



Grauvogel & Associates



January 14, 2004

City of South Bend
Community and Economic Development
1200 County-City Building
South Bend, IN 46601

Attention: Mr. Andy Laurent

Subject: Oliver Plow Phase III – Paint Contaminated Soils Pile Disposal

Dear Andy:

Enclosed are the laboratory results documenting the composite characteristics of the waste soils generated from excavating the paint spill in November 2003. As reported in our earlier memorandum, the soil was found contaminated with green lead-based paint containing leachable lead above the EPA TCLP limit. The present work and sampling was to separate the clean soil incidentally excavated from the edges of the contamination and collect a representative composite sample to establish that this soil was indeed non-hazardous. The original pile containing about 270 tons (175 CY) of soil was separated into a contaminated hazardous waste pile of about 90 tons (60 CY) and a “clean” soil pile of approximately 180 tons (115 CY). This letter reports the results for the additional composite sample collected from the “clean” soil pile for total and TCLP metals, total and TCLP organics and total PCB’s analysis necessary for determining if this soil can be disposed on site as non-hazardous material. The composite sample was generated by moving the entire pile with a backhoe, segregating the shovels based on color into “clean” and contaminated, collecting 8 ounces of soil from each “clean” shovel, mixing all the individual 8-ounce samples together and then collecting an 8-ounce composite from these combined shovel samples. The results are summarized in Table 1.

As Table 1 illustrates the presumed “clean” soil pile was actually clean, displaying no RCRA hazardous waste characteristics for TCLP metals, TCLP organics or total PCB’s. Likewise the total metals and organics results showed the clean soil to be within the VRP goals and RISC limits that will allow disposal of this pile on-site. The laboratory reports are attached for your records.

Direct further questions to my attention. Thank you for this opportunity to serve you.

Sincerely,

Grauvogel & Associates

Lawrence W. Grauvogel PE, CIH, CSP, CHMM

cc: L. Turley/Hull, T. Baehr/Hull



Table 1: Summary of Waste Soil Characteristics
 Total and TCLP Metals + Organics, PCB's
 Oliver Plow Phase III – Green Paint Spill Clean Soil Pile
 December 18, 2003

Analyte	Total (mg/kg)	VRP Limit ¹	TCLP (mg/L)	RCRA Limit
RCRA Metals				
arsenic	<10	612	<0.1	5.0
barium	12.1	10,000	0.30	100.0
cadmium	<1	1,020	<0.02	1.0
chromium	7.4	10,000	<0.02	5.0
lead	20.6	970 ^a	<0.05	5.0
mercury	0.46	122.4	<0.001	0.2
selenium	<10	10,000	<0.1	1.0
silver	<1	10,000	<0.005	5.0
Volatile Organics (VOC)				
benzene	<0.05	16.63	<0.02	0.5
carbon tetrachloride	<0.10	31 ^a	<0.02	0.5
chlorobenzene	<0.05	2,600 ^a	<0.02	100.0
chloroform	<0.05	5.28	<0.02	6.0
1,4-dichlorobenzene	<0.05	2,416	<0.02	7.5
1,2-dichloroethane	<0.05	5.27	<0.02	0.5
1,1-dichloroethylene	<0.10	0.15	<0.02	0.7
methyl ethyl ketone	<0.5	1,000	<0.2	200.0
tetrachloroethylene	<0.05	101.2	<0.02	0.7
trichloroethylene	<0.05	24.97	<0.02	0.5
vinyl chloride	<0.10	56 ^a	<0.1	0.2
55 others	nd	variable		
Semi-Volatile Organics (SVOC)				
cresol (o, m, or p)			<0.1	200.0
2,4-dinitrotoluene	<0.5	4,080	<0.1	0.13
hexachloro-1,3-butadiene	<0.5	1.78	<0.1	0.5
hexachlorobenzene	<0.5	6.87	<0.1	0.13
hexachloroethane	<0.5	408	<0.1	3.0
nitrobenzene	<0.5	1,020	<0.1	2.0
pentachlorophenol	<2.5	483	<1	100.0
pyridine	<0.5	^a	<0.1	5.0
2,4,5-trichlorophenol	<0.5	10,000	<1	400.0
2,4,6-trichlorophenol	<0.5	1,923	<0.1	2.0
60 others	nd	variable		
Polychlorinated Biphenyls				
Arochlors 1016 - 1260	all <0.2	7.53		

