Appendix C

Analytical Laboratory Reports

Pre-Excavation Soil Sampling Results

Notes:

- KAR report 99400: Sample results from within excavation footprint are not included in **Table 3-1** as soil associated with these samples has been removed from the site.
- Fine Analysis Laboratory report FA1693A1-15: Sample results from within excavation footprint are not included in **Table 3-1**.
- KAR Report 006175: Sample results from GP-8, GP-10, and GP-12 are included in **Table 3-1**. Sample results from other samples collected from within the excavation footprint are not included.
- KAR report 010472: Background samples (BG samples) for mercury are not relevant to the LDR request, and GP-12/GP-16 samples are not included in **Table 3-1** because they were not analyzed for phenols or dioxins/furans.
- Pace report 01-1040828: Sample results from GP-17 within excavation footprint are not included in **Table 3-1**.

Lagoon [illegible]

Copy

Lagoon Test Excavation Analytical

KARLaboratories,Inc.

4425 Manchester Road

Kalamazoo, MI 49001

Phone 616 381-9666

Fax 616 381-9698

Bay West, Inc.
5 Empire Drive
St. Paul, MN 55103

Attn : *Mr. Marty Wangensteen*

KAR Project No. :	***994000***
Date Reported :	***08/24/99***
Date Activated :	***08/16/99***
Date Due :	***08/25/99***
Date Validated :	***08/24/99***

Project Description : *Analysis of one composite soil sample from Strebor, Inc.*

Dear Client,

Your laboratory data is presented to you in this report. All tests were performed within the maximum allowable holding times, have met or exceeded QC requirements and the result represents the sample as it was received - unless otherwise stated under the "Comments" heading.

If you wish to contact us about this work please mention KAR Project No. 994000. To arrange additional sampling or testing please contact our Client Services Department. If you have a question regarding quality assurance please contact William Rauch.

Thank you for the opportunity to serve you. Please do not hesitate to call if we can provide additional assistance.

Respectfully submitted,

Michael J. Jaeger
Director of Laboratories

LABORATORY REPORT

KAR Project No. : ***994000***

Client: ***Bay West, Inc.***

Date Reported : ***08/24/99***

Project Description : ***Analysis of one composite soil sample from Strebor, Inc.***

Sample ID : ***Composite of 10 soil samples from Strebor, Inc.***

Sampled By : ***Composited by GJE of KAR Laboratories***
Sample Date : ***8/4/1999***
Sample Time :

Date Received : ***8/16/1999***
Sample Type : ***soil***
KAR Sample No. : ***994000-01***

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	08/18/99	DBL	
Prep, metals	Completed		EPA 30xx,200.x	08/18/99	DBL	
Arsenic, total, by ICP	<5	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Barium, total	2240	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Cadmium, total	0.6	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Chromium, total	14	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Cobalt, total	5	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Copper, total	18	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Lead, total, by ICP	63	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Mercury, total	4.4	mg/kg dry sample	EPA 7471A	08/19/99	DBL	
Molybdenum, total	<5	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Nickel, total	13	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Selenium, total, by ICP	<5	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Silver, total	<0.5	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Zinc, total	204	mg/kg dry sample	EPA 6010B	08/19/99	PML	
Bromine	<1000	mg/kg dry sample	EPA 5050, 300.0	08/19/99	AJT	
Chlorine	<1000	mg/kg dry sample	EPA 5050, 300.0	08/19/99	AJT	
Cyanide, total	<0.2	mg/kg dry sample	EPA 335.2	08/18/99	JMS	
Fluorine	<1000	mg/kg dry sample	EPA 5050, 300.0	08/19/99	AJT	
Moisture	22.10	% by weight	EPA 160.3	08/17/99	MCB	
Nitrogen, organic	577	mg/kg dry sample	EPA 350.1,351.1	08/23/99	ALK	
Solids, total	77.89	% by weight	SM(18) 2540 B	08/17/99	MCB	
Sulfur, total	<1000	mg/kg dry sample	Parr 207M, 300.0	08/19/99	AJT	
Prior. Poll. volatiles	See below		EPA 8260	08/18/99	DLB	
Prep, VOA	Completed		EPA 5030	08/17/99	JAR	
1,1,1-Trichloroethane	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
1,1,2,2-Tetrachloroethane	<1.0	mg/kg dry sample	EPA 8260	08/18/99	DLB	
1,1,2-Trichloroethane	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
1,1-Dichloroethane	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
1,1-Dichloroethene	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
1,2,4-Trimethylbenzene	140	mg/kg dry sample	EPA 8260	08/18/99	DLB	
1,2-Dichlorobenzene	<1.0	mg/kg dry sample	EPA 8260	08/18/99	DLB	
1,2-Dichloroethane	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
1,2-Dichloropropane	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
1,3,5-Trimethylbenzene	46	mg/kg dry sample	EPA 8260	08/18/99	DLB	
1,3-Dichlorobenzene	<1.0	mg/kg dry sample	EPA 8260	08/18/99	DLB	
1,4-Dichlorobenzene	<1.0	mg/kg dry sample	EPA 8260	08/18/99	DLB	
2-Chloroethylvinyl ether	<50	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Acrolein	<2.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Acrylonitrile	<2.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Benzene	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Bromodichloromethane	<1.0	mg/kg dry sample	EPA 8260	08/18/99	DLB	

LABORATORY REPORT

KAR Project No. : ***994000***

Client: ***Bay West, Inc.***

Date Reported : ***08/24/99***

Project Description : ***Analysis of one composite soil sample from Strebor, Inc.***

Sample ID : ***Composite of 10 soil samples from Strebor, Inc.***

Sampled By : *Composited by GJE of KAR Laboratories*
Sample Date : *8/4/1999*
Sample Time :

Date Received : *8/16/1999*
Sample Type : *soil*
KAR Sample No. : *994000-01*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Bromoform	<1.0	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Bromomethane	<2.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Carbon tetrachloride	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Chlorobenzene	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Chloroethane	<2.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Chloroform	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Chloromethane	<2.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Cis-1,3-Dichloropropene	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Dibromochloromethane	<1.0	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Ethylbenzene	8.0	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Isopropylbenzene	8.7	mg/kg dry sample	EPA 8260	08/18/99	DLB	
M-and/or p-xylene	33	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Methylene chloride	<2.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
N-Butylbenzene	12	mg/kg dry sample	EPA 8260	08/18/99	DLB	
N-Propylbenzene	26	mg/kg dry sample	EPA 8260	08/18/99	DLB	
O-Xylene	20	mg/kg dry sample	EPA 8260	08/18/99	DLB	
P-Isopropyltoluene	9.4	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Sec-Butylbenzene	7.6	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Tetrachloroethene	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Toluene	6.7	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Trans-1,2-Dichloroethene	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Trans-1,3-Dichloropropene	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Trichloroethene	<0.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Trichlorofluoromethane	<2.5	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Vinyl chloride	<1.0	mg/kg dry sample	EPA 8260	08/18/99	DLB	
Prior. Poll. acids	See below		EPA 8270	08/19/99	KTL	
Prior. Poll. base-neutrals	See below		EPA 8270	08/19/99	KTL	
Prep, SV Acid/BN	Completed		EPA 3545	08/18/99	SAS	
1,2,4-Trichlorobenzene 8270	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
1,2-Dichlorobenzene by 8270	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
1,2-Diphenylhydrazine	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
1,3-Dichlorobenzene by 8270	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
1,4-Dichlorobenzene by 8270	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
2,3,7,8-TCDD by 8270	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
2,4,6-Trichlorophenol	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
2,4-Dichlorophenol	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
2,4-Dimethylphenol	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
2,4-Dinitrophenol	<4	mg/kg dry sample	EPA 8270	08/19/99	KTL	
2,4-Dinitrotoluene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
2,6-Dinitrotoluene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
2-Chloronaphthalene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
2-Chlorophenol	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	

