



## Grauvogel & Associates

December 3, 2003

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 – Green Paint Waste Soil

Dear Andy:

Enclosed are the laboratory results documenting the characteristics of the green paint and associated contaminated soil encountered near the center of the cul-de-sac of the Oliver Industrial Park access road. This material was excavated and stockpiled on the concrete pad at the north edge of the site pending the receipt of the results and its classification. A small amount of free product was encountered during the excavation along with some concentrated contaminated soil. This concentrated waste soil is shown in the table as sample 1103-WP. The concentrated waste soil contained leachable lead over the EPA hazardous waste limit.

The other results in the table are for a composite from four samples of the waste pile. The leachable lead was obviously diluted from the free product by the inclusion of other sandy soil such that the waste pile displayed no hazardous waste characteristics.

The spill area was excavated based on coloration in the soil to a point where the green color disappeared. The hole was about one-half backfilled before we could observe the walls to confirm this, but the portions of the walls that we could view were free of green discoloration. We were not present during the entire excavation of this material, so we are not sure exactly how much free product was encountered. We did observe the initial strike, which was not very large, and the backhoe operator reported that there was not much more than we observed. If the concentrated waste sample is incorporated into this composite also, the equivalent of assuming that the concentrated waste comprises an additional 20% of the waste pile beyond the paint already in the remainder of the soil, the resulting concentrations are still below the EPA hazardous waste limits. These concentrations are shown as sample 1103-CP.

In summary we conclude that this waste material is non-RCRA hazardous and can be taken to the Prairie View landfill. We will contact Kevin Perkins and submit the waste profile to initiate the disposal. 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. Bachr/Hull



**Table 1: Summary of Waste Soil Characteristics**  
**EPA TCLP Parameters and Metals – Oliver Plow Phase III Green Paint and Soil**  
 November 3, 2003

Analyte		1103-1	1103-WP	1103-CP	RCRA
Location		soil pile	concentrate	composite	Limit
TCLP Metals (mg/L)	arsenic	<0.1	<0.1	<0.1	5.0
	barium	0.27	0.14	0.64	100.0
	cadmium	<0.02	<0.02	<0.02	1.0
	chromium	<0.02	0.16	0.13	5.0
	lead	<0.05	9.64	1.95	5.0
	mercury	<0.001	<0.001	<0.001	0.2
	selenium	<0.1	<0.1	<0.1	1.0
	silver	<0.005	<0.005	<0.005	5.0
TCLP Volatiles (mg/L)	benzene	<0.02		<0.02	0.5
	carbon tetrachloride	<0.02		<0.02	0.5
	chlorobenzene	<0.02		<0.02	100.0
	chloroform	<0.02		<0.02	6.0
	1,4-dichlorobenzene	<0.02		<0.02	7.5
	1,2-dichloroethane	<0.02		<0.02	0.5
	1,1-dichloroethylene	<0.02		<0.02	0.7
	methyl ethyl ketone	<0.2		<0.2	200.0
	tetrachloroethylene	<0.02		<0.02	0.7
	trichloroethylene	<0.02		<0.02	0.5
vinyl chloride	<0.1		<0.1	0.2	
TCLP Semi-Volatiles (mg/L)	cresol (o, m, p)	<0.1		<0.1	200.0
	dinitrotoluene	<0.1		<0.1	0.13
	hexachloro-1,3-butadiene	<0.1		<0.1	0.5
	hexachlorobenzene	<0.1		<0.1	0.13
	hexachloroethane	<0.1		<0.1	3.0
	nitrobenzene	<0.1		<0.1	2.0
	pentachlorophenol	<1		<1	100.0
	pyridine	<0.1		<0.1	5.0
	2,4,5-trichlorophenol	<1		<1	400.0
2,4,6-trichlorophenol	<0.1		<0.1	2.0	
Total Metals (mg/kg)	arsenic		<10		
	barium		21.6		
	cadmium		<1		
	chromium		2,480		
	lead		12,700		
	mercury		10.9		
	selenium		<10		
	silver		<1		



**SAMPLE RESULTS**

CLIENT SAMPLE ID: 1103-1 Green Paint Pile  
 CLIENT PROJECT: Oliver Plow Works  
 SAMPLE TYPE: Soil/Sludge/Solid  
 Date Collected: 11/3/03

Report Date: 12/1/03  
 EIS Sample No: 092688  
 EIS Order No: 031100014  
 Date Received: 11/3/03