¹ 1996 IDEM Voluntary Remediation Program clean-up goals

^a 2001 IDEM RISC limit for construction activities at industrial sites; no 1996 VRP established

SAMPLE RESULTS

CLIENT SAMPLE ID: 1218-OP-GP-C Green Paint Clean
CLIENT PROJECT: Oliver Plow Works
SAMPLE TYPE: Soil/Sludge/Solid
Date Collected: 12/18/03

Report Date: 1/19/04
EIS Sample No: 093473
EIS Order No: 031200205
Date Received: 12/18/03

Parameter	Results	Units	RDL	MDL	Test Date	Analyst ID	Method
Moisture(%)	6.7	%	0.1	0.1	12/22/03	E21	160.3

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EIS Order No: 031200205
Date Received: 12/18/03

Parameter	Results	Units	RDL	MDL	Test Date	Analyst ID	Method
METALS							
Arsenic, Total	<10	mg/kg(wet)	10	10	12/19/03	E09	6010
Barium, Total	12.1	mg/kg(wet)	1	1	12/19/03	E09	6010
Cadmium, Total	<1	mg/kg(wet)	1	1	12/19/03	E09	6010
Chromium, Total	7.4	mg/kg(wet)	2	2	12/19/03	E09	6010
Lead, Total	20.6	mg/kg(wet)	5	5	12/19/03	E09	6010
Mercury, Total	0.46	mg/kg(wet)	0.1	0.2	1/8/04	E09	7471
Selenium, Total	<10	mg/kg(wet)	10	10	12/19/03	E09	6010
Silver, Total	<1	mg/kg(wet)	1	1	12/19/03	E09	6010

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Parameter	Results	Units	RDL	MDL	Test Date	Analyst ID	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	mg/kg(wet)	2	0.2	1/12/04	E01	8082
PCB (AR1221)	nd	mg/kg(wet)	2	0.2	1/12/04	E01	8082
PCB (AR1232)	nd	mg/kg(wet)	2	0.2	1/12/04	E01	8082
PCB (AR1242)	nd	mg/kg(wet)	2	0.2	1/12/04	E01	8082
PCB (AR1248)	nd	mg/kg(wet)	2	0.2	1/12/04	E01	8082
PCB (AR1254)	nd	mg/kg(wet)	2	0.2	1/12/04	E01	8082
PCB (AR1260)	nd	mg/kg(wet)	2	0.2	1/12/04	E01	8082

SAMPLE RESULTS

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Date Received: 12/18/03

Parameter	Results	Units	RDL	MDL	Test Date	Analyst ID	Method
SEMIVOLATILE ORGANICS							
Acenaphthene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Acenaphthylene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Aniline	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Anthracene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Benzidine	nd	mg/kg(wet)	5	2.5	1/6/04	E01	8270 C
Benzo(a)anthracene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Benzo(a)pyrene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Benzo(b)fluoranthene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Benzo(ghi)perylene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Benzo(k)fluoranthene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Benzoic acid	nd	mg/kg(wet)	5	2.5	1/6/04	E01	8270 C
Benzyl alcohol	nd	mg/kg(wet)	2	1	1/6/04	E01	8270 C
Bis(2-chloroethoxy)methane	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Bis(2-chloroethyl)ether	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Bis(2-chloroisopropyl)ether	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Bis(2-ethylhexyl)phthalate	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Bromophenyl-phenylether (4)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Butyl benzyl phthalate	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Chloro-3-methylphenol (4)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Chloroaniline (4)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Chloronaphthalene (2)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Chlorophenol (2)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Chlorophenyl phenyl ether (4)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Chrysene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Di-n-butylphthalate	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Di-n-octylphthalate	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Dibenzo(a,h)anthracene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Dibenzofuran	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Dichlorobenzene (1,2)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Dichlorobenzene (1,3)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Dichlorobenzene (1,4)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Dichlorobenzidine (3,3')	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Dichlorophenol (2,4)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Diethyl phthalate	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Dimethyl phthalate	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Dimethylphenol (2,4)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
4-Nitrophenol (2,4)	nd	mg/kg(wet)	5	2.5	1/6/04	E01	8270 C
Dinitrotoluene (2,4)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C