LABORATORY REPORT

KAR Project No. : *994000*

Client: *Bay West, Inc.*

Date Reported : *08/24/99*

Project Description : *Analysis of one composite soil sample from Strebor, Inc.*

Sample ID : ***Composite of 10 soil samples from Strebor, Inc.***

Sampled By : *Composited by GJE of KAR Laboratories*

Sample Date : *8/4/1999*

Sample Time :

Date Received : *8/16/1999*

Sample Type : *soil*

KAR Sample No. : *994000-01*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
2-Methyl-4,6-dinitrophenol	<4	mg/kg dry sample	EPA 8270	08/19/99	KTL	
2-Nitrophenol	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
3,3'-Dichlorobenzidine	<4	mg/kg dry sample	EPA 8270	08/19/99	KTL	
4-Bromophenyl phenyl ether	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
4-Chloro-3-methylphenol	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
4-Chlorophenyl phenyl ether	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
4-Nitrophenol	<4	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Acenaphthene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Acenaphthylene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Anthracene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Benzidine	<10	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Benzo(a)anthracene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Benzo(a)pyrene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Benzo(b)fluoranthene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Benzo(ghi)perylene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Benzo(k)fluoranthene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Bis(2-chloroethoxy)methane	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Bis(2-chloroethyl)ether	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Bis(2-chloroisopropyl)ether	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Bis(2-ethylhexyl)phthalate	35	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Butylbenzyl phthalate	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Chrysene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Di-N-butylphthalate	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Di-n-Octyl phthalate	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Dibenzo(ah)anthracene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Diethyl phthalate	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Dimethyl phthalate	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Fluoranthene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Fluorene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Hexachlorobenzene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Hexachlorobutadiene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Hexachlorocyclopentadiene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Hexachloroethane	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Indeno(123cd)pyrene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Isophorone	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
N-Nitrosodi-n-propylamine	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
N-Nitrosodimethylamine	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
N-Nitrosodiphenylamine	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Naphthalene by Method 8270	4.8	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Nitrobenzene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Pentachlorophenol	25	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Phenanthrene	1.3	mg/kg dry sample	EPA 8270	08/19/99	KTL	

LABORATORY REPORT

KAR Project No. : *994000*

Client: ***Bay West, Inc.***

Date Reported : *08/24/99*

Project Description : ***Analysis of one composite soil sample from Strebor, Inc.***

Sample ID : ***Composite of 10 soil samples from Strebor, Inc.***

Sampled By : *Composited by GJE of KAR Laboratories*
Sample Date : *8/4/1999*
Sample Time :

Date Received : *8/16/1999*
Sample Type : *soil*
KAR Sample No. : *994000-01*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Phenol	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Pyrene	<1	mg/kg dry sample	EPA 8270	08/19/99	KTL	
TPH by GC-diesel range	4400	mg/kg dry sample	EPA 8270	08/19/99	KTL	
Prep, ECD	Completed		EPA 3545	08/18/99	SAS	
PCB	See below		EPA 8082	08/19/99	GMB	
PCB Aroclor 1016	<0.33	mg/kg dry sample	EPA 8082	08/19/99	GMB	
PCB Aroclor 1221	<0.33	mg/kg dry sample	EPA 8082	08/19/99	GMB	
PCB Aroclor 1232	<0.33	mg/kg dry sample	EPA 8082	08/19/99	GMB	
PCB Aroclor 1242	<0.33	mg/kg dry sample	EPA 8082	08/19/99	GMB	
PCB Aroclor 1248	<0.33	mg/kg dry sample	EPA 8082	08/19/99	GMB	
PCB Aroclor 1254	<0.33	mg/kg dry sample	EPA 8082	08/19/99	GMB	
PCB Aroclor 1260	<0.33	mg/kg dry sample	EPA 8082	08/19/99	GMB	
PCB Aroclors, total	NA		EPA 8082	08/19/99	GMB	

Washed Gradation and Hydrometer

Project: KAR Laboratories Testing Services
Location: Kalamazoo, Michigan
Sample Identification: 994000-01

SME Project No.: KE34132
Report Date: 8/24/99

Physical Property	Percentage
Clay Content	5.0%

Granulometry:	Percentage
Fines and Silt (<0.075 mm or <200 mesh)	20.2%
Fine Sand (<0.40 mm or <35 mesh)	20.8%
Medium Sand (<1.10 mm or <14 mesh)	24.0%
Coarse Sand (<4.5 mm or <4 mesh)	23.2%
Fine Gravel (<19 mm or <0.75")	11.8%
Coarse Gravel (<50 mm or <2.0")	0%
Rocks (>50 mm or >2.0")	0%

Reported and Reviewed By: Gary Docking

METHOD 8290 ANALYSIS RESULTS

Client....KAR

DRAFT

Client's Sample ID.....994000-01
Lab Sample ID.....1460996
Filename.....V90823G
Injected By.....DGP
Total Amount Extracted...0.0143 kg
% Moisture..... 27.8 %
Dry Weight Extracted.....0.0103 kg
ICAL Date.....08/19/99
CCAL Filename(s).....V90823B/V90823K
Method Blank ID.....BLANK-082099

Matrix.....SOIL
Dilution....NA
Collected...08/04/99
Received....08/18/99
Extracted...08/20/99
Analyzed....08/23/99 15:57

