - Terphenyl - d14	90.4		45	134
Phenol - d5	94		53	131
2 - Fluorophenol	106		54	139
2,4,6 - Tribromophenol	77.4		52	137

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Phenol	ND	98 U	36	
bis(2-Chloroethyl)ether	ND	98	21	
2-Chlorophenol	ND	98	22	
1,3-Dichlorobenzene	ND	98	28	
1,4-Dichlorobenzene	ND	98	23	
Benzyl Alcohol	ND	98	29	
1,2-Dichlorobenzene	ND	98	20	
2-Methylphenol	60 J	98	15	
bis(2-Chloroisopropyl)ether	ND	98 U	27	
3- & 4-Methylphenol	110	98	26	
N-nitroso-di-n-propylamine	ND	98 U	24	
Hexachloroethane	ND	98	29	
Nitrobenzene	ND	98	16	
Isophorone	ND	98	26	
2-Nitrophenol	ND	98	17	
2,4-Dimethylphenol	ND	98	25	
Benzoic Acid	ND	98	11	
bis(2-Chloroethoxy)methane	ND	98	18	
2,4-Dichlorophenol	ND	98	7.1	
1,2,4-Trichlorobenzene	ND	98	13	
Naphthalene	11000	20	19	D10
4-Chloroaniline	ND	98 U	15	
Hexachlorobutadiene	ND	98	21	
4-Chloro-3-methylphenol	ND	98	29	
2-Methylnaphthalene	4200	20	14	
Hexachlorocyclopentadiene	ND	98 U	15	

7/27/00 ... 20

SOUND ANALYTICAL SERVICES, INC.

Semivolatile Organics by USEPA Method 8270 data for 91315-13 continued...

Analyte	Result (ug/kg)	PQL	MDL	
2,4,6-Trichlorophenol	ND	98 U	13	
2,4,5-Trichlorophenol	ND	98	13	
2-Chloronaphthalene	ND	20	8.2	
2-Nitroaniline	ND	98	32	
Dimethylphthalate	ND	98	31	
Acenaphthylene	280	20	7.9	
2,6-Dinitrotoluene	ND	98 U	12	
3-Nitroaniline	ND	98	11	
Acenaphthene	4900	20	6.9	
2,4-Dinitrophenol	ND	98 U	23	
4-Nitrophenol	ND	98 U	24	
Dibenzofuran	3700	98	20	
2,4-Dinitrotoluene	ND	98 U	17	
Diethylphthalate	ND	98	21	
4-Chlorophenylphenylether	ND	98	16	
Fluorene	4800	20	7.9	
4-Nitroaniline	ND	98 U	9.1	
4,6-Dinitro-2-methylphenol	ND	98	14	
N-Nitrosodiphenylamine	ND	98	7.3	
4-Bromophenylphenylether	ND	98	14	
Hexachlorobenzene	ND	98	25	
Pentachlorophenol	ND	98	13	
Phenanthrene	17000 J	20	6.4	~~D10~~ MW
Anthracene	4500	20	9.5	
Di-n-butylphthalate	ND	200 U	120	
Fluoranthene	13000	20	6.2	~~D10~~ MW
Pyrene	8800	20	5.5	~~D10~~ MW
Butylbenzylphthalate	ND	98 U	14	
3,3'-Dichlorobenzidine	ND	98 U	11	
Benzo(a)anthracene	3500	20	6.2	
Chrysene	3000	20	8.2	
bis(2-Ethylhexyl)phthalate	280 U	98	30	B1 MW
Di-n-octylphthalate	ND	98 U	23	
Benzo(b)fluoranthene	1200 J	20	5.6	
Benzo(k)fluoranthene	780	20	6.5	
Benzo(a)pyrene	1800	20	8.1	
Indeno(1,2,3-cd)pyrene	710	20	7.3	
Dibenz(a,h)anthracene	ND	20 U	4.5	
Benzo(g,h,i)perylene	940 J	20	2.9	

MW
9/28/00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020226
Lab ID:	91315-14
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/27/00
% Solids	85.66
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Nitrobenzene - d5	98.8		49	151
2 - Fluorobiphenyl	95.2		54	131
p - Terphenyl - d14	79.2		45	134
Phenol - d5	95.4		53	131
2 - Fluorophenol	93		54	139
2,4,6 - Tribromophenol	90.8		52	137

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)		PQL		MDL	Flags
Phenol	ND		94	U	34	
bis(2-Chloroethyl)ether	ND		94		20	
2-Chlorophenol	ND		94		21	
1,3-Dichlorobenzene	ND		94		27	
1,4-Dichlorobenzene		120	94		22	
Benzyl Alcohol	ND		94	U	28	
1,2-Dichlorobenzene		150	94		19	
2-Methylphenol	ND		94	U	14	
bis(2-Chloroisopropyl)ether	ND		94		26	
3- & 4-Methylphenol	ND		94		25	
N-nitroso-di-n-propylamine	ND		94		23	
Hexachloroethane	ND		94		28	
Nitrobenzene	ND		94		15	
Isophorone	ND		94		25	
2-Nitrophenol	ND		94		17	
2,4-Dimethylphenol	ND		94		24	
Benzoic Acid	ND		94		10	
bis(2-Chloroethoxy)methane	ND		94		17	
2,4-Dichlorophenol	ND		94		6.9	
1,2,4-Trichlorobenzene		47 J	94		12	
Naphthalene		90	19		19	
4-Chloroaniline	ND		94	U	15	
Hexachlorobutadiene		130	94		20	
4-Chloro-3-methylphenol	ND		94	U	28	
2-Methylnaphthalene		290	19		13	
Hexachlorocyclopentadiene	ND		94	U	15	

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SOUND ANALYTICAL SERVICES, INC.

Semivolatile Organics by USEPA Method 8270 data for 91315-14 continued...

Analyte	Result (ug/kg)	PQL	MDL	
2,4,6-Trichlorophenol	ND	94 U	12	
2,4,5-Trichlorophenol	ND	94	13	
2-Chloronaphthalene	ND	19	7.8	
2-Nitroaniline	ND	94	31	
Dimethylphthalate	ND	94	30	
Acenaphthylene	ND	19	7.6	
2,6-Dinitrotoluene	ND	94	12	
3-Nitroaniline	ND	94	11	
Acenaphthene	51	19	6.6	
2,4-Dinitrophenol	ND	94 U	22	
4-Nitrophenol	ND	94	23	
Dibenzofuran	ND	94	19	
2,4-Dinitrotoluene	ND	94	17	
Diethylphthalate	ND	94	20	
4-Chlorophenylphenylether	ND	94	15	
Fluorene	71	19	7.6	
4-Nitroaniline	ND	94 U	8.8	
4,6-Dinitro-2-methylphenol	ND	94	13	
N-Nitrosodiphenylamine	ND	94	7	
4-Bromophenylphenylether	ND	94	13	
Hexachlorobenzene	ND	94	24	
Pentachlorophenol	ND	94	13	
Phenanthrene	280 J	19	6.2	
Anthracene	66	19	9.1	
Di-n-butylphthalate	580	190	120	
Fluoranthene	200	19	6	
Pyrene	510	19	5.3	
Butylbenzylphthalate	8300 J	94	14	D10 MW
3,3'-Dichlorobenzidine	ND	94 U	10	
Benzo(a)anthracene	110 J	19	6	
Chrysene	210 J	19	7.8	
bis(2-Ethylhexyl)phthalate	7500 J	94	28	~~B2~~ MW
Di-n-octylphthalate	1100 J	94	22	
Benzo(b)fluoranthene	ND	19 U	5.4	
Benzo(k)fluoranthene	ND	19 U	6.3	
Benzo(a)pyrene	210 J	19	7.8	
Indeno(1,2,3-cd)pyrene	ND	19 U	7	
Dibenz(a,h)anthracene	ND	19	4.4	
Benzo(g,h,i)perylene	ND	19	2.8	

MW 9-28-06

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020227
Lab ID:	91315-15
Date Received:	7/25/00
Date Prepared:	7/26/00
Date Analyzed:	7/27/00
% Solids	63.01
Dilution Factor	20

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Nitrobenzene - d5	87.2		49	151
2 - Fluorobiphenyl	92.6		54	131
p - Terphenyl - d14	94		45	134
Phenol - d5	41.6	X9	53	131
2 - Fluorophenol	10.6	X9	54	139
2,4,6 - Tribromophenol	13	X9	52	137

Sample results are on a dry weight basis.

Analyte		Result (ug/kg)	PQL	MDL	Flags
Phenol	ND		130 UJ	47	
bis(2-Chloroethyl)ether	ND		130	27	
2-Chlorophenol	ND		130 J	29	
1,3-Dichlorobenzene	ND		130	36	
1,4-Dichlorobenzene	ND		130	30	
Benzyl Alcohol	ND		130 J	39	
1,2-Dichlorobenzene	ND		130	26	
2-Methylphenol	ND		130 J	19	
bis(2-Chloroisopropyl)ether	ND		130	36	
3- & 4-Methylphenol		48000	130	34	~~D10~~
N-nitroso-di-n-propylamine	ND		130 U	31	
Hexachloroethane		450000	130	39	~~D100~~
Nitrobenzene	ND		130 U	21	
Isophorone	ND		130 U	34	
2-Nitrophenol		1000 J	130	23	
2,4-Dimethylphenol	ND		130 UJ	34	
Benzoic Acid	ND		130 J	14	
bis(2-Chloroethoxy)methane	ND		130	24	
2,4-Dichlorophenol	ND		130 J	9.4	
1,2,4-Trichlorobenzene		500	130	17	
Naphthalene		470	26	25	
4-Chloroaniline	ND		130 U	20	
Hexachlorobutadiene		250000	130	28	~~D100~~
4-Chloro-3-methylphenol	ND		130 UJ	39	
2-Methylnaphthalene		610	26	18	
Hexachlorocyclopentadiene	ND		130 U	20	

MW 8/2/00

SOUND ANALYTICAL SERVICES, INC.