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Dinitrotoluene (2,6)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Diphenylhydrazine (1,2)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Fluoranthene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Fluorene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Hexachlorobenzene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Hexachlorobutadiene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Hexachlorocyclopentadiene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Hexachloroethane	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Indeno(1,2,3-cd)pyrene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Isophorone	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Methyl-4,6-dinitrophenol (2)	nd	mg/kg(wet)	5	2.5	1/6/04	E01	8270 C
Methylnaphthalene (2)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Methylphenol (2)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Methylphenol (4)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Naphthalene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Nitroaniline (2)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Nitroaniline (3)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Nitroaniline (4)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Nitrobenzene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Nitrophenol (2)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Nitrophenol (4)	nd	mg/kg(wet)	5	2.5	1/6/04	E01	8270 C
Nitroso-di-methylamine (normal)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Nitroso-di-n-propylamine (normal)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Nitroso-di-phenylamine (normal)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Pentachlorophenol	nd	mg/kg(wet)	5	2.5	1/6/04	E01	8270 C
Phenanthrene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Phenol	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Pyrene	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Pyridine	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Trichlorobenzene (1,2,4)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Trichlorophenol (2,4,5)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C
Trichlorophenol (2,4,6)	nd	mg/kg(wet)	1	0.5	1/6/04	E01	8270 C

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TCLP METALS							
Arsenic,TCLP	<0.1	mg/L	0.1	0.1	12/19/03	E09	6010
Barium,TCLP	0.30	mg/L	0.01	0.01	12/19/03	E09	6010
Cadmium,TCLP	<0.02	mg/L	0.02	0.02	12/19/03	E09	6010
Chromium,TCLP	<0.02	mg/L	0.02	0.02	12/19/03	E09	6010
Lead,TCLP	<0.05	mg/L	0.05	0.05	12/19/03	E09	6010
Mercury,TCLP	<0.001	mg/L	0.001	0.001	1/8/04	E09	7470
Selenium,TCLP	<0.1	mg/L	0.1	0.1	12/19/03	E09	6010
Silver,TCLP	<0.005	mg/L	0.005	0.005	12/19/03	E09	6010

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TCLP SEMIVOLATILES							
Cresol (meta) TCLP	nd	mg/L	0.1	0.1	1/6/04	E01	8270 C
Cresol (ortho) TCLP	nd	mg/L	0.1	0.1	1/6/04	E01	8270 C
Cresol (para) TCLP	nd	mg/L	0.1	0.1	1/6/04	E01	8270 C
Dinitrotoluene (2,4) TCLP	nd	mg/L	0.1	0.1	1/6/04	E01	8270 C
Hexachloro-1,3-butadiene,TCLP	nd	mg/L	0.1	0.1	1/6/04	E01	8270 C
Hexachlorobenzene,TCLP	nd	mg/L	0.1	0.1	1/6/04	E01	8270 C
Hexachloroethane,TCLP	nd	mg/L	0.1	0.1	1/6/04	E01	8270 C
Nitrobenzene,TCLP	nd	mg/L	0.1	0.1	1/6/04	E01	8270 C
Pentachlorophenol,TCLP	nd	mg/L	1	1	1/6/04	E01	8270 C
Pyridine,TCLP	nd	mg/L	0.1	0.1	1/6/04	E01	8270 C
Total Cresols,TCLP	nd	mg/L	0.3	0.3	1/6/04	E01	8270 C
Trichlorophenol (2,4,5) TCLP	nd	mg/L	1	1	1/6/04	E01	8270 C
Trichlorophenol (2,4,6) TCLP	nd	mg/L	0.1	0.1	1/6/04	E01	8270 C

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TCLP VOLATILE ORGANICS .							
Benzene,TCLP	nd	mg/L	0.02	0.02	12/29/03	E04	8260 B
Carbon Tetrachloride,TCLP	nd	mg/L	0.02	0.02	12/29/03	E04	8260 B
Chlorobenzene,TCLP	nd	mg/L	0.02	0.02	12/29/03	E04	8260 B
Chloroform,TCLP	nd	mg/L	0.02	0.02	12/29/03	E04	8260 B
Dichlorobenzene (1,4) TCLP	nd	mg/L	0.02	0.02	12/29/03	E04	8260 B
Dichloroethane (1,2) TCLP	nd	mg/L	0.02	0.02	12/29/03	E04	8260 B
Dichloroethylene (1,1) TCLP	nd	mg/L	0.02	0.02	12/29/03	E04	8260 B
Methyl Ethyl Ketone,TCLP	nd	mg/L	0.2	0.2	12/29/03	E04	8260 B
Tetrachloroethylene,TCLP	nd	mg/L	0.02	0.02	12/29/03	E04	8260 B
Trichloroethylene,TCLP	nd	mg/L	0.02	0.02	12/29/03	E04	8260 B
Vinyl Chloride,TCLP	nd	mg/L	0.1	0.1	12/29/03	E04	8260 B