NATIVE ISOMERS	CONC ng/kg		LOD ng/kg	INTERNAL STANDARDS	ng's ADDED	PERCENT RECOVERY
2378-TCDF	62	*	-----	2378-TCDF-13C....	2.00	69
TOTAL TCDF	920		-----	2378-TCDD-13C....	2.00	80
				12378-PeCDF-13C..	2.00	60
2378-TCDD	110		-----	23478-PeCDF-13C..	2.00	55
TOTAL TCDD	880		-----	12378-PeCDD-13C..	2.00	68
				123478-HxCDF-13C.	2.00	88
12378-PeCDF	220		-----	123678-HxCDF-13C.	2.00	91
23478-PeCDF	290		-----	234678-HxCDF-13C.	2.00	86
TOTAL PeCDF	6000		-----	123789-HxCDF-13C.	2.00	87
				123478-HxCDD-13C.	2.00	80
12378-PeCDD	390		-----	123678-HxCDD-13C.	2.00	86
TOTAL PeCDD	1800		-----	1234678-HpCDF-13C	2.00	83
				1234789-HpCDF-13C	2.00	83
123478-HxCDF	ND	E	3100	1234678-HpCDD-13C	2.00	101
123678-HxCDF	810		-----	OCDD-13C.....	4.00	I
234678-HxCDF	990		-----			
123789-HxCDF	190		-----	1234-TCDD-13C....	2.00	NA
TOTAL HxCDF	27000		-----	123789-HxCDD-13C.	2.00	NA
123478-HxCDD	930		-----	2378-TCDD-37Cl4..	0.20	83
123678-HxCDD	5100		-----			
123789-HxCDD	2300		-----			
TOTAL HxCDD	31000		-----			
				Total 2378-TCDD Equivalence:	3495	ng/kg

Result *

Total Toxicity Equivalent Dioxins	2828	pg/g
Total Toxicity Equivalent Furans	667	pg/g

= 2.82 mg/kg
0.667 mg/kg

* USING INTERNATIONAL TOXIC EQUIVALENCE FACTORS

SECTION III- PHYSICAL DESCRIPTION

Physical Property	Percentage	Comments
Clay Content:	5.0 %	
Wood and Debris Content:	%	
Concrete and Steel Content:	%	
Moisture:	22.10 %	
Granulometry:		
Fines and Silt (< 0.075 mm or < 200 mesh)	20.2 %	
Fine Sand (< 0.40 mm or < 35 mesh)	20.8 %	
Medium Sand (< 1.10 mm or < 14 mesh)	24.0 %	
Coarse Sand (< 4.5 mm or < 4 mesh)	23.2 %	
Fine Gravel (< 19 mm or < 0.75")	11.8 %	
Coarse Gravel (< 50 mm or < 2.0")	0 %	
Rocks (> 50 mm or > 2.0")	0 %	

SECTION IV – SOIL CONTAMINANT

Principal Organic Hazardous Constituents (POHC):

Type	Concentration	Comments
Total BTEX	68 mg/kg	
Total C10-C50 Hydrocarbons	4400 mg/kg	
Total Chlorophenols	25 mg/kg	
Total Polycyclic Aromatic Hydrocarbons (PAH)	6.1 mg/kg	
Total Chlorinated Aliphatic Hydrocarbons	— mg/kg	None detected
Total Chlorinated Cyclic Hydrocarbons	— mg/kg	None detected
Total PCB	<2.5 mg/kg	
Total Toxicity Equivalent Dioxins	2828 pg/g	
Total Toxicity Equivalent Furans	667 pg/g	
Others:		

Heavy Metals

Type		Concentration		Type		Concentration	
Arsenic	(As)	<5	mg/kg	Mercury	(Hg)	4.4	mg/kg
Barium	(Ba)	2240	mg/kg	Molybdenum	(Mo)	<5	mg/kg
Cadmium	(Cd)	0.6	mg/kg	Nickel	(Ni)	13	mg/kg
Chromium	(Cr)	14	mg/kg	Selenium	(Se)	<5	mg/kg
Cobalt	(Co)	5	mg/kg	Silver	(Ag)	<0.5	mg/kg
Copper	(Cu)	18	mg/kg	Zinc	(Zn)	204	mg/kg
Lead	(Pb)	63	mg/kg	Others:			

Other Contaminants:

Type	Concentration	Comments
Total Sulphur	<1000 mg/kg	
Total Organic Bound Nitrogen	577 mg/kg	
Total Chlorine	<1000 mg/kg	
Total Fluorine	<1000 mg/kg	
Total Cyanide	<0.2 mg/kg	
Total Bromine	<1000 mg/kg	
Other:		

SECTION V - CLASSIFICATION

Questions:		Comments
Has a characterisation test been conducted?	☐ Yes ☐ No	
Has a leachate test been performed on this soil?	☐ Yes ☐ No	
Is a manifest required to transport this soil?	☐ Yes ☐ No	
Is the soil radioactive?	☐ Yes ☐ No	
Does the soil have a discernable odour?	☐ Yes ☐ No	
Is a certificate of destruction or disposal required?	☐ Yes ☐ No	

The information supplied herein will be confidential. It will be used to assess the acceptability of the soil for thermal treatment based on our operating license. It will also be used to obtain a transport number from the Ministry of Environment to authorise transportation of the soil from the site to the plant. The accuracy of the data supplied shall be the responsibility of the generator or their consultant. Off specification soil delivered to the plant will not be accepted and will be returned to the generator.

CHAIN - OF - CUSTODY RECORD

Strebor Inc.

LAB:

PROJECT NUMBER | PROJECT MANAGER

SEND RESULTS TO:

TURNAROUND REQUEST | SAMPLE RETENTION: RETURN | DISPOSE

CHAIN-OF-CUSTODY NO. SI - 776

ITEM NO.	SAMPLE ID NUMBER	SAMPLE DATE / SAMPLE TIME	MATRIX	NUMBER AND TYPE OF CONTAINER	ANALYSIS CODE	Grab (G) Composite (C)	DESCRIPTION/COMMENTS
1	TE-1(2)	8/4/99 9:40	Soil	one one-liter amber		GRAB	
2	TE-1(4)	8/4/99 9:50		Two one-liter ambers			
3	TE-1(5)	8/4/99 10:05		one one-liter amber			
4	TE-1(6)	8/4/99 10:15		one one-liter Amber			
5	TE-2(4)	8/4/99 11:10		one one-liter amber			
6	TE-3(1)	8/4/99 11:40		one one-liter amber			
7	TE-3(2)	8/4/99 11:45		one one-liter 8/4/99 Amber			
8	TE-3(3)	8/4/99 12:00		Two one-liter amber			

SAMPLER: Martin Wangenstee

AFFILIATION: Bay West, INC

DATE: 8/4/99 TIME: 16:20

TRANS NO.	ITEM NO.	RELINQUISHED BY	ACCEPTED BY	DATE	TIME
1	1-8			8/4/99	16:20
2	1-8		DErwin	8/16/99	4:10pm
3					
4					
5					

PRESERVATION:
All samples must be preserved at 4°C (39°F), unless specified otherwise.

Cd, Cr, Cu, Pb, Ni, Zn pH<2 with HNO3
Cn pH>12 with NaOH

Matrix:
W = Water
L = Liquid Sample
S = Solid Sample
SD = Solids Sample
SL = Sludge Sample
O = Other (specify_____)

ANALYSIS CODES
- Cross out any unwanted parameter.
- List any extra parameters in section below.