Semivolatile Organics by USEPA Method 8270 data for 91315-15 continued...

Analyte		Result (ug/kg)	PQL	MDL
2,4,6-Trichlorophenol	ND		130 U J	17
2,4,5-Trichlorophenol	ND		130 J	17
2-Chloronaphthalene	ND		26	11
2-Nitroaniline	ND		130	42
Dimethylphthalate	ND		130	41
Acenaphthylene		69	26	10
2,6-Dinitrotoluene	ND		130 U	16
3-Nitroaniline	ND		130 U	14
Acenaphthene		410	26	9.1
2,4-Dinitrophenol	ND		130 U J	31
4-Nitrophenol	ND		130 J	32
Dibenzofuran		230	130	26
2,4-Dinitrotoluene	ND		130 U	23
Diethylphthalate	ND		130	27
4-Chlorophenylphenylether	ND		130	21
Fluorene		510	26	10
4-Nitroaniline	ND		130 U	12
4,6-Dinitro-2-methylphenol	ND		130 J	18
N-Nitrosodiphenylamine	ND		130	9.6
4-Bromophenylphenylether	ND		130	18
Hexachlorobenzene		1100 J	130	33
Pentachlorophenol	ND		130 U J	17
Phenanthrene		2300 J	26	8.5
Anthracene		560 J	26	13
Di-n-butylphthalate	ND		260 U	160
Fluoranthene		1600 J	26	8.2
Pyrene		1300 J	26	7.3
Butylbenzylphthalate	ND		130 U	19
3,3'-Dichlorobenzidine	ND		130 U	14
Benzo(a)anthracene		380 J	26	8.2
Chrysene		360 J	26	11
bis(2-Ethylhexyl)phthalate		150 U	130	39
Di-n-octylphthalate	ND		130 U	31
Benzo(b)fluoranthene		210 J	26	7.3
Benzo(k)fluoranthene		69	26	8.6
Benzo(a)pyrene		260	26	11
Indeno(1,2,3-cd)pyrene	ND		26 U	9.7
Dibenz(a,h)anthracene	ND		26	6
Benzo(g,h,i)perylene	ND		26	3.9

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9-28-00

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MEMORANDUM

DATE: August 28, 2000

TO: Charlie Gregory, Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-Chemist, E & E, Seattle, WA

THRU: Leatta Dahlhoff, START-Chemist, E & E, Seattle, WA

SUBJ: **Organic Data Quality Assurance Review, Cleancare Corporation Site, Tacoma, Washington**

REF: TDD: 00-01-0008 PAN: EA-08-01-RA-DM

The data quality assurance review of five solid samples collected from the Cleancare Corporation site located in Tacoma, Washington, has been completed. Analyses for Chlorinated Pesticides (EPA Method 8081) and/or Polychlorinated Biphenyls (EPA Method 8082) were performed by Sound Analytical Services, Inc., Tacoma, Washington.

The samples were numbered: 00020223 00020224 00020225 00020226 00020227

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The samples were maintained at 4°C (± 2°C). The samples were collected on July 25, 2000, were extracted on July 27, 2000, and were analyzed on August 2, 2000, therefore meeting QC criteria of less than 14 days between collection and extraction and less than 40 days between extraction and analysis.

2. **Instrument Performance: Acceptable.**

The surrogate retention time percent difference between the initial calibration standards and the remaining standards and samples was ≤ 0.3 % for capillary column analyses.

3. **Initial and Continuing Calibration: Acceptable.**

All Relative Standard Deviations were less than 15% for the chlorinated pesticide initial calibration. All continuing calibration % differences (% D) were ≤ 15% on the quantitation column and ≤ 20% on the confirmation column.

4. **Error Determination: Not Provided.**

Samples necessary for bias and precision determination were not provided to the laboratory. All samples were flagged RND (Recovery Not Determined) and PND (Precision Not Determined), although the flags are not found on the Form I's.

5. Blanks: Acceptable.

A method blank was prepared at the required frequency of every time samples were extracted for each matrix and for each concentration level, or every 20 samples, whichever is greater, and for each analytical system. No target analytes were detected in any blanks.

6. Performance Evaluation Samples: Not Provided.

Performance evaluation samples were not provided to the laboratory.

7. System Monitoring Compounds (SMCs): Satisfactory.

All recoveries of the SMCs were within the control limits except in samples 00020225 (one high surrogate) and 00020227 (two high surrogates); associated positive results were qualified as estimated quantities (J).

8. Matrix and Blank Spikes: Acceptable.

Recoveries of all spiked analytes were within the appropriate control limits.

9. Duplicates: Satisfactory.

Relative Percent Differences (RPDs) of all blank spiked analytes were within the required control limits. All matrix spike duplicate results exceeded QC limits; no action was taken based on duplicate outliers alone.

10. Compound Identification: Acceptable.

All results were dual-column confirmed; positive results with differences between the columns greater than 25% were qualified as estimated quantities (J).

11. Target Compound Quantitation and Quantitation Limits: Acceptable.

Sample results and quantitation limits were correctly calculated. Sample 00020227 had elevated quantitation limits due to significant interfering peaks that could not be removed by sample clean-up techniques.

12. Laboratory Contact

No laboratory contact was required.

13. Overall Assessment

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical methods, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (EPA 540/R-94/012). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020223
Lab ID:	91315-11
Date Received:	7/25/00
Date Prepared:	7/27/00
Date Analyzed:	8/2/00
% Solids	84.54
Dilution Factor	1

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Tetrachloro-m-xylene	100		28	158
Decachlorobiphenyl	73.9		25	173

Sample results are on a dry weight basis.

Analyte		Result (ug/kg)	PQL	MDL	Flags
Aroclor 1016	ND		12 U	7.9	
Aroclor 1221	ND		23	12	
Aroclor 1232	ND		12	7.7	
Aroclor 1242	ND		12	3.6	
Aroclor 1248	ND		12	2.8	
Aroclor 1254		430	12	3.8	CTMH
Aroclor 1260		190	12	3.9	CMW
Aldrin	ND		1.2 U	0.12	
alpha-BHC	ND		1.2	0.16	
beta-BHC	ND		1.2	0.26	
delta-BHC	ND		1.2	0.15	
gamma-BHC (Lindane)	ND		1.2	0.22	
Chlordane (technical)	ND		12	8.1	
4,4'-DDD		110	2.3	0.14	CTMH
4,4'-DDE	ND		2.3 U	0.16	
4,4'-DDT		32 J	2.3	0.2	CZMH
Dieldrin	ND		2.3 U	0.28	
Endosulfan I	ND		1.2	0.17	
Endosulfan II	ND		2.3	0.34	
Endosulfan sulfate	ND		2.3	0.34	
Endrin	ND		2.3	0.36	
Endrin aldehyde	ND		2.3	0.43	
Heptachlor	ND		1.2	0.13	
Heptachlor epoxide	ND		1.2	0.21	
Methoxychlor	ND		12	0.97	
Endrin ketone	ND		2.3	0.37	

MW 8-28-00

SOUND ANALYTICAL SERVICES, INC.

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082 data for 91315-11 continued...

Analyte	Result (ug/kg)	PQL	MDL	Flags
Toxaphene	ND	120 U	14	

MW
8/28/00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020224
Lab ID:	91315-12
Date Received:	7/25/00
Date Prepared:	7/27/00
Date Analyzed:	8/2/00
% Solids	85.93
Dilution Factor	1

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Tetrachloro-m-xylene	114		28	158
Decachlorobiphenyl	67.5		25	173

Sample results are on a dry weight basis.

Analyte		**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Aroclor 1016	ND		11	7.7	
Aroclor 1221	ND		23	11	
Aroclor 1232	ND		11	7.5	
Aroclor 1242	ND		11	3.5	
Aroclor 1248	ND		11	2.8	
Aroclor 1254		300	11	3.7	~~C1~~
Aroclor 1260		140	11	3.8	~~C1~~
Aldrin	ND		1.1	0.11	
alpha-BHC	ND		1.1	0.16	
beta-BHC	ND		1.1	0.26	
delta-BHC	ND		1.1	0.15	
gamma-BHC (Lindane)	ND		1.1	0.21	
Chlordane (technical)	ND		11	7.9	
4,4'-DDD		93	2.3	0.13	~~C1~~
4,4'-DDE		42	2.3	0.16	~~C1~~
4,4'-DDT		31	2.3	0.2	~~C1~~
Dieldrin	ND		2.3	0.28	
Endosulfan I	ND		1.1	0.17	
Endosulfan II	ND		2.3	0.34	
Endosulfan sulfate	ND		2.3	0.34	
Endrin	ND		2.3	0.35	
Endrin aldehyde	ND		2.3	0.42	
Heptachlor	ND		1.1	0.13	
Heptachlor epoxide	ND		1.1	0.2	
Methoxychlor	ND		11	0.95	
Endrin ketone	ND		2.3	0.37	

MW 8-28-00

SOUND ANALYTICAL SERVICES, INC.

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082 data for 91315-12 continued...

Analyte	Result (ug/kg)	PQL	MDL	Flags
Toxaphene	ND	110	14	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020225
Lab ID:	91315-13
Date Received:	7/25/00
Date Prepared:	7/27/00
Date Analyzed:	8/2/00
% Solids	81.45
Dilution Factor	1

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Tetrachloro-m-xylene	175	X9	28	158
Decachlorobiphenyl	69.8		25	173

Sample results are on a dry weight basis.