Parameter	Results	Units	RDL	MDL	Test Date	Analyst ID	Method
<b>TCLP METALS</b>							
Arsenic,TCLP	<0.1	mg/L	0.1	0.1	11/6/03	E09	6010
Barium,TCLP	0.27	mg/L	0.01	0.01	11/6/03	E09	6010
Cadmium,TCLP	<0.02	mg/L	0.02	0.02	11/6/03	E09	6010
Chromium,TCLP	<0.02	mg/L	0.02	0.02	11/6/03	E09	6010
Lead,TCLP	<0.05	mg/L	0.05	0.05	11/6/03	E09	6010
Mercury,TCLP	<0.001	mg/L	0.001	0.001	11/11/03	E09	7470
Selenium,TCLP	<0.1	mg/L	0.1	0.1	11/6/03	E09	6010
Silver,TCLP	<0.005	mg/L	0.005	0.005	11/6/03	E09	6010
<b>TCLP SEMIVOLATILES</b>							
Cresol (meta) TCLP	nd	mg/L	0.1	0.1	11/17/03	E01	8270 C
Cresol (ortho) TCLP	nd	mg/L	0.1	0.1	11/17/03	E01	8270 C
Cresol (para) TCLP	nd	mg/L	0.1	0.1	11/17/03	E01	8270 C
Dinitrotoluene (2,4) TCLP	nd	mg/L	0.1	0.1	11/17/03	E01	8270 C
Hexachloro-1,3-butadiene,TCLP	nd	mg/L	0.1	0.1	11/17/03	E01	8270 C
Hexachlorobenzene,TCLP	nd	mg/L	0.1	0.1	11/17/03	E01	8270 C
Hexachloroethane,TCLP	nd	mg/L	0.1	0.1	11/17/03	E01	8270 C
Nitrobenzene,TCLP	nd	mg/L	0.1	0.1	11/17/03	E01	8270 C
Pentachlorophenol,TCLP	nd	mg/L	1	1	11/17/03	E01	8270 C
Pyridine,TCLP	nd	mg/L	0.1	0.1	11/17/03	E01	8270 C
Total Cresols,TCLP	nd	mg/L	0.3	0.3	11/17/03	E01	8270 C
Trichlorophenol (2,4,5) TCLP	nd	mg/L	1	1	11/17/03	E01	8270 C
Trichlorophenol (2,4,6) TCLP	nd	mg/L	0.1	0.1	11/17/03	E01	8270 C
<b>TCLP VOLATILE ORGANICS</b>							
Benzene,TCLP	nd	mg/L	0.02	0.02	11/18/03	E04	8260 B
Carbon Tetrachloride,TCLP	nd	mg/L	0.02	0.02	11/18/03	E04	8260 B
Chlorobenzene,TCLP	nd	mg/L	0.02	0.02	11/18/03	E04	8260 B
Chloroform,TCLP	nd	mg/L	0.02	0.02	11/18/03	E04	8260 B
Dichlorobenzene (1,4) TCLP	nd	mg/L	0.02	0.02	11/18/03	E04	8260 B
Dichloroethane (1,2) TCLP	nd	mg/L	0.02	0.02	11/18/03	E04	8260 B
Dichloroethylene (1,1) TCLP	nd	mg/L	0.02	0.02	11/18/03	E04	8260 B
Methyl Ethyl Ketone,TCLP	nd	mg/L	0.2	0.2	11/18/03	E04	8260 B
Tetrachloroethylene,TCLP	nd	mg/L	0.02	0.02	11/18/03	E04	8260 B
Trichloroethylene,TCLP	nd	mg/L	0.02	0.02	11/18/03	E04	8260 B
Vinyl Chloride,TCLP	nd	mg/L	0.1	0.1	11/18/03	E04	8260 B

## SAMPLE RESULTS

CLIENT SAMPLE ID: 1103-WP Waste Green Paint  
 CLIENT PROJECT: Oliver Plow Works  
 SAMPLE TYPE: Soil/Sludge/Solid  
 Date Collected: 11/3/03

Report Date: 12/1/03  
 EIS Sample No: 092689  
 EIS Order No: 031100014  
 Date Received: 11/3/03