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VOLATILE ORGANICS							
Acetone	nd	mg/kg(wet)	1	0.5	12/29/03	E04	8260 B
Benzene	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Bromobenzene	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Bromochloromethane	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Bromodichloromethane	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Bromoform	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Bromomethane	nd	mg/kg(wet)	0.5	0.25	12/29/03	E04	8260 B
Butylbenzene (normal)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Butylbenzene (sec)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Butylbenzene (tert)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Carbon Tetrachloride	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Chlorobenzene	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Chloroethane	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Chloroform	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Chloromethane	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Chlorotoluene (2)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Chlorotoluene (4)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Dibromo-3-chloropropane (1,2)	nd	mg/kg(wet)	0.5	0.25	12/29/03	E04	8260 B
Dibromochloromethane	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Dibromoethane (1,2)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Dibromomethane	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Dichlorobenzene (1,2)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Dichlorobenzene (1,3)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Dichlorobenzene (1,4)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Dichlorodifluoromethane	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Dichloroethane (1,1)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Dichloroethane (1,2)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Dichloroethene (1,1)	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Dichloroethene (c-1,2)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Dichloroethene (t-1,2)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Dichloropropane (1,2)	nd	mg/kg(wet)	0.5	0.25	12/29/03	E04	8260 B
Dichloropropane (1,3)	nd	mg/kg(wet)	0.5	0.25	12/29/03	E04	8260 B
Dichloropropane (2,2)	nd	mg/kg(wet)	0.5	0.25	12/29/03	E04	8260 B
Dichloropropene (1,1)	nd	mg/kg(wet)	0.5	0.25	12/29/03	E04	8260 B
Dichloropropene (c-1,3)	nd	mg/kg(wet)	0.5	0.25	12/29/03	E04	8260 B
Dichloropropene (t-1,3)	nd	mg/kg(wet)	0.5	0.25	12/29/03	E04	8260 B
Diethyl ether	nd	mg/kg(wet)	1	0.5	12/29/03	E04	8260 B
Ethylbenzene	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: 1218-OP-GP-C Green Paint Clean
CLIENT PROJECT: Oliver Plow Works
SAMPLE TYPE: Soil/Sludge/Solid
Date Collected: 12/18/03

Report Date: 1/19/04
EIS Sample No: 093473
EIS Order No: 031200205
Date Received: 12/18/03

Parameter	Results	Units	RDL	MDL	Test Date	Analyst ID	Method
Hexachlorobutadiene	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Hexanone (2-)	nd	mg/kg(wet)	1	0.5	12/29/03	E04	8260 B
Isopropylbenzene	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Isopropyltoluene (para)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Methyl Ethyl Ketone (MEK)	nd	mg/kg(wet)	1	0.5	12/29/03	E04	8260 B
Methyl Isobutyl Ketone (MIBK)	nd	mg/kg(wet)	1	0.5	12/29/03	E04	8260 B
Methylbutylether (tert) (MTBE)	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Methylene chloride	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Naphthalene	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Propylbenzene (normal)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Styrene	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Tetrachloroethane (1,1,1,2)	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Tetrachloroethane (1,1,2,2)	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Tetrachloroethene	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Toluene	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Trichlorobenzene (1,2,3)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Trichlorobenzene (1,2,4)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Trichloroethane (1,1,1)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Trichloroethane (1,1,2)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Trichloroethene	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Trichlorofluoromethane	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Trichloropropane (1,2,3)	nd	mg/kg(wet)	0.5	0.25	12/29/03	E04	8260 B
Trimethylbenzene (1,2,4)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Trimethylbenzene (1,3,5)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Vinyl acetate	nd	mg/kg(wet)	1	0.5	12/29/03	E04	8260 B
Vinyl Chloride	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B
Xylene (ortho)	nd	mg/kg(wet)	0.1	0.05	12/29/03	E04	8260 B
Xylenes (meta + para)	nd	mg/kg(wet)	0.2	0.1	12/29/03	E04	8260 B