Analyte	**Result (ug/kg)**		**PQL**	**MDL**	**Flags**
Aroclor 1016	ND		12 U	7.9	
Aroclor 1221	ND		23	12	
Aroclor 1232	ND		12	7.7	
Aroclor 1242	ND		12	3.6	
Aroclor 1248	ND		12	2.9	
Aroclor 1254		420 J	12	3.8	~~CTAW~~
Aroclor 1260		210 J	12	3.9	~~CTAW~~
Aldrin	ND		1.2 U	0.12	
alpha-BHC	ND		1.2	0.16	
beta-BHC	ND		1.2	0.26	
delta-BHC	ND		1.2	0.15	
gamma-BHC (Lindane)	ND		1.2	0.22	
Chlordane (technical)	ND		12	8.1	
4,4'-DDD		48 J	2.3	0.14	~~CTAW~~
4,4'-DDE		19 J	2.3	0.16	~~CTAW~~
4,4'-DDT	ND		2.3 U	0.2	
Dieldrin	ND		2.3	0.28	
Endosulfan I	ND		1.2	0.17	
Endosulfan II	ND		2.3	0.34	
Endosulfan sulfate	ND		2.3	0.34	
Endrin	ND		2.3	0.36	
Endrin aldehyde	ND		2.3	0.43	
Heptachlor	ND		1.2	0.13	
Heptachlor epoxide	ND		1.2	0.21	
Methoxychlor	ND		12	0.97	
Endrin ketone	ND		2.3	0.37	

MW 8-28-00

SOUND ANALYTICAL SERVICES, INC.

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082 data for 91315-13 continued...

Analyte	Result (ug/kg)	PQL	MDL	Flags
Toxaphene	ND	120 U	14	

MW
8/28/00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020226
Lab ID:	91315-14
Date Received:	7/25/00
Date Prepared:	7/27/00
Date Analyzed:	8/2/00
% Solids	85.66
Dilution Factor	1

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Tetrachloro-m-xylene	78.2		28	158
Decachlorobiphenyl	133		25	173

Sample results are on a dry weight basis.

Analyte		Result (ug/kg)	PQL	MDL	Flags
Aroclor 1016	ND		12 U	7.9	
Aroclor 1221	ND		23	12	
Aroclor 1232	ND		12	7.7	
Aroclor 1242	ND		12	3.6	
Aroclor 1248	ND		12	2.9	
Aroclor 1254		5800	12	3.8	~~D C1~~
Aroclor 1260		1500	12	3.9	~~D C1~~
Aldrin	ND		1.2 U	0.12	
alpha-BHC	ND		1.2	0.16	
beta-BHC	ND		1.2	0.26	
delta-BHC	ND		1.2	0.16	
gamma-BHC (Lindane)	ND		1.2	0.22	
Chlordane (technical)	ND		12	8.1	
4,4'-DDD	ND		2.3	0.14	
4,4'-DDE		110	2.3	0.16	~~C1~~
4,4'-DDT		86 J	2.3	0.2	~~C2~~
Dieldrin	ND		2.3 U	0.28	
Endosulfan I	ND		1.2	0.17	
Endosulfan II	ND		2.3	0.34	
Endosulfan sulfate	ND		2.3	0.35	
Endrin	ND		2.3	0.36	
Endrin aldehyde	ND		2.3	0.43	
Heptachlor	ND		1.2	0.13	
Heptachlor epoxide	ND		1.2	0.21	
Methoxychlor	ND		12	0.97	
Endrin ketone	ND		2.3	0.38	

MW 8-28-00

SOUND ANALYTICAL SERVICES, INC.

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082 data for 91315-14 continued...

Analyte	Result (ug/kg)	PQL	MDL	Flags
Toxaphene	ND	120 U	14	

MW
9-28-00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020227
Lab ID:	91315-15
Date Received:	7/25/00
Date Prepared:	7/27/00
Date Analyzed:	8/2/00
% Solids	63.01
Dilution Factor	1

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Tetrachloro-m-xylene	1850	X9	28	158
Decachlorobiphenyl	4370	X9	25	173

Sample results are on a dry weight basis.

Analyte	**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Aroclor 1016	ND	15	11	
Aroclor 1221	ND	31	16	
Aroclor 1232	ND	15	10	
Aroclor 1242	ND	15	4.8	
Aroclor 1248	ND	15	3.8	
Aroclor 1254	ND	15	5	
Aroclor 1260	ND	15	5.2	
Aldrin	ND	400	0.16	
alpha-BHC	ND	60	0.22	
beta-BHC	ND	800	0.35	
delta-BHC	ND	700	0.21	
gamma-BHC (Lindane)	ND	525	0.29	
Chlordane (technical)	ND	525	11	
4,4'-DDD	ND	150	0.18	
4,4'-DDE	ND	50	0.22	
4,4'-DDT	ND	600	0.27	
Dieldrin	ND	50	0.38	
Endosulfan I	ND	100	0.23	
Endosulfan II	ND	100	0.46	
Endosulfan sulfate	ND	1500	0.46	
Endrin	ND	100	0.48	
Endrin aldehyde	ND	1000	0.57	
Heptachlor	ND	1000	0.17	
Heptachlor epoxide	ND	50	0.28	
Methoxychlor	ND	5000	1.3	
Endrin ketone	ND	1500	0.5	

MW 8-2-00

SOUND ANALYTICAL SERVICES, INC.

Organochlorine Pesticides and PCBs by USEPA Methods 8081A/8082 data for 91315-15 continued...

Analyte	Result (ug/kg)	PQL	MDL	Flags
Toxaphene	ND	1500 U	19	

MW 8-28-00

ecology and environment, inc.
International Specialists in the Environment

1500 First Interstate Center, 999 Third Avenue
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: August 28, 2000

TO: Charlie Gregory, Project Manager, E & E, Seattle, WA

FROM: Mark Woodke, START-Chemist, E & E, Seattle, WA MW

THRU: Leatta Dahlhoff, START-Chemist, E & E, Seattle, WA LD

SUBJ: **Inorganic Data Quality Assurance Review, Cleancare Corporation Site, Tacoma, Washington**

REF: TDD: 00-01-0008 PAN: EA-08-01-RA-DM

The data quality assurance review of five solid samples collected from the Cleancare Corporation site in Tacoma, Washington, has been completed. Target Analyte List (TAL) inorganic element analyses (EPA Methods 6010 and 7471) were performed by Sound Analytical Services, Inc., Tacoma, Washington.

The samples were numbered: 00020223 00020224 00020225 00020226 00020227

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained at 4°C (± 2°C). The samples were collected on July 25, 2000, and were analyzed by July 31, 2000, therefore meeting QC criteria of less than 6 months (28 days for mercury) between collection and analysis.

2. Initial and Continuing Calibration: Satisfactory.

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No sample results were greater than 110 % of the highest calibration standard. All ICP recoveries were within the QC limits of 90% to 110% except manganese (112.9%) in the initial calibration verification; associated positive results were qualified as estimated quantities (J). All AA recoveries were within the QC limits of 80% to 120%.

3. Blanks: Satisfactory.

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. The following elements were detected in calibration and/or preparation blanks:

Calibration	Element	Concentration (ug/L)
ICB	Aluminum	-20.3
	Cobalt	1.0
	Lead	4.7
	Nickel	1.8
	Potassium	122.7
	Sodium	-145.8
	Thallium	33.8
CCB1	Arsenic	22.5
	Manganese	3.4
CCB2	Arsenic	-22.1
	Copper	-2.1
	Iron	-26.7
	Selenium	-33.8
	Thallium	-19.4
	Vanadium	-1.0
	Zinc	-14.5
CCB3	Antimony	4.6
	Cobalt	-1.4
	Nickel	-1.4

ICB - Initial Calibration Blank
CCB - Continuing Calibration Blank

Associated sample results were qualified as not detected (U) if the sample result was less than five times the blank concentration. Associated sample results were qualified as estimated quantities (J) if the sample result was less than five times the absolute value of the negative blank concentration.

4. ICP Interference Check Sample: Acceptable.

An Interference Check Sample (ICS) was analyzed at the beginning and end of each sequence or at least twice every 8 hours, whichever was more frequent. All ICS (solution AB) results were within QC limits of 80% - 120% recovery.

5. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

6. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020223
Lab ID:	91315-11
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/31/00
Dilution Factor	1
% Solids	84.54

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte		Result (mg/kg)	PQL	MDL	Flags
Arsenic		69	3.4	1.1	B2
Aluminum		9400	46	1.6	
Antimony		23	11	0.48	
Barium		270	1.1	0.16	
Beryllium		0.18	0.46	0.12	
Cadmium		16	1.1	0.16	
Calcium		26000	110	15	
Chromium		92	2.3	0.36	
Cobalt		12	1.1	0.15	
Copper		200	2.3	0.21	
Iron		74000	23	0.99	
Lead		500	2.3	0.73	
Magnesium		12000	110	11	
Manganese		590	1.1	0.15	
Nickel		67	9.1	0.17	
Potassium		1100	570	9.9	
Selenium		11	11	1.5	
Silver	ND		2.3	0.77	
Sodium		820	570	28	
Thallium	ND		2.3	1.6	
Vanadium		250	1.1	0.13	
Zinc		1500	2.3	0.1	

7. ICP Serial Dilution: Satisfactory.

A serial dilution analysis was performed per matrix per concentration or per sample delivery group, whichever was more frequent. All serial dilution results were within QC limits except for arsenic, cadmium, copper, and potassium. The results for these elements were qualified as estimated quantities (J or UJ).

7. Matrix Spike Analysis: Satisfactory.

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike recoveries were within the QC limits of 75 % to 125 % except cadmium, copper, lead, magnesium, and manganese, each with a high recovery. Associated positive results were qualified as estimated quantities (J).

8. Duplicate Analysis: Satisfactory.

A duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits, except arsenic, barium, lead, and zinc; associated sample results were qualified as estimated quantities (J or UJ).

9. Laboratory Control Sample Analysis: Acceptable.

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within QC limits.

10. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical methods, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (EPA 540/R-94/013). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the practical quantitation limits or because quality control criteria limits were not met.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because Quality Control criteria were not met.