Parameter	Results	Units	RDL	MDL	Test Date	Analyst ID	Method
<b>METALS</b>							
Arsenic, Total	<10	mg/kg(wet)	10	10	11/12/03	E09	6010
Barium, Total	21.6	mg/kg(wet)	1	1	11/12/03	E09	6010
Cadmium, Total	<1	mg/kg(wet)	1	1	11/12/03	E09	6010
Chromium, Total	2480	mg/kg(wet)	200	2	11/12/03	E09	6010
Lead, Total	12700	mg/kg(wet)	500	5	11/12/03	E09	6010
Mercury, Total	10.9	mg/kg(wet)	2	0.2	11/14/03	E25	7471
Selenium, Total	<10	mg/kg(wet)	10	10	11/12/03	E09	6010
Silver, Total	<1	mg/kg(wet)	1	1	11/12/03	E09	6010
<b>TCLP METALS</b>							
Arsenic, TCLP	<0.1	mg/L	0.1	0.1	11/6/03	E09	6010
Barium, TCLP	0.14	mg/L	0.01	0.01	11/6/03	E09	6010
Cadmium, TCLP	<0.02	mg/L	0.02	0.02	11/6/03	E09	6010
Chromium, TCLP	0.16	mg/L	0.02	0.02	11/6/03	E09	6010
Lead, TCLP	9.64	mg/L	0.05	0.05	11/6/03	E09	6010
Mercury, TCLP	<0.001	mg/L	0.001	0.001	11/11/03	E09	7470
Selenium, TCLP	<0.1	mg/L	0.1	0.1	11/6/03	E09	6010
Silver, TCLP	<0.005	mg/L	0.005	0.005	11/6/03	E09	6010

## SAMPLE PREPARATION INFORMATION

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

Report Date: 12/1/03  
 EIS Order No: 031000274

EIS Lab Number	Client Description	Sample Date	Procedure	Result	Date Completed	Analyst	Method
092552	1027-1	10/27/03	ZHE Formation	Complete	11/4/03	E21	1311
092553	1027-SEB	10/27/03	Digest Mercury	Complete	11/13/03	E25	7471
		10/27/03	Digest ICP Metals	Complete	10/30/03	E09	3050 B
		10/27/03	Extract BETX/TPH	Complete	11/3/03	E16	8015
		10/27/03	Extract SVOC	Complete	11/4/03	E16	3540 C
		10/27/03	Extract VOC	Complete	10/30/03	E16	8260 B
092554	1027-SEW	10/27/03	Digest Mercury	Complete	11/13/03	E25	7471
		10/27/03	Digest ICP Metals	Complete	10/30/03	E09	3050 B
		10/27/03	Extract BETX/TPH	Complete	11/3/03	E16	8015
		10/27/03	Extract SVOC	Complete	11/4/03	E16	3540 C
		10/27/03	Extract VOC	Complete	10/30/03	E16	8260 B
092555	1027-NEB	10/27/03	Digest Mercury	Complete	11/13/03	E25	7471
		10/27/03	Digest ICP Metals	Complete	10/30/03	E09	3050 B
		10/27/03	Extract BETX/TPH	Complete	11/3/03	E16	8015
		10/27/03	Extract SVOC	Complete	11/4/03	E16	3540 C
		10/27/03	Extract VOC	Complete	10/30/03	E16	8260 B
092688	1103-1 Green Paint Pil	11/3/03	Digest Mercury(TCLP Extract)	Complete	11/10/03	E09	7470
		11/3/03	Digest ICP Metals(TCLP Extract)	Complete	11/6/03	E09	3005 A
		11/3/03	Extract SVOC(TCLP Extract)	Complete	11/7/03	E16	3510 C
		11/3/03	TCLP Extraction	Complete	11/4/03	E21	1311
		11/3/03	ZHE Formation	Complete	11/4/03	E21	1311
092689	1103-WP Waste Green	11/3/03	Digest Mercury	Complete	11/13/03	E25	7471
		11/3/03	Digest Mercury(TCLP Extract)	Complete	11/10/03	E09	7470
		11/3/03	Digest ICP Metals	Complete	11/11/03	E09	3050 B
		11/3/03	Digest ICP Metals(TCLP Extract)	Complete	11/6/03	E09	3005 A
		11/3/03	TCLP Extraction	Complete	11/4/03	E21	1311