SAMPLE PREPARATION INFORMATION

Client Name: Grauvogel & Associates
 Client Project: Oliver Plow Works

Report Date: 1/19/04
 EIS Order No: 031200205

EIS Lab Number	Client Description	Sample Date	Procedure	Result	Date Completed	Analyst	Method
093472	1218-OP-FO Fuel Oil Pi	12/18/03	Digest Mercury	Complete	1/7/04	E09	7471
		12/18/03	Digest Mercury(TCLP Extract)	Complete	1/15/04	E09	7470
		12/18/03	Digest ICP Metals	Complete	12/19/03	E09	3050 B
		12/18/03	Digest ICP Metals(TCLP Extract)	Complete	1/8/04	E09	3005 A
		12/18/03	Extract BETX/TPH	Complete	12/22/03	E16	8015
		12/18/03	Extract PCB	Complete	12/23/03	E16	3540 C
		12/18/03	Extract SVOC	Complete	12/23/03	E16	3540 C
		12/18/03	Extract VOC	Complete	12/19/03	E16	8260 B
		12/18/03	TCLP Extraction	Complete	1/7/04	E16	1311
093473	1218-OP-GP-C Green	12/18/03	Digest Mercury	Complete	1/7/04	E09	7471
		12/18/03	Digest Mercury(TCLP Extract)	Complete	1/7/04	E09	7470
		12/18/03	Digest ICP Metals	Complete	12/19/03	E09	3050 B
		12/18/03	Digest ICP Metals(TCLP Extract)	Complete	12/19/03	E09	3005 A
		12/18/03	Extract PCB	Complete	12/23/03	E16	3540 C
		12/18/03	Extract SVOC	Complete	12/23/03	E16	3540 C
		12/18/03	Extract SVOC(TCLP Extract)	Complete	12/22/03	E16	3510 C
		12/18/03	Extract VOC	Complete	12/19/03	E16	8260 B
		12/18/03	TCLP Extraction	Complete	1/7/04	E16	1311
		12/18/03	ZHE Formation	Complete	12/18/03	E16	1311

QUALITY ASSURANCE / QUALITY CONTROL DATA

Method Specific Surrogate Compound Recoveries

EIS Order ID: 031200205

Normal Test	Surrogate	QUALITY CONTROL LIMITS			
		Methods		QC Limits	
		Water	Soil	Water	Soil
Herbicides	2,4-Dichlorophenylacetic acid(DCAA)	615 / 8151A / 8270C	8270C	15 - 135	
Pesticides / PCB	2,4,5,6-Tetrachloro-m-xylene(TCMX)	608 / 8081A / 8082 / 508	8082	22 - 145	40 - 150
Pesticides / PCB	Decachlorobiphenyl(DCB)	608 / 8081A / 508	8082	22 - 145	40 - 150
SOC (svoc)	Perylene, d12	525.2		30 - 140	
SVOC (acid)	2-Fluorophenol	625 / 8270C	8270C	21 - 100	25 - 121
SVOC (acid)	Phenol, d5	625 / 8270C	8270C	10 - 94	24 - 113
SVOC (base/neutral)	Nitrobenzene, d5	625 / 8270C	8270C	35 - 114	23 - 120
SVOC (base/neutral)	2-Fluorobiphenyl	625 / 8270C	8270C	43 - 116	30 - 115
SVOC (acid)	2,4,6-Tribromophenol	625 / 8270C	8270C	10 - 123	19 - 122
SVOC (base/neutral)	Terphenyl, d14	625 / 8270C	8270C	33 - 141	18 - 137
TPH	Styrene	8015M	8015M	30 - 90	34 - 90
VOC / BETX / TPH	1,2-Dichloroethane, d4	624 / 8260B / 524.2	8260B	70 - 130	70 - 130
VOC / BETX / TPH	Toluene, d8	624 / 8260B / 524.2	8260B	70 - 130	70 - 130
VOC / BETX / TPH	Bromofluorobenzene(BFB)	624 / 8260B / 524.2	8260B	70 - 130	70 - 130