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020224
Lab ID:	91315-12
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/31/00
Dilution Factor	1
% Solids	85.93

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Arsenic	75 J	3	0.97	~~B2~~
Aluminum	5300	40	1.4	
Antimony	14	10	0.42	
Barium	150 J	1	0.14	
Beryllium	ND	0.4 U	0.1	
Cadmium	7.9 J	1	0.14	
Calcium	13000	100	13	
Chromium	43	2	0.32	
Cobalt	8.2	1	0.13	
Copper	190 J	2	0.18	
Iron	42000	20	0.87	
Lead	300 J	2	0.64	
Magnesium	5200 J	100	9.4	
Manganese	270 J	1	0.13	
Nickel	50	8	0.15	
Potassium	570 J	500	8.7	
Selenium	13 J	10	1.3	
Silver	ND	2 U	0.67	
Sodium	790	500	24	
Thallium	ND	2 UJ	1.4	
Vanadium	140	1	0.11	
Zinc	860 J	2	0.09	

JMW

8-28-00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020223
Lab ID:	91315-11
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/28/00
Dilution Factor	1
% Solids	84.54

Mercury by CVAA - USEPA Method 7471

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Mercury	1.4	0.042	0.028	

MW
8/28/00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020224
Lab ID:	91315-12
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/28/00
Dilution Factor	1
% Solids	85.93

Mercury by CVAA - USEPA Method 7471

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Mercury	0.37	0.044	0.029	

MV 8-28-00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020225
Lab ID:	91315-13
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/31/00
Dilution Factor	1
% Solids	81.45

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte		Result (mg/kg)	PQL	MDL	Flags
Arsenic		160 J	2.9	0.94	~~B2~~ Aw
Aluminum		5900	39	1.4	
Antimony		46	9.7	0.41	
Barium		210 J	0.97	0.14	
Beryllium	ND		0.39 U	0.099	
Cadmium		32 J	0.97	0.14	
Calcium		43000	97	13	
Chromium		140	1.9	0.31	
Cobalt		12	0.97	0.13	
Copper		780 J	1.9	0.18	
Iron		140000	19	0.85	
Lead		720 J	1.9	0.62	
Magnesium		6100 J	97	9.1	
Manganese		890 J	0.97	0.13	
Nickel		110	7.8	0.14	
Potassium		640 J	480	8.4	
Selenium		9 J	9.7	1.3	Sm
Silver	ND		1.9 U	0.65	
Sodium		1500	480	24	
Thallium	ND		1.9 UJ	1.4	
Vanadium		680	0.97	0.11	
Zinc		1700 J	1.9	0.087	

MPW
7-28-00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020225
Lab ID:	91315-13
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/28/00
Dilution Factor	20
% Solids	81.45

Mercury by CVAA - USEPA Method 7471

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Mercury	12	0.87	0.57	

MW 8-28-00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020226
Lab ID:	91315-14
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/31/00
Dilution Factor	1
% Solids	85.66

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Arsenic	10 UJ	3	0.98	B1
Aluminum	11000	41	1.4	
Antimony	ND	10 U	0.43	
Barium	500 J	1	0.14	
Beryllium	ND	0.41 U	0.1	
Cadmium	16 J	1	0.14	
Calcium	27000	100	13	
Chromium	53	2	0.32	
Cobalt	22	1	0.13	
Copper	150 J	2	0.19	
Iron	26000	20	0.88	
Lead	860 J	2	0.65	
Magnesium	15000 J	100	9.5	
Manganese	360 J	1	0.13	
Nickel	57	8.1	0.15	
Potassium	930 J	510	8.8	
Selenium	ND	10 UJ	1.3	
Silver	ND	2 U	0.68	
Sodium	1200	510	25	
Thallium	ND	2 UJ	1.4	
Vanadium	39	1	0.12	
Zinc	1100 J	2	0.091	

MN
8-28-00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020226
Lab ID:	91315-14
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/28/00
Dilution Factor	1
% Solids	85.66

Mercury by CVAA - USEPA Method 7471

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Mercury	0.35	0.037	0.024	

MV
7-28-00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020227
Lab ID:	91315-15
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/31/00
Dilution Factor	1
% Solids	63.01

Metals by ICP - USEPA Method 6010

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Arsenic	19 UJ	4.2	1.4	~~B1~~
Aluminum	13000	56	2	
Antimony	ND	14 U	0.59	
Barium	370 J	1.4	0.19	
Beryllium	ND	0.56 U	0.14	
Cadmium	5.4 J	1.4	0.2	
Calcium	57000	140	18	
Chromium	62	2.8	0.44	
Cobalt	12	1.4	0.18	
Copper	99 J	2.8	0.25	
Iron	22000	28	1.2	
Lead	760 J	2.8	0.89	
Magnesium	9400 J	140	13	
Manganese	360 J	1.4	0.18	
Nickel	60	11	0.2	
Potassium	820 J	690	12	
Selenium	ND	14 UJ	1.8	
Silver	ND	2.8 U	0.93	
Sodium	300 J	690	34	
Thallium	ND	2.8 UJ	2	
Vanadium	71	1.4	0.16	
Zinc	1500 J	2.8	0.12	

MW 8/8/00

SOUND ANALYTICAL SERVICES, INC.

Client Name	Environmental Quality Management, Inc.
Client ID:	00020227
Lab ID:	91315-15
Date Received:	7/25/00
Date Prepared:	7/28/00
Date Analyzed:	7/28/00
Dilution Factor	1
% Solids	63.01

Mercury by CVAA - USEPA Method 7471

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Mercury	1.5	0.061	0.04	

MW
7-28-00

Note: This page is
intentionally left blank.

7/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0101-~~02~~

STARTCARD NO: R 049151

GROUND ELEV: _____

INSTALLED: _____

GROUTED: BENTONITE SAND

WATER ENCOUNTERED? Yes (NO)

DRILL METHOD: Geoprobe

DRILL FIRM: Ecology & Environment, Inc.

DRILLER: A. Jensen

CONSULTING FIRM: Ecology & Environment, Inc.

PROF. ENGINEER: COULT HAGER

GEOLOGIST: ~~BRIAN~~ WITTICH/LECH
Ryan (RW)

GPS NORTH: _____

SAMPLE1 ID: SC0101-00-02 09:45

SAMPLE2 ID: SC0101-02-04 09:~~50~~

GPS EAST: _____

SAMPLE1 RESULT: 300 ppm J

SAMPLE2 RESULT: 7700 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP	95 FID 5 PID	0945	
0-2	SP	F-M SAND W/ ANGULAR MEDIUM TO COARSE GRAVEL; BROWN LOOSE ~~SAND~~ (RW)		
2-3½	SP/PT FILL (RW)	95- FID 5 PID } DARK BROWN; PEATTY SAND; LARGE FRAG ORGANIC MATTER INCL. WOOD CHIPS; AUTO FLUFF		
3½-4	SP/PT (RW) ~~FILL~~ SLUDGE	LIME WASTE (LIME SOLVENT SLUDGE); SOFT SILTY TO ~~SC~~CLAY CONSISTENCY;		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits
J = estimated value (value falls below quantitation limit of 1000 ppm for test kit).

7/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0102
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes (No)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: AL JENSEN
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: B. WHITCHURCH
R (L)

GPS NORTH: _____
GPS EAST: _____
SAMPLE1 ID: SC0102-00-02 1005
SAMPLE1 RESULT: 1150 ppm
SAMPLE2 ID: SC0102-02-04 1010
SAMPLE2 RESULT: 2710 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-2 (Pid)	SP	GRAVELLY SAND (DREDGE FILL); BRN; FINE TO MEDIUM SAND W/ MED TO COARSE LOOSE DRY GRAVEL	10:00	SC0102-00-02
~~0-2~~ (Pid)	SP	FID=9; PID=11		
2-3	SP	DREDGE FILL; DRK BRN; SILTY TO GRAVELLY SAND; MOIST; MED. DENSE; ~~[illegible]~~ PIECES		SC0102-02-04
3-4	SP	DRY (50% RECOVERY -2'-4')		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

2/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0103
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes (NO)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. Hanners
GEOLOGIST: R. Whitehead

GPS NORTH: _____
GPS EAST: _____
SAMPLE1 ID: SC0103-00-02 1020 SAMPLE1 RESULT: 500 ppm J
SAMPLE2 ID: SC0103-~~02~~-24 1025 SAMPLE2 RESULT: 6530 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
~~GP~~ 0-1	SP/~~GP~~ GW	DREDGE FILL; BRN; F-M SAND; LOOSE; DRY; W/ F-~~M~~ COARSE GRAVEL; SOME ROOTS	1018	SC0103-00-02
1-2		[FID=4; PID=1]		
2-3	GP / SLUDGE	2-2.25 - LAYER OF COARSE GRAVEL; 2.25-3.5 - LIME WASTE; SILTY SAND CONSISTENCY; GRN-GRAY TO PINK; SOME		
3-4	SLUDGE / FILL	[FID=420; PID=36] MUTU FLUFF 3.5-4: WOOD WASTE; FOOD PRODUCT (OIL) PRESENT; WOOD MIXED W/ SAND		

CONSISTENCY, DRK BRN - BLK; ~~HIGHER~~ HIGHEST OVA / ODOR

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

J = estimated value

2/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0104
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes (No)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. Hippely
GEOLOGIST: R. Whitchurch

GPS NORTH: _____
SAMPLE1 ID: SC0104-02 1225
SAMPLE2 ID: SC0104-24 1227

GPS EAST: _____
SAMPLE1 RESULT: 2710 ppm
SAMPLE2 RESULT: 3020

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP/GP	FID=24 PID=15 0-1.5 - GRAVELLY SAND	1220	
1-2	SP/GP FILL	1.5-3 → WOOD WASTE & DEBRIS		
2-3	FILL	FID=29 PID=12 SAME (D)		
3-4	SLUDGE	~~HEAVY~~ SOLVENT ODOR (NO FID/PID) LIME WASTE		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

7/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0105
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: YES; BENTONITE POWDER
WATER ENCOUNTERED? (Yes) no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. MARKS
GEOLOGIST: R. Whitchurch