**QUALITY ASSURANCE / QUALITY CONTROL DATA**

**Method Specific Surrogate Compound Recoveries**

EIS Order ID: 031000274

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
092554	1027-SEW	8260 B	Soil/Sludge/Solid	4-Bromofluorobenzene (SS)	119
		8260 B	Soil/Sludge/Solid	Toluene-d8 (SS)	90
092554	1027-SEW	8270 C	Soil/Sludge/Solid	2,4,6-Tribromophenol (SS)	82
		8270 C	Soil/Sludge/Solid	2-Fluorobiphenyl (SS)	67
		8270 C	Soil/Sludge/Solid	2-Fluorophenol (SS)	112
		8270 C	Soil/Sludge/Solid	Nitrobenzene-d5 (SS)	88
		8270 C	Soil/Sludge/Solid	Phenol-d5 (SS)	121
		8270 C	Soil/Sludge/Solid	Terphenyl-d14 (SS)	67
092555	1027-NEB	8015 M	Soil/Sludge/Solid	Styrene (SS)	42
092555	1027-NEB	8260 B	Soil/Sludge/Solid	1,2-Dichloroethane-d4 (SS)	92
		8260 B	Soil/Sludge/Solid	4-Bromofluorobenzene (SS)	58
		8260 B	Soil/Sludge/Solid	Toluene-d8 (SS)	86
092555	1027-NEB	8270 C	Soil/Sludge/Solid	2,4,6-Tribromophenol (SS)	79
		8270 C	Soil/Sludge/Solid	2-Fluorobiphenyl (SS)	75
		8270 C	Soil/Sludge/Solid	2-Fluorophenol (SS)	96
		8270 C	Soil/Sludge/Solid	Nitrobenzene-d5 (SS)	83
		8270 C	Soil/Sludge/Solid	Phenol-d5 (SS)	107
		8270 C	Soil/Sludge/Solid	Terphenyl-d14 (SS)	74
092556	1027-GW	8260 B	Water(Non DW)	1,2-Dichloroethane-d4 (SS)	104
		8260 B	Water(Non DW)	4-Bromofluorobenzene (SS)	98
		8260 B	Water(Non DW)	Toluene-d8 (SS)	100
092688	1103-1 Green Paint Pile	8260 B	Soil/Sludge/Solid	1,2-Dichloroethane-d4 (SS)	97
		8260 B	Soil/Sludge/Solid	4-Bromofluorobenzene (SS)	103
		8260 B	Soil/Sludge/Solid	Toluene-d8 (SS)	84
092688	1103-1 Green Paint Pile	8270 C	Soil/Sludge/Solid	2,4,6-Tribromophenol (SS)	73
		8270 C	Soil/Sludge/Solid	2-Fluorobiphenyl (SS)	71

**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: 031100014

Normal Test	Surrogate	QUALITY CONTROL LIMITS			
		Methods		QC Limits	
		Water	Soil	Water	Soil
Herbicides	2,4-Dichlorophenylaceticacid(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
092688	1103-1 Green Paint Pile	8270 C	Soil/Sludge/Solid	2-Fluorophenol (SS)	83
		8270 C	Soil/Sludge/Solid	Nitrobenzene-d5 (SS)	107
		8270 C	Soil/Sludge/Solid	Phenol-d5 (SS)	50
		8270 C	Soil/Sludge/Solid	Terphenyl-d14 (SS)	66

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



## QUALITY CONTROL DATA

### MATRIX SPIKE / DUPLICATE MATRIX SPIKE (MS/DMS)

EIS Order: 031000274

EIS Lab #s in This Batch:

Comments Concerning This QC Batch:

QC Sample: 092540

092540-092555

None

Matrix: Soil

Test: Mercury

Parameter	Back-ground	Spike Amount	Matrix Spike		Duplicate Spike		RPD	Quality Control Limits				QC Batch
			Result	% R	Result	% R		RPD		% R		
								LCL	UCL	LCL	UCL	
Mercury, Total	<0.1	40	41.2	103	42	105	2	0	- 20	75	--125	QB03022

#### LEGEND:

1. Background = Sample Result
2. Spike amount may be adjusted for dilution used in sample analysis
3. % R = Percent Recovery of Spike
4. RPD = Relative Percent Difference of the spike recoveries
5. LCL = Lower Control Limit
6. UCL = Upper Control Limit
7. Units are normally those shown in the Analysis Report and are always the same for the Background and Spike

# QUALITY CONTROL DATA

## REPLICATE ANALYSIS - SEPARATE DIGESTIONS / EXTRACTIONS

EIS Order: 031000274

Comments Concerning This Analysis:

QC Sample: 092540

None

Matrix: Soil

Parameter	Units	Original Analysis	Replicate Analysis	RPD	Advisory QC Limits	QC Batch
Mercury, Total	mg/kg(wet)	<0.1	<0.1	0.0	0 - 20	QB03022

### EGEND:

1. RPD = Relative Percent Difference
2. Advisory QC Limits may not be applicable when results are close to the Sample Detection Limits.