01 VOC's EPA 601/602 (includes Xylenes)
02 Phenols EPA 625
03 Pentachlorophenol EPA 625
04 Total Suspended Solids EPA 160.2
05 PAH EPA 625
06 Phthalate Esters EPA 625
07 pH EPA 150.1
08 TPH EPA 8015 Modified
09 Cr, Cu,Ni,Zn EPA 200.7
10 Cd. EPA 213.2
11 Pb EPA 239.2
12 Hg EPA 245.2
13 CN (total) EPA 335.2
14 PCBs EPA 608
15 PCDDs/PCDFs EPA 1613
16 _____
17 _____
18 _____
19 _____
20 _____
21 _____
22 _____
23 _____
24 _____
25 _____

WHITE - CLIENT FILE COPY YELLOW - LABORATORY FILE COPY PINK - BAY WEST FILE COPY GOLDENROD - STREBOR INC. FILE COPY

CHAIN - OF - CUSTODY RECORD

Strebor Inc.

LAB:

PROJECT NUMBER | PROJECT MANAGER

SEND RESULTS TO:

TURNAROUND REQUEST | SAMPLE RETENTION: RETURN | DISPOSE

CHAIN-OF-CUSTODY NO. SI - 777

ITEM NO.	SAMPLE ID NUMBER	SAMPLE DATE / SAMPLE TIME	MATRIX	NUMBER AND TYPE OF CONTAINER	ANALYSIS CODE	Grab (G) Composite (C)	DESCRIPTION/COMMENTS
1	TE-3(5)	8/4/99 13:20	Soil	one one-liter amber		Grab	
2	TE-3(6)	8/4/99 13:25	Soil	one one-liter amber		Grab	
3							
4							
5							
6							
7							
8							

SAMPLER: Martin Wangenstein

AFFILIATION: Bay West, Fr

DATE: 8/4/99 TIME: 16:20

TRANS NO.	ITEM NO.	RELINQUISHED BY	ACCEPTED BY	DATE	TIME
1	1-2			8/4/99	16:20
2	1-2		D. Erwin	8/16/99	4:10pm
3					
4					
5					

PRESERVATION:
All samples must be preserved at 4°C (39°F), unless specified otherwise.

Cd, Cr, Cu, Pb, Ni, Zn pH<2 with HNO3
Cn pH>12 with NaOH

Matrix:
W = Water
L = Liquid Sample
S = Solid Sample
SD = Solids Sample
SL = Sludge Sample
O = Other (specify_____)

ANALYSIS CODES
- Cross out any unwanted parameter.
- List any extra parameters in section below.

01 VOC's EPA 601/602 (includes Xylenes)
02 Phenols EPA 625
03 Pentachlorophenol EPA 625
04 Total Suspended Solids EPA 160.2
05 PAH EPA 625
06 Phthalate Esters EPA 625
07 pH EPA 150.1
08 TPH EPA 8015 Modified
09 Cr, Cu,Ni,Zn EPA 200.7
10 Cd. EPA 213.2
11 Pb EPA 239.2
12 Hg EPA 245.2
13 CN (total) EPA 335.2
14 PCBs EPA 608
15 PCDDs/PCDFs EPA 1613
16 _____
17 _____
18 _____
19 _____
20 _____
21 _____
22 _____
23 _____
24 _____
25 _____

WHITE - CLIENT FILE COPY YELLOW - LABORATORY FILE COPY PINK - BAY WEST FILE COPY GOLDENROD - STREBOR INC. FILE COPY

Request for Analysis

07502

Page 1 of 1

Samples Submitted By:

Name: Michael McClish
Company: Strebor, Inc.
Address: 2305 Superior Avenue
Kalamazoo, MI 49001
Phone: (616) 381-1100
Fax: (616) 381-2207

Fine Analysis Laboratories Ltd.

236 Pritchard Road
Hamilton, Ontario, Canada L8W 3P7
Phone: (905) 574-4977
FAX: (905) 574-4766
Toll Free 1-888-720-7579

Send Analytical Results To: (If other than above)

Name:
Company:
Address:
Phone: ( )
Fax: ( )

Please Send Results Via: Courier ☐ Fax ☐ Mail ☒

Rush Analysis Required: 24hr. ☐ 48hr. ☐ 72hr. ☐ Reg. ☒

Send Invoice To: (If other than above)

Name: Robert Griffiths
Company: Bennett Environmental, Inc.
Address: 200 - 1130 W. Pender Street
Vancouver, B.C. V6E4A4
Phone: (604) 681-8828
Fax: (604) 681-6825
Purchase Order Number:

SAMPLE	CLIENT'S SAMPLE ID/Description	ANALYSIS REQUIRED
1	GP-4-4	All samples to be analyzed for:
2	GP-4-8	1.) Granulometry (sieve analysis)
3	GP-4-12	2) Moisture, pH, debris content (estimate)
4	GP-5-4	3) Total BTEX, C10-C50 Hydrocarbons
5	GP-5-8	4) Total Chlorophenols
6	GP-5-12	5) Total PAHydrocarbons (PAH)
7	GP-1-4	6) Total Chlorinated Aliphatic/Cyclic Hrdrocar
8	GP-1-8	7) Total PCB
9	GP-1-12	8) Total Toxic Equivalent Dioxins & Furans
10	GP-2-4	9) Total Metals (Not TCLP) for:
11	GP-2-8	As, Ba, Cd, Cr, Co, Cu, Pb, Hg, Mo, Ni,
~~12~~	~~GP-2-12~~	Se, Ag, Zn, Mn, Sn
12 ~~13~~	GP-3-4	
13 ~~14~~	GP-3-8	
14 ~~15~~	GP-3-12	
15 ~~16~~	GP-2-12	

COMMENTS

I authorize all analytical work as listed in the above Request for Analysis Michael McClish 12/01/99
Signature Date

(Please note: client's signature must appear on form for work to proceed.)

White - Lab Yellow - Accounting Pink - Customer

Fine Analysis Laboratories Ltd.