GPS NORTH: SC0105-02 1205
SAMPLE1 ID: SC0105-24 1210
SAMPLE2 ID: _____ 1215

GPS EAST: _____
SAMPLE1 RESULT: 3320 ppm
SAMPLE2 RESULT: 10190 ppm

UNDER 10-12 IN CONC SLAB

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SM	0-2: FID< PID > 500 SILTY SAND; GRN GRAY TO ORANGE BRN; DEFINITE ODOR; 2" FREE PRODUCT ZONE @ 2.0 ft; ALL MOIST; TRACE	1200	
1-2	SM	FINE GRAVEL		
2-3	SLUDGE	2-3 FID< PID > 500! LIME WASTE PRODUCT; BRN GRAY; DRY		
3-4	NA	NO RECOVERY (REFUSAL)		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

2/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0106
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? (Yes) no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. Whitchurch

GPS NORTH: _____
SAMPLE1 ID: SC0106-02 1140
SAMPLE2 ID: SC0106-24 1143

GPS EAST: _____
SAMPLE1 RESULT: 3440 ppm
SAMPLE2 RESULT: 21040 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP/GP	FID ≥ 500, PID = 391 0-1.5 - GRAVELLY SAND 1.5-2.0 - LARGE GRAVEL (VERY COARSE)	1131	
1-2	SP/GP GP			
2-3	SLUDGE	FID ≥ 500, PID ≥ 500 2-3: SUSPECTED LIME WASTE LAYER		
3-4	SLUDGE	3.0 - PRODUCTION STRUCTURE 3-4 LIME WASTE		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

Due

7/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0107
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. Hayes
GEOLOGIST: R. Whitchurch

GPS NORTH: _____
GPS EAST: _____
SAMPLE1 ID: SC0107-02 1115 SAMPLE1 RESULT: 10580 ppm
SAMPLE2 ID: SC0107-24 1120 SAMPLE2 RESULT: 14180 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
~~0~~ 0-1	SM	(1/2' OVERBURDEN; 9 IN CONC SLAB) BELOW SLAB: SILTY SAND; GRN-GRAY. F-M SAND W/ 20%-30% SILT; MOIST; SOME FREE PRODUCT VISIBLE; ODOR; SOME	1110	
1-2	SM	PID+PID>500 GRAVEL		
2-3	FILL	2-3 1/2: VARIOUS RUBBLE + WOOD DEBRIS; RUBBLE APPEARS TO BE BRICK		
3-4	FILL	PID>500 PID>500		
	Dredge FILL	3 1/2-4 = SAND + SHELL FILL; BLACK STAINING; POSSIBLE PRODUCT		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

2/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0108

STARTCARD NO: R 049151

GROUND ELEV: _____

INSTALLED: _____

GROUTED: BENTONITE SAND

WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe

DRILL FIRM: Ecology & Environment, Inc.

DRILLER: A. Jensen

CONSULTING FIRM: Ecology & Environment, Inc.

PROF. ENGINEER: C. Hancuis

GEOLOGIST: R. Whitehurch

GPS NORTH: _____ GPS EAST: _____

SAMPLE1 ID: SC0108-02 ~~1040~~ 1042 SAMPLE1 RESULT: 14730 ppm

SAMPLE2 ID: SC0108-24 1045 SAMPLE2 RESULT: 15980 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP	DREDGE FILL; GRAVELLY SAND; BRN; LOOSE; ↖ 0-2	1042	
0-2	SP	[FID=13; PID=13]		
2-3	SP/GW	2-3,5: GRAVELLY SAND; GREEN-GRAY; F-M SAND W/ FINE-COARSE GRAVEL; MEDIUM DENSE		
3-4	SP/GW FILL	[FID>500 P>500] 3,5-4: WOOD WASTE; BRN TO BLACK; OILY PRODUCT; MIXED WOOD W/ SAND		

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

2/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0109
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: YES; BENTONITE SAND
WATER ENCOUNTERED? Yes no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HOOKS
GEOLOGIST: R. Whitchurch

GPS NORTH: _____
SAMPLE1 ID: SC0109-02 1417
SAMPLE2 ID: SC0109-24 1419

GPS EAST: _____
SAMPLE1 RESULT: ~~1417~~ 2800 ppm
SAMPLE2 RESULT: ~~1419~~ 3800 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP	FID: 392 PID: >500	1425	
	SLUDGE	0 - 0.5 GRAVELLY SAND		
1-2		0.5 - 3.9 LIME ASH; SILT CLAY SIZE PARTICLE RANGE; WOOD FRAGMENTS		
2-3		FID: 52 PID: 56		
		3.9 - 4.0 - STAINED; ROOTS; FREE PRODUCT		
3-4		~~VERY SATURATED~~; WOOD FRAGMENTS SAND		
	FILL			

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BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

7/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0110
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? (Yes) no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. Whitehurch

GPS NORTH: _____
SAMPLE1 ID: SC0110-02 1241
SAMPLE2 ID: SC0110-24 1243

GPS EAST: _____
SAMPLE1 RESULT: 1820 ppm
SAMPLE2 RESULT: 12310 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP/GP	FID: 31 PID: 20 0-3 GRAVELLY SAND; ORANGE BROWN; DRY; GRAVEL	1238	
1-2	SP/GP			
2-3	SP/GP	FID + PID > 500		
3-4	SLUDGE FILL	3-3.75 - LIME WASTE LAYER 3.75-4.0 - WOOD DEBRIS MIXED W/ SAND STAINED BLACK; MOIST; FREE PRODUCT		

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BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

3/18/03

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0111
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: YES GRANULAR BENTONITE
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. Whitchurch

GPS NORTH: _____
SAMPLE1 ID: SC0111 - 02 1435
SAMPLE2 ID: SC0111 - 24 1440

GPS EAST: _____
SAMPLE1 RESULT: 14440 ppm
SAMPLE2 RESULT: over range

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP/GP	FID: >500 PID: >500	1427	
	FILL	0.5 GRAVELLY SAND 0.5-1.0 WOOD DEBRIS		
1-2	SLUDGE	1-2 LIME WASTE SILTY SIZE DRY		
2-3	SM	FID: >500 PID: >500 2-4 BLACK SILTY SAND SIZE W/ WOOD CHIPS; SMALL		
3-4	SM	BRICK PARTICLES; ~~WET~~ SLIGHTLY MOISTE FREE PRODUCT		

Ecology & Environment, Inc. 2000

BGS = below ground surface
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Sample 1 and 2 to be field screened using TPH Test Kits

CLEAN CARE SOIL BORING REPORT

7/18/00

BORING ID NO.: SC0112
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. Whitchurch

GPS NORTH: _____
SAMPLE1 ID: SC0112-02 1455
SAMPLE2 ID: SC0112-24 1459

GPS EAST: _____
SAMPLE1 RESULT: 17090 ppm
SAMPLE2 RESULT: 10640 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP	FID> PID> 500 MOD 0-2 MOD GRN SAND; MOIST; GRN	1455	
1-2	SP	GRAY; FREE PRODUCT; STAINED		
2-3	SLUDGE SM/FILL	FID+PID 7500 2-2.5: SANDY SILT SIZED LIME WASTE 2.5-4 BLACK SILTY SAND W/ INTERBEDDED		
3-4	SM/FILL	PLANT MATTER; SLIGHTLY MOIST; STAINING; STRONG ODOR		

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BGS = below ground surface
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Sample 1 and 2 to be field screened using TPH Test Kits

2/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0113
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: GRANULAR BENTONITE SLURRY
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: _____

GPS NORTH: _____
SAMPLE1 ID: SC0113-02 1510
SAMPLE2 ID: SC0113-24 1514

GPS EAST: _____
SAMPLE1 RESULT: 16720 ppm
SAMPLE2 RESULT: 4810 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP	FID: >500 PID: >500	1504	
	SP	0-0.5 → BROWN SAND, F-M GRAIN; MOIST 0.5-1.0 → GRN GRAY SAND; F-M GRAIN; MOIST		
1-2	FILL	1.0-1.5 WOOD DEBRIS, ~~FREE~~ PRODUCT		
2-3	SLUDGE	FID: 7500 PID: >500		
		2.0-~~3~~3.5 LIME WASTE; HEAVY FREE PRODUCT		
3-4	SLUDGE	3.5-4.0 SILTY SAND w/ WOOD DEBRIS MOIST; ODOROUS; STAINED		
	SM/FILL			

Ecology & Environment, Inc. 2000

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Sample 1 and 2 to be field screened using TPH Test Kits

CLEAN CARE SOIL BORING REPORT

7/18/00

BORING ID NO.: SC0114
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. Whitehurst

GPS NORTH: _____
SAMPLE1 ID: SC0114-02 16:26
SAMPLE2 ID: SC0114-24 16:29

GPS EAST: _____
SAMPLE1 RESULT: over range
SAMPLE2 RESULT: 5600

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP/GP	FID: 78 PID: 36 0.-2.0 GRAVELLY SAND; F-M SAND W/ F-M GRAVEL; BROWN; DRY	16:22	
1-2	SP/GP			
2-3	SLUDGE	FID: 370 PID: 214 2.0-4.0 LIME WASTE LAYER; SILTY TO FINE SAND CONSISTENCY		
3-4	SLUDGE			

Ecology & Environment, Inc. 2000

BGS = below ground surface
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Sample 1 and 2 to be field screened using TPH Test Kits

CLEAN CARE SOIL BORING REPORT

2/18/00

BORING ID NO.: SC0115
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? (Yes) no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. Whitehurst

GPS NORTH: _____
SAMPLE1 ID: SC0115-02 1657
SAMPLE2 ID: SC0115-24 1701

GPS EAST: _____
SAMPLE1 RESULT: 2660 ppm
SAMPLE2 RESULT: 2580 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SM/GP	FID: 386 PID: 125 0-2 SILTY F-C SAND W/ SILTY TO COARSE PEBBLES; STAINING	1648	
1-2	SM/GP			
2-3	SLUDGE / FILL	FID = PID: > 500 2-2.5 LIME WASTE; PRODUCT		
3-4	FILL	2.5-4.0 (@2.5, WOOD WASTE) SILTY SAND; F-M; FREE PRODUCT SOME B PEBBLES.		