EIS Lab No	Client Sample ID	Method	Matrix	Surrogate	%Recovery
093472	1218-OP-FO Fuel Oil Pile	8015 M	Soil/Sludge/Solid	Styrene (SS)	-1
093472	1218-OP-FO Fuel Oil Pile	8082	Soil/Sludge/Solid	2,4,5,6-Tetrachloro-m-xylene(SS)	109
		8082	Soil/Sludge/Solid	Decachlorobiphenyl (SS)	123
093472	1218-OP-FO Fuel Oil Pile	8260 B	Soil/Sludge/Solid	1,2-Dichloroethane-d4 (SS)	77
		8260 B	Soil/Sludge/Solid	4-Bromofluorobenzene (SS)	115
		8260 B	Soil/Sludge/Solid	Toluene-d8 (SS)	93
093472	1218-OP-FO Fuel Oil Pile	8270 C	Soil/Sludge/Solid	2,4,6-Tribromophenol (SS)	-1
		8270 C	Soil/Sludge/Solid	2-Fluorobiphenyl (SS)	-1
		8270 C	Soil/Sludge/Solid	2-Fluorophenol (SS)	-1
		8270 C	Soil/Sludge/Solid	Nitrobenzene-d5 (SS)	-1
		8270 C	Soil/Sludge/Solid	Phenol-d5 (SS)	-1
		8270 C	Soil/Sludge/Solid	Terphenyl-d14 (SS)	-1
093473	1218-OP-GP-C Green Pa	8082	Soil/Sludge/Solid	2,4,5,6-Tetrachloro-m-xylene(SS)	114
		8082	Soil/Sludge/Solid	Decachlorobiphenyl (SS)	119
093473	1218-OP-GP-C Green Pa	8260 B	Soil/Sludge/Solid	1,2-Dichloroethane-d4 (SS)	80
		8260 B	Soil/Sludge/Solid	4-Bromofluorobenzene (SS)	107
		8260 B	Soil/Sludge/Solid	Toluene-d8 (SS)	93
		8260 B	Soil/Sludge/Solid	1,2-Dichloroethane-d4 (SS)	81
		8260 B	Soil/Sludge/Solid	4-Bromofluorobenzene (SS)	115
		8260 B	Soil/Sludge/Solid	Toluene-d8 (SS)	97
093473	1218-OP-GP-C Green Pa	8270 C	Soil/Sludge/Solid	2,4,6-Tribromophenol (SS)	94
		8270 C	Soil/Sludge/Solid	2-Fluorobiphenyl (SS)	94
		8270 C	Soil/Sludge/Solid	2-Fluorophenol (SS)	93
		8270 C	Soil/Sludge/Solid	Nitrobenzene-d5 (SS)	122
		8270 C	Soil/Sludge/Solid	Phenol-d5 (SS)	104
		8270 C	Soil/Sludge/Solid	Terphenyl-d14 (SS)	93

Total
Total

Legend: -1 = Surrogates diluted out -2 = Surrogates not used -999 = Interference in response area

QUALITY ASSURANCE / QUALITY CONTROL DATA
Method Specific Surrogate Compound Recoveries

EIS Order ID: 031200205

Normal Test	Surrogate	QUALITY CONTROL LIMITS			
		Methods		QC Limits	
		Water	Soil	Water	Soil
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SOC (svoc)	Perylene, d12	525.2		30 - 140	
SVOC (acid)	2-Fluorophenol	625 / 8270C	8270C	21 - 100	25 - 121
SVOC (acid)	Phenol, d5	625 / 8270C	8270C	10 - 94	24 - 113
SVOC (base/neutral)	Nitrobenzene, d5	625 / 8270C	8270C	35 - 114	23 - 120
SVOC (base/neutral)	2-Fluorobiphenyl	625 / 8270C	8270C	43 - 116	30 - 115
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TPH	Styrene	8015M	8015M	30 - 90	34 - 90
VOC / BETX / TPH	1,2-Dichloroethane, d4	624 / 8260B / 524.2	8260B	70 - 130	70 - 130
VOC / BETX / TPH	Toluene, d8	624 / 8260B / 524.2	8260B	70 - 130	70 - 130
VOC / BETX / TPH	Bromofluorobenzene(BFB)	624 / 8260B / 524.2	8260B	70 - 130	70 - 130

EIS Lab No	Client Sample ID	Method	Matrix	Surrogate	%Recovery
093473	1218-OP-GP-C Green Pa	8270 C	Soil/Sludge/Solid	2,4,6-Tribromophenol (SS)	96
		8270 C	Soil/Sludge/Solid	2-Fluorobiphenyl (SS)	101
		8270 C	Soil/Sludge/Solid	2-Fluorophenol (SS)	124
		8270 C	Soil/Sludge/Solid	Nitrobenzene-d5 (SS)	121
		8270 C	Soil/Sludge/Solid	Phenol-d5 (SS)	76
		8270 C	Soil/Sludge/Solid	Terphenyl-d14 (SS)	93

TCLP

Legend: -1 = Surrogates diluted out -2 = Surrogates not used -999 = Interference in response area