**QUALITY CONTROL DATA**  
**MATRIX SPIKE / DUPLICATE MATRIX SPIKE (MS/DMS)**

EIS Order: 031000274

EIS Lab #s in This Batch:

Comments Concerning This QC Batch:

QC Sample: 092540

092540 - 092555

None

Matrix: Soil

Test: Metals

Parameter	Back-ground	Spike Amount	Matrix Spike		Duplicate Spike		RPD	Quality Control Limits				QC Batch		
			Result	% R	Result	% R		RPD		% R				
								LCL	UCL	LCL	UCL			
Arsenic, Total	<10	40	38.9	97	39.5	99	2	0	--	20	75	--	125	QB03020
Barium, Total	6.4	40	42.7	91	42.8	91	0	0	--	20	75	--	125	QB03020
Cadmium, Total	<1	40	38.1	95	38.3	96	1	0	--	20	75	--	125	QB03020
Chromium, Total	4.8	40	42.2	94	42.2	94	0	0	--	20	75	--	125	QB03020
Lead, Total	<5	40	40.6	102	41.4	103	2	0	--	20	75	--	125	QB03020
Selenium, Total	<10	40	39.	98	39.8	99	2	0	--	20	75	--	125	QB03020
Silver, Total	<1	40	33.3	83	31.9	80	4	0	--	20	75	--	125	QB03020

**LEGEND:**

1. Background = Sample Result
2. Spike amount may be adjusted for dilution used in sample analysis
3. % R = Percent Recovery of Spike
4. RPD = Relative Percent Difference of the spike recoveries
5. LCL = Lower Control Limit
6. UCL = Upper Control Limit
7. Units are normally those shown in the Analysis Report and are always the same for the Background and Spike

# QUALITY CONTROL DATA

## REPLICATE ANALYSIS - SEPARATE DIGESTIONS / EXTRACTIONS

EIS Order: 031000274

Comments Concerning This Analysis:

QC Sample: 092540

None

Matrix: Soil

Parameter	Units	Original Analysis	Replicate Analysis	RPD	Advisory QC Limits	QC Batch
Arsenic, Total	mg/kg(wet)	<10	<10	0.0	0 - 20	QB03020
Barium, Total	mg/kg(wet)	6.4	6.3	1.6	0 - 20	QB03020
Cadmium, Total	mg/kg(wet)	<1	<1	0.0	0 - 20	QB03020
Chromium, Total	mg/kg(wet)	4.8	6.0	22.2	0 - 20	QB03020
Lead, Total	mg/kg(wet)	<5	<5	0.0	0 - 20	QB03020
Selenium, Total	mg/kg(wet)	<10	<10	0.0	0 - 20	QB03020
Silver, Total	mg/kg(wet)	<1	<1	0.0	0 - 20	QB03020

### LEGEND:

1. RPD = Relative Percent Difference
2. Advisory QC Limits may not be applicable when results are close to the Sample Detection Limits.

## QUALITY CONTROL DATA

### MATRIX SPIKE / DUPLICATE MATRIX SPIKE (MS/DMS)

EIS Order: 031000274

EIS Lab #s in This Batch:

Comments Concerning This QC Batch:

QC Sample: 092554

092540 - 092555

None

Matrix: Soil

Test: SVOC

Parameter	Back-ground	Spike Amount	Matrix Spike		Duplicate Spike		RPD	Quality Control Limits				QC Batch
			Result	% R	Result	% R		RPD		% R		
								LCL	UCL	LCL	UCL	
Acenaphthene	nd	6.2	4.30	69						31 -- 137	QB03019	
Chloro-3-methylphenol (4)	nd	11.7	9.75	83						26 -- 103	QB03019	
Chlorophenol (2)	nd	11.73	10.3	88						25 -- 102	QB03019	
Dichlorobenzene (1,4)	nd	6.93	4.79	69						28 -- 104	QB03019	
Dinitrotoluene (2,4)	nd	7.04	3.30	47						28 -- 89	QB03019	
Nitrophenol (4)	nd	5.28	2.72	52						11 -- 114	QB03019	
Nitroso-di-n-propylamine (normal)	nd	4.71	2.89	61						41 -- 126	QB03019	
Pentachlorophenol	nd	9.13	8.58	94						17 -- 109	QB03019	
Phenol	nd	10.06	13.0	129						26 -- 90	QB03019	
Pyrene	nd	8.03	4.73	59						35 -- 142	QB03019	
Trichlorobenzene (1,2,4)	nd	7.63	4.30	56						38 -- 107	QB03019	