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Sample 1 and 2 to be field screened using TPH Test Kits

CLEAN CARE SOIL BORING REPORT

2/18/00

BORING ID NO.: SC0116
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: YES; BENTONITE SAND
WATER ENCOUNTERED? Yes (NO)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. Whitchurch

GPS NORTH: _____
SAMPLE1 ID: SC0116-02 1711
SAMPLE2 ID: ~~SC0116-04~~ NOT COLLECTED

GPS EAST: _____
SAMPLE1 RESULT: 20640
SAMPLE2 RESULT: NA

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SM/GP	FID: >500 PID: 7500 0-1.5 GRAVELLY SILTY SAND;	1707	
1-2	SM/GP SLUDGE	1.5-2.0 LIME WASTE LAYER SILTY-FINE SAND CONSISTENCY. (BRICK FRAGMENTS @ 2.0)		
2-3	NA	REFUSAL 2-4 SUSPECTED CONC @ 2.0		
3-4	NA			

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Sample 1 and 2 to be field screened using TPH Test Kits

7/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0117
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: 8' 7/18/00
GROUTED: BENTONITE SAND 7/18/00
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. Whitehead

GPS NORTH: _____
SAMPLE1 ID: SC0117-02 1613
SAMPLE2 ID: SC0117-24 1618

GPS EAST: _____
SAMPLE1 RESULT: 5970 ppm
SAMPLE2 RESULT: Over range

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP/GP	FID=214 PID=37 0-2 GOBBLES + SAND; GREY; DRY;	1607	
1-2	SP/GP			
2-3	SLUDGE	FID>500; PID>500 2-3 LIME ASH LAYER		
3-4	FILL	3-4 COBBLY SILTY SAND W/ INDUSTRIAL + WOOD DEBRIS; AUTOFLUFF; BLACK SLIGHTLY MOIST.		

BGS = below ground surface
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Sample 1 and 2 to be field screened using TPH Test Kits

7/18/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0118
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: SC0118
GROUTED: SC0118 BENTONITE SAND
WATER ENCOUNTERED? (Yes) no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. Whitchurch

GPS NORTH: _____
SAMPLE1 ID: SC0118-02 1530
SAMPLE2 ID: SC0118-24 1534

GPS EAST: _____
SAMPLE1 RESULT: 6500 ppm
SAMPLE2 RESULT: 16990 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1 0-1.5	sm/GP	FID: >500 PID: >500 0-1.5 GRAVELLY SILTY SAND; DARK GRAY SLIGHTLY MOIST; ODOR; STRONGER THAN OTHER PARTS OF SITE	1520	
1-2	sm/GP SP	1.5-3.0 F-M SAND; GREENISH GRAY SOME WOOD MAT'L OTHER 3.0 SLIGHTLY MOIST; STAINING IS VISIBLE		
2-3	SP	FID: >500 PID: >500		
3-4	SP	F-M BLACK SAND (w/ RED BRICK?) FRAGMENTS ?) SAND SIZE SATURATED (PRODUCT IN LAYER ABOVE)		

Ecology & Environment, Inc. 2000

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Sample 1 and 2 to be field screened using TPH Test Kits

7/18/07

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0119
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: S
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? (Yes) no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R WHITEHEAD

GPS NORTH: _____
SAMPLE1 ID: SC0119-02 1115
SAMPLE2 ID: SC0119-24 1135

GPS EAST: _____
SAMPLE1 RESULT: 2650 ppm
SAMPLE2 RESULT: 3480 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP/GP	FID 23 PID 36 GRAVELLY SAND; DRY BROWN	1106	
1-2	SP/GP	V		
2-3	SLUDGE	PID >500 FID >500 2-4.5' LIME WASTE INTERMIXED W/ ALTO FLUFF, WOOD FRAGMENTS, DEBRIS	1132	
3-4	SLUDGE			
4-5.5	FILL	@ 5,5 → WOOD WASTE IN SAND W/ FREE PRODUCT		

BGS = below ground surface
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Sample 1 and 2 to be field screened using TPH Test Kits

CLEAN CARE SOIL BORING REPORT

2/19/00

BORING ID NO.: SC0120
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND (BOTH HOLES)
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C HARRIS
GEOLOGIST: R WHITCHURCH

ATTEMPTED INITIAL BORING; HIT REFUSE @ 0.5' MOVED 4" NORTH

GPS NORTH: _____
SAMPLE1 ID: SC0120-02 1014
SAMPLE2 ID: SC0120-24 1017

GPS EAST: _____
SAMPLE1 RESULT: 400 ppm J
SAMPLE2 RESULT: 1690 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP	FID: >500 PID: >500 0-2 F-M SAND; DRY; W/PEBBLES; ~~STIFF~~/ SLIGHT ODOR	1010	
1-2	SP			
2-3	FILL	FID: 92 PID: 64 2-4; SOME SILT; SAND; AUTOFLUFF; RUBBER WIRE, RUBBLE		
3-4	FILL			

Ecology & Environment, Inc. 2000

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Sample 1 and 2 to be field screened using TPH Test Kits
J = estimated value

7/19/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0121
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? (Yes) no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0121-02 0912
SAMPLE2 ID: SC0121-24 0916

GPS EAST: _____
SAMPLE1 RESULT: 7210 ppm
SAMPLE2 RESULT: 13590 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SM/GP	FID+PID >500 0-2 GRAVELLY SILTY SAND; MOIST; NOTICEABLE ODOR; NO STAINING	0904	
1-2	SM/GP			
2-3	FILL	FID+PID >500 2-4: VARIOUS LAYERS OF AUTO FLUFF, WOOD, BRICK, FIRE BRICK; SLIGHTLY MOIST		
3-4	FILL			

Ecology & Environment, Inc. 2000

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Sample 1 and 2 to be field screened using TPH Test Kits

CLEAN CARE SOIL BORING REPORT

7/15/00

BORING ID NO.: SC0122
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes (No)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: _____
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITEHURST

GPS NORTH: _____
SAMPLE1 ID: SC0122-02 0853
SAMPLE2 ID: SC0122-24 0857

GPS EAST: _____
SAMPLE1 RESULT: 600ppm J
SAMPLE2 RESULT: 1303ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SM/GP	FID: ~~1500~~ 460 PID: 7500 0-2. GRAVELLY SILTY SAND GRN TO BROWN; SOME COBBLES;	0849	
1-2	SM/GP			
2-3	SLUDGE / FILL	FID; 7500 PID: 7500 2-2.5: LIME WASTE LAYER 2.5-4: VARIOUS SILTY SAND BASED		
3-4	FILL	FILL; BRICK; WIRE; WOOD DEBRIS		

BGS = below ground surface
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Sample 1 and 2 to be field screened using TPH Test Kits

J = estimated value

7/19/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0123
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes (No)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: B. WHITCHURCH

GPS NORTH: _____
GPS EAST: _____
SAMPLE1 ID: SC0123-02 0800 SAMPLE1 RESULT: 5080 ppm
SAMPLE2 ID: SC0123-24 0804 SAMPLE2 RESULT: 690 ppm J

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SM	FID: 7500 PID: 7500 0-1.5 - F-M SILTY SAND; MOIST; W/ SOME PEBBLES;	0751	
1-2	SM SM	1.5-2 VERY SILTY SAND W/ ORG. MATTER (IE WOOD FRAGMENTS)		
2-3	SLUDGE	FID: 7500 PID: 7500 2-3 LIME WASTE LAYER; SILT TO VF SAND CONSISTENCY		
3-4	NR	(NO RECOVERY)		

Ecology & Environment, Inc. 2000

BGS = below ground surface
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Sample 1 and 2 to be field screened using TPH Test Kits
J = estimated value

2/19/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0124
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 1049
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITEHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0124-02 1055
SAMPLE2 ID: SC0124-24 1057

GPS EAST: _____
SAMPLE1 RESULT: 2420 ppm
SAMPLE2 RESULT: 1910 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP/GP	FID: 74 PID: 6 0-1 - GRAVELLY ~~SAND~~ TO COBBLY ~~SA~~ FINE TO MED SAND; SOME AUTOFLUFF; SOME WOOD DEBRIS 1.0-1.25 GRAVEL	1048	
1-2	SP/GP FILL	1.25-2.0 WOOD WASTE; MOIST;		
2-3	FILL	FID: 7500 PID: 7500		
3-4	FILL	@ 4.0 WOOD WASTE W/ FREE PRODUCT		

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Sample 1 and 2 to be field screened using TPH Test Kits

CLEAN CARE SOIL BORING REPORT

2/19/00

BORING ID NO.: SC0125
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 1033
WATER ENCOUNTERED? Yes (No)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0125-02 1035
SAMPLE2 ID: SC0125-24 1039

GPS EAST: _____
SAMPLE1 RESULT: 2170ppm
SAMPLE2 RESULT: 23880ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP/GP	FID: >500 PID: 81 0-1.5: GRAVELLY SAND; FAIR SAND SOME LARGE PEBBLES	1031	
1-2	SP/GP FILL	1.5-4.0 WASTE DEBRIS; STAINED; WOOD; AUTO FLUFF; (HEAVY CHAIN HC's)		
2-3	FILL	FID: >500 PID: >500		
3-4	FILL			

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

7/19/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0126
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITEHURST

GPS NORTH: _____
SAMPLE1 ID: SC0126 - 02 0938
SAMPLE2 ID: SC0126 - 24 0934

GPS EAST: _____
SAMPLE1 RESULT: 23580 ppm
SAMPLE2 RESULT: Over range

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	GP/SM	FID: 170 PID: 59 0-1 : ORGANICS; CLAYEY SILTY GRAVELLY SAND; VERY SLIGHTLY MOIST BRN + GRAY	0930	
1-2	GP/SM	1-4 SILTY SAND TO GRAVEL, AUTOFLUFF, RUBBLE, PLANT DEBRIS; POSSIBLE FREE PRODUCT IN FORM OF HEAVY CHAIN HYDROCARBONS		
2-3	GP/SM	FID: 7500 PID: 7503		
3-4	GP/SM			

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

2/14/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0127
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C HARRIS
GEOLOGIST: B. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0127-02 0835
SAMPLE2 ID: SC0127-24 0840

GPS EAST: _____
SAMPLE1 RESULT: ~~16590 ppm~~ (RW) 13990 ppm
SAMPLE2 RESULT: 16590 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP	FID: 7500 PID: 7500 0-2 F-m SAND; GREEN TO GRAY; ODOR NO FREE PRODUCT; MOIST	0831	
1-2	SP			
2-3	FILL	FID: 7500 PID: 7500 2-4: VARIOUS FILLS; WOOD CHIPS; LIME LAYER; ~~[illegible]~~; FIRE BRICK		
3-4	FILL			

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

U

CLEAN CARE SOIL BORING REPORT

3/19/00

BORING ID NO.: SC0128
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: B. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0128-02 0819
SAMPLE2 ID: SC0128-0824 0822 (DUP)

GPS EAST: _____
SAMPLE1 RESULT: 1850 ppm
SAMPLE2 RESULT: over range

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP	FID: 208 PID: 120 0-2: DREDGE FILL MATERIAL; DRY; BRN; F-M SAND W/ GRAVEL	0808	
1-2	SP			
2-3	FILL	FID: 7500 PID: 7500 2-4: SILTY SAND W/ AMTO FLUFF; SOME WOOD + BRICK DEBRIS; BLACK		
3-4	FILL			

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

CLEAN CARE SOIL BORING REPORT

2/20/01

BORING ID NO.: SC0201
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: ~~BENTONITE~~ SAND 1350
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. MARKS
GEOLOGIST: K. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0201-02 ~1350
SAMPLE2 ID: SC0201-24 ~1350

GPS EAST: _____
SAMPLE1 RESULT: 1420 ppm
SAMPLE2 RESULT: 6250 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-2.5	SP/GP	FID: 7 PID: 20 ~~SANDY~~ GRAVELLY SAND	1338	
2.5-3.5 3.75-4.0	FILL	SILTY SAND W/ WOOD WASTE SUSPECTED FIRE BRICK (PINK) (3.75) WOOD WASTE;		
		FID: 142 PID: 135		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

7/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0202
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE CHIPS - 1359
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0202-02 1407
SAMPLE2 ID: SC0202-24 1407

GPS EAST: _____
SAMPLE1 RESULT: 290 ppm J
SAMPLE2 RESULT: 160 ppm J

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-2	~~GP~~/SP (SP) SP/GP	FID: 49 PID: 44 GRAVELLY SAND;	~~1388~~ 1400	
2-3	SM/GP	GRAVELLY SANDY SILT; MOISTE		
3-4	FILL	FID: 64 PID: 121 WOOD WASTE; AUTOFLUFF; WET @ ~~3~~ 3.75		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits
J = estimated value

7/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0203
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? ~~Yes~~ ~~No~~
@ 3.75

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0203-02 1423
SAMPLE2 ID: SC0203-24 1423

GPS EAST: _____
SAMPLE1 RESULT: 160ppm J
SAMPLE2 RESULT: 480ppm J

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-2	SP/GP	FID: 2 PID: 4 GRAVELLY SAND	1416	
2-3.75	SM/GP	GRAVELLY, SILTY, SAND		
		FID: 7500 PID: 7500		
3.75-4.0	FILL	→ ?SUSPECTED CREOSOTE IN WOOD MAT @ 3.75-4.0		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

J = estimated value

2/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0204
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND : 1237
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: CHARLES
GEOLOGIST: L WITTMEIER

GPS NORTH: _____
SAMPLE1 ID: SC0204-02 1241
SAMPLE2 ID: SC0204-24 1241

GPS EAST: _____
SAMPLE1 RESULT: 460 ppm J
SAMPLE2 RESULT: 1000 ppm J

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-2	SP/GP	FID: 6 PID: 17 GRAVELLY SAND; DRY; BRN TO GRAY	1232	
2-2.75	GP	GRAVEL LAYER W/ SOME SAND;		
2.75-3.25	SM/GP	FID: 230 PID: 85 SILTY GRAVELLY SAND; GRNISH-BRN; MOIST		
3.25-3.75	ML SAND	~~SILTY CLAYEY~~ ORANGE BROWN; DRY. CLAYEY SILT;		
3.75-4.0	SM/GP	SILTY GRAVELLY SAND		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits
J = estimated value

7/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0205
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 125 ft
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0205-02 1302
SAMPLE2 ID: SC0205-24 1302

GPS EAST: _____
SAMPLE1 RESULT: 4290 ppm FID
SAMPLE2 RESULT: over range

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-2	SM/GP	FID: 114 PID: 81 GRAVELLY SILTY SAND; DRK BRN TO GRAY; DRY	1252	
2-3.5 3.25-3.5	SM/GP	DRK BRN TO BLK; GRAVELLY SILTY SAND; DENSE WOOD WASTE + OTHER WOOD WASTE @		
		FID: >500 PID: >500 VARIOUS INT. MOIST; PRODUCT STAINING 3.25-3.5;		
3.5-4.0	SLUDGE	MOIST; TAR LIME WASTE		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

3/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0206
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 1322
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0206-02 1327
SAMPLE2 ID: SC0206-24 1327

GPS EAST: _____
SAMPLE1 RESULT: 1420 ppm
SAMPLE2 RESULT: 11140 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-2.5	SP/GP	FID: 26 PID: 4 GRAVELLY SAND; SOME COBBLES MOSTLY DRY; SOME	1320	
2.5-4.00	SP/FILL	MOSTLY SAND; SOME GRAVEL; WOOD FRAGMENTS; SOME RUBBLE WOOD FRAG SOAKED W/ FREE PRODUCT		
		FID: 120 PID: 40		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

7/19 lw

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0301
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 1349
WATER ENCOUNTERED? (Yes) no @ 4.0 (LOWER CAPILLARY ZONE - W.L.)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: CHERRIS
GEOLOGIST: KWITCHARECK

GPS NORTH: 13
SAMPLE1 ID: SC0301-~~03~~ 03(W) 1402
SAMPLE2 ID: SC0301-~~04~~ 35 1409

GPS EAST: _____
SAMPLE1 RESULT: 2610 ppm
SAMPLE2 RESULT: 2780 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP/GP	FID: 4. PID: 230 0-1- GRAVELLY SAND FILL	1348	
1-2	SP/GP	1-3.5: VERY GRAVELLY (30%) SAND, DRY		
2-3	SP/GP	FID: 109 PID: 51 3.5-4.5 GREENISH GRAVELLY SILTY SAND;		
3-4	SP/GP SM			

Ecology & Environment, Inc. 2000

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Sample 1 and 2 to be field screened using TPH Test Kits

4.5-8 FID: 494 PID: 489 F-M
SATURATED; SILTY SAND; BLACK
SLIGHT SHEEN

7/19/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0302
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: S
GROUTED: BENTONITE SAND 1540
WATER ENCOUNTERED? Yes no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0302 -02 1544
SAMPLE2 ID: SC0302 -24 1548

GPS EAST: _____
SAMPLE1 RESULT: 5350 ppm
SAMPLE2 RESULT: 380 ppm J

~~0-1~~ ~~Backfilled~~ - REMOVED 1.5' OF SAWDUST OVERBURDEN

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
~~0-1~~ 1-2	SM/GP	FID: 32 PID: 6 0-~~1~~2.5 SILTY GRAVELLY SAND	1539	
2-3	SM/GP SM/GP	1.5 - 2.5 GRAVELLY SILTY SAND; GRN/GRAY		
3-4	SM/GP FILL	FID: PID: 2.5-4 - FINE/VF BLACK SAND W/ WOOD WASTE + AUTO FLUFF; STAINING		
~~4-5~~	FILL			

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits
J = estimated value

2/19/02

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0303
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE CHIPS
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C HARRIS
GEOLOGIST: B WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0303-03 1426
SAMPLE2 ID: SC0303-35 1430

GPS EAST: _____
SAMPLE1 RESULT: 700 ppm J
SAMPLE2 RESULT: 1970 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1		(NO SAMPLE)		
	SP/GP	FID: 1 ; PID. 80 (MAY BE FROM OFFSITE)		
1-3	SP/GP	GRAVELLY SAND (30% GRAVEL), DRY		
3-5	SM/GP	FID: PID: GREENISH GRAVELLY SILTY SAND; DRY		

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits
J = estimated value

3/19/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0304
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 1559
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0304-02 1604
SAMPLE2 ID: SC0304-24 (DUP) 1607

GPS EAST: _____
SAMPLE1 RESULT: 600 ppm J
SAMPLE2 RESULT: 14200 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	GP	FID: 5 PID: 2	1557	
		0-0.5 : GRAVEL		
	SM	0.5-2.0: SILTY SAND W/ SOME FINE TO COARSE GRAVEL		
1-2	SM			
2-3	SM/GW	FID: 120 PID: 500		
		2.0-3.0 SILTY SAND W/ HIGH % FINE TO COARSE GRAVEL; SOME		
3-4	FILL	AUTO FLUFF + WOOD WASTE; SLIGHTLY MOIST.		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits
J = estimated value

2/19/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0305
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: CHARRIS
GEOLOGIST: K. WHITEHEAD

GPS NORTH: _____
SAMPLE1 ID: SC0305-13 1447
SAMPLE2 ID: SC0305-35 1449

GPS EAST: _____
SAMPLE1 RESULT: 750ppm J
SAMPLE2 RESULT: 17830ppm

(0-1' NOT COLLECTED)