A FINE LABORATORIES LIMITED COMPANY

236 Pritchard Road, Hamilton, Ontario Canada L8W 3P7 Tel: (905) 574-4977 Fax: (905) 574-4766

CLIENT:	Strebor, Inc. 2305 Superior Avenue Kalamazoo, Michigan 49001	Phone: Fax:	616-381-1100 616-381-2207
ATTENTION:	Mr. Michael McClish		
DATE RECEIVED:	December 06/99		
DATE COMPLETED:	December 16/99		
PROJECT NUMBER:			
SAMPLE TYPE:	Soil		
REPORT NO.:	FA1693A1-15		

>>>> CERTIFICATE OF ANALYSIS <<<<

Notes:

- All results are blank corrected
- np = test not performed
- Solids results are based on dry weight
- Samples are stored for 90 days from date reported

Methods used by Fine Analysis Laboratories Ltd are based upon those found in "Standard Methods for the Examination of Water and Wastewater", Seventeenth Edition . Published by the American Public Health Association, 1015 Fifteenth Street, NW, Washington, DC 20005. Other methods are based on the principles of MOEE, MISA or EPA Methodologies

If you require further information, please contact Shahid Abdullah at 905-574-4977

Results: See attached sheets

THE CHEMICAL PROFESSION OF ONTARIO ASSOCIATION CHARTERED CHEMIST

Yana L'Pris, M.Sc., C. Chem.
Chemist
FINE ANALYSIS LABORATORIES

Shahid Abdullah, M. Sc.
Senior Chemist
FINE ANALYSIS LABORATORIES

Fine Analysis Laboratories employs a strict QA/QC program at all stages of analysis in order to maintain the principles of good laboratory practices. Valid methodologies are used to the best of our abilities, however our liabilities are limited solely to the analytical cost of sample submitted

THANK YOU FOR CONSIDERING FINE ANALYSIS LABORATORIES FOR ANALYTICAL SERVICES

Fine Analysis Laboratories Ltd.

A FINE LABORATORIES LIMITED COMPANY

236 Pritchard Road, Hamilton, Ontario Canada L8W 3P7 Tel: (905) 574-4977 Fax: (905) 574-4766

Report No.: FA1693A1-15

>>>> CERTIFICATE OF ANALYSIS <<<<

Sieve Analysis

TEST PARAMETERS	GP-4-4 FA1693A-1	GP-4-8 FA1693A-2	GP-4-12 FA1693A-3	GP-5-4 FA1693A-4	GP-5-8 FA1693A-5	GP-5-12 FA1693A-6	GP-1-4 FA1693A-7	GP-1-8 FA1693A-8
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
2 mm Gravel	3	6	4	3	2	5	6	21
0.05 - 2 mm Sand	39	34	36	47	38	42	32	30
0.002 - 0.05 mm Silt	41	37	39	32	40	36	34	39
0.002 mm Clay	17	23	21	18	20	17	28	10

Fine Analysis Laboratories Ltd.

A FINE LABORATORIES LIMITED COMPANY

236 Pritchard Road, Hamilton, Ontario Canada L8W 3P7 Tel: (905) 574-4977 Fax: (905) 574-4766

Report No.: FA1693A1-15

>>>> CERTIFICATE OF ANALYSIS <<<<

Sieve Analysis

TEST PARAMETERS	GP-4-4 FA1693A-1	GP-4-8 FA1693A-2	GP-4-12 FA1693A-3	GP-5-4 FA1693A-4	GP-5-8 FA1693A-5	GP-5-12 FA1693A-6	GP-1-4 FA1693A-7	GP-1-8 FA1693A-8
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
2 mm Gravel	3	6	4	3	2	5	6	21
0.05 - 2 mm Sand	39	34	36	47	38	42	32	30
0.002 - 0.05 mm Silt	41	37	39	32	40	36	34	39
0.002 mm Clay	17	23	21	18	20	17	28	10

Fine Analysis Laboratories Ltd.
A FINE LABORATORIES LIMITED COMPANY
236 Pritchard Road, Hamilton, Ontario Canada L8W 3P7 Tel: (905) 574-4977 Fax: (905) 574-4766

Report No.: FA1693A1-15

>>>> CERTIFICATE OF ANALYSIS <<<<

Sieve Analysis

TEST PARAMETERS	GP-1-12 FA1693A-9	GP-2-4 FA1693A-10	GP-2-8 FA1693A-11	GP-3-4 FA1693A-12	GP-3-8 FA1693A-13	GP-3-12 FA1693A-14	GP-2-12 FA1693A-15
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
2 mm Gravel	2	5	6	5	4	3	6
0.05 - 2 mm Sand	29	34	36	39	41	31	35
0.002 - 0.05 mm Silt	38	35	41	33	36	38	41
0.002 mm Clay	31	26	17	23	19	28	18

Fine Analysis Laboratories Ltd.

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236 Pritchard Road, Hamilton, Ontario Canada L8W 3P7 Tel: (905) 574-4977 Fax: (905) 574-4766

Report No.: FA1693A1-15

>>>> CERTIFICATE OF ANALYSIS <<<<

BTEX, Total Purgeable Hydrocarbon

Total Extractable Hydrocarbon.

Total Petroleum Hydrocarbon Determination

Analysis date(s): December 07/99 Concentration Units:ug/g=ppm Soil

PARAMETERS	MDL	LOQ	Blank	GP-4-4 FA1693A-1	GP-4-8 FA1693A-2	GP-4-12 FA1693A-3	GP-5-4 FA1693A-4	GP-5-8 FA1693A-5	GP-5-12 FA1693A-6	GP-1-4 FA1693A-7	GP-1-8 FA1693A-8
Benzene	0.001	0.005	<0.001	nd	0.508	0.006	0.006	0.011	nd	0.005	0.008
Toluene	0.001	0.005	<0.001	nd	0.021	0.010	0.010	0.048	nd	0.007	0.013
m,p-xylene	0.001	0.005	<0.001	nd	0.065	0.047	0.035	0.147	nd	0.014	0.033
o-xylene	0.001	0.005	<0.001	nd	0.033	0.023	0.017	0.073	nd	0.070	0.017
Total Xylene	0.001	0.005	<0.001	nd	0.098	0.070	0.052	0.220	nd	0.021	0.050
Ethyl Benzene	0.001	0.005	<0.001	nd	0.509	0.007	0.008	0.015	nd	0.006	0.209
Petroleum (Gas/Diesel)	5	10	<5	250	370	620	440	600	220	520	810
Petroleum (Heavy Oils)	10	100	<10	np	np	np	np	np	np	np	np
Resemblance	na	na	na								

Method:

BTEX: P & T, GC/MS

TPH(Gas/Diesel): Solvent Extraction GC/FID

TPH(Hot):Solvent Extraction, Gravimetric

TPH (Gas /Diesel) = summation of hydrocarbons from C5 up to and including C24 carbon chain length and is quantitated against gasoline, diesel or oil standard (precision +/- 15%)

TPH (Heavy oil) = summation of Hydrocarbons greater than C25

LOQ = Limit of quantitation = lowest level of the parameter that can be quantitated with confidence

MDL = Minimum Detection Limit

nd = parameters not detected

na = not applicable

np = test not performed

TR = Trace level less then LOQ

Note: Final results have been corrected for the presence of laboratory artifacts

Fine Analysis Laboratories Ltd.

A FINE LABORATORIES LIMITED COMPANY

236 Pritchard Road, Hamilton, Ontario Canada L8W 3P7 Tel: (905) 574-4977 Fax: (905) 574-4766

Report No.: FA1693A1-15

>>>> CERTIFICATE OF ANALYSIS <<<<

BTEX: Total Purgeable Hydrocarbon

Total Extractable Hydrocarbon.