**LEGEND:**

1. Background = Sample Result
2. Spike amount may be adjusted for dilution used in sample analysis
3. % R = Percent Recovery of Spike
4. RPD = Relative Percent Difference of the spike recoveries
5. LCL = Lower Control Limit
6. UCL = Upper Control Limit
7. Units are normally those shown in the Analysis Report and are always the same for the Background and Spike

## QUALITY CONTROL DATA

### REPLICATE ANALYSIS - SEPARATE DIGESTIONS / EXTRACTIONS

EIS Order: 031000274

Comments Concerning This Analysis:

QC Sample: 092547

None

Matrix: Soil

Parameter	Units	Original Analysis	Replicate Analysis	RPD	Advisory QC Limits	QC Batch
Acenaphthene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Acenaphthylene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Aniline	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Anthracene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Benzidine	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Benzo(a)anthracene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Benzo(a)pyrene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Benzo(b)fluoranthene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Benzo(ghi)perylene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Benzo(k)fluoranthene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Benzoic acid	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Benzyl alcohol	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Bis(2-chloroethoxy)methane	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Bis(2-chloroethyl)ether	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Bis(2-chloroisopropyl)ether	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Bis(2-ethylhexyl)phthalate	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Bromophenyl-phenylether (4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Butyl benzyl phthalate	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Chloro-3-methylphenol (4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Chloroaniline (4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Chloronaphthalene (2)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Chlorophenol (2)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Chlorophenyl phenyl ether (4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Chrysene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Di-n-butylphthalate	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Di-n-octylphthalate	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Dibenzo(a,h)anthracene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018

**EGEND:**

1. RPD = Relative Percent Difference
2. Advisory QC Limits may not be applicable when results are close to the Sample Detection Limits.

## QUALITY CONTROL DATA

### REPLICATE ANALYSIS - SEPARATE DIGESTIONS / EXTRACTIONS

EIS Order: 031000274

Comments Concerning This Analysis:

QC Sample: 092547

None

Matrix: Soil

Parameter	Units	Original Analysis	Replicate Analysis	RPD	Advisory QC Limits	QC Batch
Dibenzofuran	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Dichlorobenzene (1,2)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Dichlorobenzene (1,3)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Dichlorobenzene (1,4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Dichlorobenzidine (3,3')	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Dichlorophenol (2,4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Diethyl phthalate	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Dimethyl phthalate	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Dimethylphenol (2,4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Dinitrophenol (2,4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Dinitrotoluene (2,4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Dinitrotoluene (2,6)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Diphenylhydrazine (1,2)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Fluoranthene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Fluorene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Hexachlorobenzene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Hexachlorobutadiene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Hexachlorocyclopentadiene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Hexachloroethane	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Indeno(1,2,3-cd)pyrene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Isophorone	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Methyl-4,6-dinitrophenol (2)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Methylnaphthalene (2)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Methylphenol (2)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Methylphenol (4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Naphthalene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Nitroaniline (2)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018

**EGEND:**

1. RPD = Relative Percent Difference
2. Advisory QC Limits may not be applicable when results are close to the Sample Detection Limits.

## QUALITY CONTROL DATA

### REPLICATE ANALYSIS - SEPARATE DIGESTIONS / EXTRACTIONS

EIS Order: 031000274

Comments Concerning This Analysis:

QC Sample: 092547

None

Matrix: Soil

Parameter	Units	Original Analysis	Replicate Analysis	RPD	Advisory QC Limits	QC Batch
Nitroaniline (3)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Nitroaniline (4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Nitrobenzene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Nitrophenol (2)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Nitrophenol (4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Nitroso-di-methylamine (normal)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Nitroso-di-n-propylamine (normal)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Nitroso-di-phenylamine (normal)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Pentachlorophenol	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Phenanthrene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Phenol	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Pyrene	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Pyridine	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Trichlorobenzene (1,2,4)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Trichlorophenol (2,4,5)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018
Trichlorophenol (2,4,6)	mg/kg(wet)	nd	nd	0.0	0 - 20	QB03018

**EGEND:**

1. RPD = Relative Percent Difference
2. Advisory QC Limits may not be applicable when results are close to the Sample Detection Limits.