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
		FID: 3 PID: 40	1441	
1-3	SP/GP	GRAVELLY SAND; F-M GRAVEL W/SOME COARSE GRAVEL; SOME SILT; DRY; NO ODOR		
3-5	FILL	AUTOFLUFF; SILTY SAND, SOME GRAVEL; WOOD DEBRIS		
		FID:= PID > 500		

Ecology & Environment, Inc. 2000

BGS = below ground surface
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Sample 1 and 2 to be field screened using TPH Test Kits
J = estimated value

7/19/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0306
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 16:16
WATER ENCOUNTERED? Yes no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0306-02 1619
SAMPLE2 ID: SC0306-24 1623

GPS EAST: _____
SAMPLE1 RESULT: ~~12000 ppm~~ (sw) 5960 ppm
SAMPLE2 RESULT: 12000 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SM/GP	FID: 16 PID: 2.8 0-2: GRAVELLY SAND W/ SILT;	1613	
1-2	SM/GP	2.0-2.5: ~~[illegible]~~ GRAVELLY SAND; GREENISH GREY; DRY		
2-3	SP/GP	FID: >500 PID: 6.0		
	FILL	2.5-4: ASH FLUFF; WOOD DEBRIS; GRAVELLY SAND; STAINED		
3-4	FILL			

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

7/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0307

STARTCARD NO: R 049151

GROUND ELEV: _____

INSTALLED: _____

GROUTED: BENTONITE SAND 0909

WATER ENCOUNTERED? (Yes) no BOTH LOCATIONS

DRILL METHOD: Geoprobe

DRILL FIRM: Ecology & Environment, Inc.

DRILLER: A. Jensen

CONSULTING FIRM: Ecology & Environment, Inc.

PROF. ENGINEER: C. HARRIS

GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____

SAMPLE1 ID: SC0307-02 0914

SAMPLE2 ID: SC0307-24 0914

GPS EAST: _____

SAMPLE1 RESULT: 2370 ppm

SAMPLE2 RESULT: 3920 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
~~1.5~~ 0 - 1.75	SP/GW	FID: 30 PID - NR GRAVELLY SAND; BRN; F-C GRAVEL; F-M SAND; GRAINS SUB ANGULAR; MOIST	0907	
1.75 - ~~2.5~~ 2.5	SP/GP	VERY GRAVELLY SILTY SAND; GRNISH COLOR		
~~2.25 - 2.5~~ 2.5 - 3.0	FILL	AUTO FLUFF		
~~3.0 - 3.5~~ 2.5 - 3.5	SP	FID: 102 PID - NR GRN FINE SAND; SLIGHTLY MOIST		
3.5 - 3.75	FILL	AUTO FLUFF; MOIST		
3.75 - 4.0	~~SW~~ SP	BLACK SAND; MOIST		

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

1/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0308
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 0851
WATER ENCOUNTERED? Yes (NO)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0308-13 0857
SAMPLE2 ID: SC0308-35 0857

GPS EAST: _____
SAMPLE1 RESULT: 250 ppm J
SAMPLE2 RESULT: 3840 ppm

0-1 NOT COLLECTED

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
1-1.5	SP/GP	FID: 13 PID - NR GRAVEL + SAND FILL; DRY	0949	
1.5-3.5	SP/GP	GRAVELLY SAND; GREEN; MOIST		
3.5-4.5	FILL	FID: 120 PID: - NR AUTO FLUFF; DEBRIS; BLACK		
4.5-5	SW	SAND; F-C; BLACK		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits
J = estimated value

7/21/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0309
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE CHIPS 1502
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: CHARLIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0309 - 13 1507
SAMPLE2 ID: SC0309 - 35 1909

GPS EAST: _____
SAMPLE1 RESULT: 2150 ppm
SAMPLE2 RESULT: no result

0-1 NOT COLLECTED

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
1-2	SP/GW	FID: 32 PID: 20 1-3 VERY GRAVELLY COBBLY SAND MED GRAVEL TO MED COBBLES BRN; DRY; NO ODORS	1500	
2-3	SP/GW			
3-4	SM	FID: 45 PID: 7 3-4 SILTY SAND; BLACK; STAINED W PRODUCT; @ ~4.0		
4-5	SLUDGE	4-5 LIME WASTE LAYER		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

3/19/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0310
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE CHIPS 1657
WATER ENCOUNTERED? (Yes) no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0310-13 1656
SAMPLE2 ID: SC0310-35 1700

GPS EAST: _____
SAMPLE1 RESULT: no result (RW) 0 ppm J
SAMPLE2 RESULT: 20100 ppm

(0-1' NOT SAMPLED)

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
1-2	SP/GP	PID: 9 FID (NO H_2)	1653	
	SP/GP	1-1.5 GRAVELLY COBBLY SAND		
2-3	SP/GP	1.5-3: GRAVELY SAND; ORG BRN;		
3-4	FILL	PID: 5 (NO H_2 FOR PID) 3.0-4.5: AUTOFLUFF; WOOD DEBRIS		
4-5	FILL			
	NR			

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits
J = estimated value

2/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0311
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 0953
WATER ENCOUNTERED? (Yes) No

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0311 - 13 0958
SAMPLE2 ID: SC0311 - 35 0958
NO SAMPLE 0-1'

GPS EAST: _____
SAMPLE1 RESULT: 2960 ppm
SAMPLE2 RESULT: 2830 ppm

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1.5	SP/GW	FID: 36 PID: 40 GRAVELLY SAND; FC GRAVEL; DRY LOOSE	0951	
1.5-3.0	SP	GREEN SAND; SOME GRAVEL; SLIGHTLY MOIST		
3.0-4.0	FILL	FID: >500 PID: 19 AUTO FLUFF + F M SAND; WET		
4-5	SP	BLACK SAND; F-M; WET		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

3/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0312
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 0939
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0312 -13 0942
SAMPLE2 ID: SC0312 -35 0936

GPS EAST: _____
SAMPLE1 RESULT: 3650 ppm
SAMPLE2 RESULT: 6000 ppm

0-1' NOT SAMPLED

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
		FID = 65 → 3-5	0925	
1-3	SP/GP	GRAVELLY SAND		
3-4.5	SP/GP	GREEN GRAVELLY SAND		
4.5-5	FILL	ASPHALT		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kit

2/19/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0313
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 1521
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: ~~SC0313~~ ~~SC0313~~ -13 1527
SAMPLE2 ID: ~~SC0313~~ -35 1529
SC0313

GPS EAST: _____
SAMPLE1 RESULT: 21240 ppm
SAMPLE2 RESULT: no result

0-1 NOT COLLECTED

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
1-2	SP/GW	FID: 84 PID: 14 1-1.5 GRAVELLY SAND; F-C GRAVEL 1.5-2.5 GRAVELLY SILTY SAND; GRAY SLIGHTLY MOISTE	1519	
2-3	GP/SM SLUDGE			
3-4	SLUDGE	FID >500; PID: 8 2.5-4.75: LIME WASTE W/ UK FIBERS		
4-5	SLUDGE FILL	4.75-5.0 → SATURATED W/ WATER & SOME FREE PRODUCT (NOT INCLUDED IN SAMPLE)		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

2/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0314
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 0803
WATER ENCOUNTERED? (Yes) no

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0314-130803
SAMPLE2 ID: SC0314-350806

GPS EAST: _____
SAMPLE1 RESULT: 2390 ppm
SAMPLE2 RESULT: 15690 ppm

0-1' NOT SAMPLED

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
0-1	SP/GW	FID: 52 PID: - 0-2 SAND & GRAVEL; F-C GRAVEL DRY	0754	
1-2	SP/GW			
2-3	FILL	FID: 84 PID: - 2-3.5: AUTO FELLEF MIXED W/ SOME SAND; MOIST		
3-4	FILL / SP	3.5-4.0: SAND; BLACK; WET		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

NOTE: PID READINGS NOT TAKEN; METER NOT RESPONDING TO SAMPLER'S EXPECTATIONS; WILL LET UNIT WARM UP & RESUME PID READINGS ON NEXT PROBE

3/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0315
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 1034
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0315 - 13 1040
SAMPLE2 ID: SC0315 - 35 1040

GPS EAST: _____
SAMPLE1 RESULT: 210 ppm J
SAMPLE2 RESULT: 13230 ppm

0-1' NOT SAMPLED

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
	?	FID: 6 PID: 200	1033	
		FID: >500 PID: 350		

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BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits

J = estimated value

7/20/00

CLEAN CARE SOIL BORING REPORT

BORING ID NO.: SC0316
STARTCARD NO: R 049151
GROUND ELEV: _____
INSTALLED: _____
GROUTED: BENTONITE SAND 10/2
WATER ENCOUNTERED? Yes (no)

DRILL METHOD: Geoprobe
DRILL FIRM: Ecology & Environment, Inc.
DRILLER: A. Jensen
CONSULTING FIRM: Ecology & Environment, Inc.
PROF. ENGINEER: C. HARRIS
GEOLOGIST: R. WHITCHURCH

GPS NORTH: _____
SAMPLE1 ID: SC0316 -13 1018
SAMPLE2 ID: SC0316 -35 1018

GPS EAST: _____
SAMPLE1 RESULT: 1760ppm
SAMPLE2 RESULT: 2760ppm

0-1 NOT SAMPLED

DEPTH (FT BGS)	SOIL CLASS (USCS)	SOIL DESCRIPTION	TIME	SAMPLE
1-3.5	SP/GP	FID: 12 PID: 46 GRAVELLY SAND		
3.5-4	SP/GP	GRN GRVL SAND;		
4.0-4.5	FILL	WOOD DEBRIS, SILTY SAND; SLIGHTLY MOIST		
		FID: 12 PID: 14		

Ecology & Environment, Inc. 2000

BGS = below ground surface
USCS = Unified Soil Classification System
Sample 1 and 2 to be field screened using TPH Test Kits
J= estimated value