Total Petroleum Hydrocarbon Determination

Analysis date(s): December 07/99 Concentration Units:ug/g=ppm Soil

PARAMETERS	MDL	LOQ	Blank	GP-1-12 FA1693A-9	GP-2-4 FA1693A-10	GP-2-8 FA1693A-11	GP-3-4 FA1693A-12	GP-3-8 FA1693A-13	GP-3-12 FA1693A-14	GP-2-12 FA1693A-15
Benzene	0.001	0.005	<0.001	0.011	0.005	0.005	nd	0.006	0.027	nd
Toluene	0.001	0.005	<0.001	0.035	0.008	0.008	nd	0.009	0.350	nd
m,p-xylene	0.001	0.005	<0.001	0.078	0.015	0.011	nd	0.015	0.548	nd
o-xylene	0.001	0.005	<0.001	0.039	0.007	0.006	nd	0.007	0.274	nd
Total Xylene	0.001	0.005	<0.001	0.117	0.022	0.017	nd	0.022	0.822	nd
Ethyl Benzene	0.001	0.005	<0.001	0.012	0.006	0.006	nd	0.005	0.029	nd
Petroleum (Gas/Diesel)	5	10	<5	810	350	430	260	370	730	350
Petroleum (Heavy Oils)	10	100	<10	np	np	np	np	np	np	np
Resemblance	na	na	na							

Method:

BTEX: P & T, GC/MS

TPH(Gas/Diesel): Solvent Extraction GC/FID

TPH(Hot) Solvent Extraction, Gravimetric

TPH (Gas /Diesel) = summation of hydrocarbons from C5 up to and including C24 carbon chain length and is quantitated against gasoline, diesel, or oil standard (precision +/- 10%)

TPH (Heavy oil) = summation of Hydrocarbons greater than C25

LOQ = Limit of quantitation = lowest level of the parameter that can be quantitated with confidence

MDL = Minimum Detection Limit

nd = parameters not detected

na = not applicable

np = test not performed

TR = Trace level less then LOQ

Note: Final results have been corrected for the presence of laboratory artifacts

Fine Analysis Laboratories Ltd.

A FINE LABORATORIES LIMITED COMPANY

236 Pritchard Road, Hamilton, Ontario Canada L8W 3P7 Tel: (905) 574-4977 Fax: (905) 574-4766

Report No.: FA1693A1-15

>>>> CERTIFICATE OF ANALYSIS <<<<

Soil

Sample ID Lab Number	MDL	Blank	GP-4-4 FA1693A-1	GP-4-8 FA1693A-2	GP-4-12 FA1693A-3	GP-5-4 FA1693A-4	GP-5-8 FA1693A-5	GP-5-12 FA1693A-6	GP-1-4 FA1693A-7	GP-1-8 FA1693A-8
Compound (LMW-PAH's)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Naphthalene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Acenapthene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluorene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Phenanthrene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total LMW-PAH's										
Compound (HMW-PAH's)										
Fluoranthene	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Pyrene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo (a) anthracene	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Chrysene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzo (b) fluoranthene	0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.874	<0.004	<0.004	<0.004
Benzo (k) fluoranthene	0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.772	<0.004	<0.004	<0.004
Benzo (a) pyrene	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Indeno (1,2,3-c,d) pyrene	0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Dibenzo (a,h) anthracene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	3.13	<0.01	<0.01	<0.01
Benzo (g,h,i) perylene	0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Total HMW-PAH's							4.776			
Total PAH's							4.776			

Method: GC/MS - Extraction
Method Ref.: EPA 8270
LMW-PAH's: Low Molecular Weight PAH's
HMW-PAH's: High Molecular Weight PAH's
nd = parameters not detected

Fine Analysis Laboratories Ltd.

A FINE LABORATORIES LIMITED COMPANY

236 Pritchard Road, Hamilton, Ontario Canada L8W 3P7 Tel: (905) 574-4977 Fax: (905) 574-4766

Report No.: FA1693A1-15

>>>> CERTIFICATE OF ANALYSIS <<<<

Soil

Sample ID Lab Number	MDL	Blank	GP-1-12 FA1693A-9	GP-2-4 FA1693A-10	GP-2-8 FA1693A-11	GP-3-4 FA1693A-12	GP-3-8 FA1693A-13	GP-3-12 FA1693A-14	GP-2-12 FA1693A-15
Compound (LMW-PAH's)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Naphthalene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Acenapthene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Fluorene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Phenanthrene	0.02	<0.02	<0.02	<0.02	1.89	<0.02	<0.02	<0.02	<0.02
Anthracene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total LMW-PAH's					1.89				
Compound (HMW-PAH's)									
Fluoranthene	0.03	<0.03	<0.03	<0.03	1.47	<0.03	<0.03	<0.03	2.96
Pyrene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	3.19
Benzo (a) anthracene	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	1.741
Chrysene	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	1.66
Benzo (b) fluoranthene	0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.527
Benzo (k) fluoranthene	0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Benzo (a) pyrene	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	1.229
Indeno (1,2,3-c,d) pyrene	0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Dibenzo (a,h) anthracene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (g,h,i) perylene	0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Total HMW-PAH's					1.47				11.307
Total PAH's					3.36				11.307

Method: GC/MS - Extraction
Method Ref.: EPA 8270
LMW-PAH's: Low Molecular Weight PAH's
HMW-PAH's: High Molecular Weight PAH's
nd = parameters not detected

Fine Analysis Laboratories Ltd.

A FINE LABORATORIES LIMITED COMPANY

236 Pritchard Road, Hamilton, Ontario Canada L8W 3P7 Tel: (905) 574-4977 Fax: (905) 574-4766

Report No.: FA1693A1-15

Table A: Dioxins and Furans: Soils (ppt)

>>>> CERTIFICATE OF ANALYSIS <<<<

TEST PARAMETERS	GP-4-4 FA1693A-1	GP-4-8 FA1693A-2	GP-4-12 FA1693A-3	GP-5-4 FA1693A-4	GP-5-8 FA1693A-5	
Furans:						
2378-TCDF	8.4	9.4	9.5	8.0	9.0	
Total TCDFs	15	19	21	14	20	
12378-PeCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
23478-PeCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
Total PeCDFs	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
123478-HxCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
123678-HxCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
234678-HxCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
123789-HxCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
Total HxCDFs	12	17	18	14	16	
1234678-HpCDF	5.0	4.9	6.4	4.4	5.1	
1234789-HpCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
Total HpCDFs	13	17	16	16	12	
OCDF	7	8	8	6	7	
Dioxins:						
2378-TCDD	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
Total TCDDs	1.9	2.1	2.2	1.8	2.0	
12378-PeCDD	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
Total PeCDDs	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
123478-HxCDD	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	
123678-HxCDD	0.9	0.8	0.9	0.7	0.8	
123789-HxCDD	1.7	2.0	2.1	1.8	1.9	
Total HxCDDs	4.6	5.1	5.0	4.8	4.9	
OCDD	25	27	25	19	20	
Toxic Equivalent (TEQ)	3.5	3.6	3.7	3.1	3.5	

Method: EPA A1613

ND = None Detected (Detection limits in brackets)

Fine Analysis Laboratories Ltd.

A FINE LABORATORIES LIMITED COMPANY

236 Pritchard Road, Hamilton, Ontario Canada L8W 3P7 Tel: (905) 574-4977 Fax: (905) 574-4766

Report No.: FA1693A1-15

Table A: Dioxins and Furans: Soils (ppt)

>>>> CERTIFICATE OF ANALYSIS <<<<

TEST PARAMETERS	GP-5-12 FA1693A-6	GP-1-4 FA1693A-7	GP-1-8 FA1693A-8	GP-1-12 FA1693A-9	GP-2-4 FA1693A-10	GP-8-Feb FA1693A-11
Furans:						
2378-TCDF	28	9.0	29	28	11	9.2
Total TCDFs	37	20	38	37	24	20
12378-PeCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
23478-PeCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Total PeCDFs	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
123478-HxCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
123678-HxCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
234678-HxCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
123789-HxCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Total HxCDFs	24	16	25	24	20	19
1234678-HpCDF	6.2	6.1	6.8	6.9	7.0	6.3
1234789-HpCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Total HpCDFs	16	15	20	21	14	15
OCDF	16	9	19	18	11	7
Dioxins:						
2378-TCDD	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Total TCDDs	4.4	2.1	5.1	6.0	2.8	2.2
12378-PeCDD	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Total PeCDDs	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
123478-HxCDD	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
123678-HxCDD	1.1	0.8	1.2	1.1	0.9	0.9
123789-HxCDD	5.9	2.0	6.1	7.0	2.2	2.0
Total HxCDDs	11.0	5.1	14.0	15.0	6.6	4.8
OCDD	44	27	49	51	28	27
Toxic Equivalent (TEQ)	5.2	3.4	5.5	5.4	3.6	3.6

Method: EPA A1613

ND = None Detected (Detection limits in brackets)

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Report No.: FA1693A1-15

Table A: Dioxins and Furans: Soils (ppt)

>>>> CERTIFICATE OF ANALYSIS <<<<

TEST PARAMETERS	GP-3-4 FA1693A-12	GP-3-8 FA1693A-13	GP-3-12 FA1693A-14	GP-2-12 FA1693A-15	Duplicate #15	Blank
Furans:						
2378-TCDF	9.1	9.4	29	9.2	9.0	ND (1.0)
Total TCDFs	21	22	39	22	21	ND (1.0)
12378-PeCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
23478-PeCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Total PeCDFs	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
123478-HxCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
123678-HxCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
234678-HxCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
123789-HxCDF	18	19	25	19	18	ND (1.0)
Total HxCDFs						ND (1.0)
1234678-HpCDF	6.1	6.2	20.0	6.1	6.0	ND (1.0)
1234789-HpCDF	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Total HpCDFs	14	15	17	12	13	ND (1.0)
OCDF	7	8	19	7	8	ND (1.0)
Dioxins:						
2378-TCDD	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Total TCDDs	2.1	2.2	6.5	2.1	2.2	ND (1.0)
12378-PeCDD	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Total PeCDDs	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
123478-HxCDD	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
123678-HxCDD	0.8	0.9	1.2	0.8	0.7	ND (1.0)
123789-HxCDD	2.1	2.2	6.8	2.0	2.2	ND (1.0)
Total HxCDDs	4.8	4.9	14.2	4.9	4.8	ND (1.0)
OCDD	25	26	45	22	21	ND (1.0)
Toxic Equivalent (TEQ)	3.5	3.5	5.3	3.8	3.8	ND (1.0)

Method: EPA A1613

ND = None Detected (Detection limits in brackets)

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Report No.: FA1693A1-15

Table A: Dioxins and Furans: Soils (ppt)

>>>> CERTIFICATE OF ANALYSIS <<<<

TEST PARAMETERS	GP-4-4 FA1693A-1	GP-4-8 FA1693A-2	GP-4-12 FA1693A-3	GP-5-4 FA1693A-4	GP-5-8 FA1693A-5
% Recovery of Surrogates:					
13C-2378-TCDF	89	91	83	89	83
13C-2378-TCDD	92	90	89	93	84
13C-12378-PeCDF	90	93	80	88	82
13C-23478-PeCDF	88	85	87	87	84
13C-12378-PeCDD	87	88	85	92	87
13C-123478-HxCDF	84	86	88	94	89
13C-123878-HxCDF	90	89	91	84	90
13C-234878-HxCDF	91	87	90	85	92
13C-123788-HxCDF	86	92	96	88	90
13C-123478-HxCDD	88	89	91	83	88
13C-123878-HxCDD	86	86	87	85	86
13C-1234878-HpCDF	85	85	86	88	82
13C-1234789-HpCDF	88	83	83	90	88
13C-1234678-HpCDD	80	84	91	80	84
13C-OCDD	84	88	89	81	83

Method: EPA A1613
ND = None Detected (Detection limits in brackets)
NDR = None Detected based on peak Ratio
NDS = None Detected based on peak Shape
DPE = Diphenyl Ether Interference

Fine Analysis Laboratories Ltd.

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Report No.: FA1693A1-15

Table A: Dioxins and Furans: Soils (ppt)

>>>> CERTIFICATE OF ANALYSIS <<<<

TEST PARAMETERS	GP-5-12 FA1693A-6	GP-1-4 FA1693A-7	GP-1-8 FA1693A-8	GP-1-12 FA1693A-9	GP-2-4 FA1693A-10
% Recovery of Surrogates:					
13C-2378-TCDF	89	86	84	81	79
13C-2378-TCDD	91	85	79	85	84
13C-12378-PeCDF	88	84	81	86	90
13C-23478-PeCDF	85	80	84	88	88
13C-12378-PeCDD	91	87	89	81	85
13C-123478-HxCDF	88	84	91	85	86
13C-123878-HxCDF	87	85	86	86	87
13C-234878-HxCDF	93	87	79	81	79
13C-123788-HxCDF	95	88	85	83	88
13C-123478-HxCDD	90	84	86	85	83
13C-123878-HxCDD	87	84	87	84	86
13C-1234878-HpCDF	86	87	92	80	91
13C-1234789-HpCDF	88	79	83	84	87
13C-1234678-HpCDD	82	86	87	85	88
13C-OCDD	80	79	81	84	83

Method: EPA A1613
ND = None Detected (Detection limits in brackets)
NDR = None Detected based on peak Ratio
NDS = None Detected based on peak Shape
DPE = Diphenyl Ether Interference

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Report No.: FA1693A1-15

Table A: Dioxins and Furans: Soils (ppt)

>>>> CERTIFICATE OF ANALYSIS <<<<

TEST PARAMETERS	GP-2-8 FA1693A-11	GP-3-4 FA1693A-12	GP-3-8 FA1693A-13	GP-3-12 FA1693A-14	GP-2-12 FA1693A-15
% Recovery of Surrogates:					
13C-2378-TCDF	88	91	86	79	81
13C-2378-TCDD	91	94	91	81	85
13C-12378-PeCDF	85	90	94	82	83
13C-23478-PeCDF	87	88	93	89	86
13C-12378-PeCDD	88	85	90	83	85
13C-123478-HxCDF	86	87	88	85	79
13C-123878-HxCDF	82	86	83	82	80
13C-234878-HxCDF	84	88	84	81	81
13C-123788-HxCDF	81	89	86	80	84
13C-123478-HxCDD	83	84	89	89	90
13C-123878-HxCDD	85	83	88	86	88
13C-1234878-HpCDF	89	85	85	84	86
13C-1234789-HpCDF	88	90	83	83	84
13C-1234678-HpCDD	82	89	84	80	80
13C-OCDD	86	85	88	78	81

Method: EPA A1613
ND = None Detected (Detection limits in brackets)
NDR = None Detected based on peak Ratio
NDS = None Detected based on peak Shape
DPE = Diphenyl Ether Interference

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Report No.: FA1693A1-15

ICAP METAL SCAN

Soil

PARAMETERS	Method Detection Limit	Blank	SAMPLE DATA (ppm)				
			GP-4-4 FA1693A-1	GP-4-8 FA1693A-2	GP-4-12 FA1693A-3	GP-5-4 FA1693A-4	GP-5-8 FA1693A-5
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Arsenic	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	0.5	<0.5	118.3	1381.8	1043.8	74.9	370.0
Cadmium	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	0.5	<0.5	2.5	6.8	3.6	11.8	3.0
Cobalt	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	0.5	<0.5	5.5	25.3	11.1	13.6	15.9
Lead	0.5	<0.5	36.4	80.3	58.2	49.5	75.3
Mercury	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	0.5	<0.5	0.5	<0.5	<0.5	0.5	<0.5
Nickel	0.5	<0.5	1.6	3.5	2.3	5.4	1.4
Selenium	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	0.5	<0.5	45.5	272.8	108.7	66.3	98.8
Manganese	0.5	<0.5	757.8	271.4	146.5	218.6	118.7
Tin	0.5	<0.5	32.6	37.6	34.7	33.3	34.1

Method: EPA 6010

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Report No.: FA1693A1-15

ICAP METAL SCAN

Soil

PARAMETERS	Method Detection Limit	Blank	SAMPLE DATA (ppm)				
			GP-5-12 FA1693A-6	GP-1-4 FA1693A-7	GP-1-8 FA1693A-8	GP-1-12 FA1693A-9	GP-2-4 FA1693A-10
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Arsenic	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	0.5	<0.5	4.2	142.5	157.7	<0.5	1485.5
Cadmium	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	0.5	<0.5	<0.5	3.8	4.2	<0.5	3.2
Cobalt	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	0.5	<0.5	1.4	75.4	69.6	<0.5	13.7
Lead	0.5	<0.5	17.8	67.8	104.4	15.8	58.6
Mercury	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6
Nickel	0.5	<0.5	<0.5	3.7	4.5	<0.5	1.3
Selenium	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	0.5	<0.5	13.0	120.3	140.6	9.6	194.5
Manganese	0.5	<0.5	60.7	205.9	214.1	43.9	213.1
Tin	0.5	<0.5	34.0	41.0	46.4	31.9	35.5

Method: EPA 6010

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Report No.: FA1693A1-15

ICAP METAL SCAN

Soil

PARAMETERS	Method Detection Limit	Blank	SAMPLE DATA (ppm)				
			GP-2-8 FA1693A-11	GP-3-4 FA1693A-12	GP-3-8 FA1693A-13	GP-3-12 FA1693A-14	GP-2-12 FA1693A-15
	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Arsenic	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Barium	0.5	<0.5	2103.1	210.5	95.8	6.0	295.9
Cadmium	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	0.5	<0.5	6.7	4.1	2.2	<0.5	3.0
Cobalt	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	0.5	<0.5	18.3	9.2	4.0	3.6	7.5
Lead	0.5	<0.5	68.5	41.9	27.1	21.2	34.7
Mercury	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5
Nickel	0.5	<0.5	4.3	1.2	1.0	<0.5	1.7
Selenium	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	0.5	<0.5	276.4	70.7	32.2	21.8	61.1
Manganese	0.5	<0.5	230.8	111.5	225.5	107.0	168.4
Tin	0.5	<0.5	41.5	35.0	30.5	33.4	31.6

Method: EPA 6010

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Report No.: FA1693A1-15

>>>> CERTIFICATE OF ANALYSIS <<<<

TEST PARAMETERS	GP-4-4 FA1693A-1	GP 4-8 FA1693A-2	GP-4-12 FA1693A-3	GP-5-4 FA1693A-4	GP-5-8 FA1693A-5	GP-5-12 FA1693A-6	GP-1-4 FA1693A-7	GP-1-8 FA1693A-8
pH	7.61	8.31	9.70	8.81	7.81	8.51	7.71	8.30
Moisture (%)	10.2	16.2	14.2	13.2	12.6	18.2	13.4	11.2
Total PCBs (ppm)	<0.05	<0.05	<0.05	0.05	0.16	<0.05	0.27	0.46
Total Chlorophenols (ppm)	0.006	0.005	0.006	0.008	0.007	0.005	0.009	0.011
Total Chlorinated Aliphatic/ Cyclic Hydrocarbons (ppm)	38	44	95	120	140	20	105	138

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Report No.: FA1693A1-15

>>>> CERTIFICATE OF ANALYSIS <<<<

TEST PARAMETERS	GP-1-12 FA1693A-9	GP-2-4 FA1693A-10	GP-2-8 FA1693A-11	GP-3-4 FA1693A-12	GP-3-8 FA1693A-13	GP-3-12 FA1693A-14	GP-2-12 FA1693A-15
pH	8.31	8.50	8.71	7.80	7.81	8.50	7.61
Moisture (%)	19.1	17.5	18.3	16.4	15.1	13.8	12.7
Total PCBs (ppm)	<0.05	<0.05	<0.05	0.53	<0.05	<0.05	<0.05
Total Chlorophenols (ppm)	0.010	0.006	0.005	0.005	0.009	0.010	0.006
Total Chlorinated Aliphatic/ Cyclic Hydrocarbons (ppm)	120	45	70	30	50	35	10

KAR *Laboratories, Inc.*

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Strebor Inc.
2305 Superior Avenue
Kalamazoo, MI 49001

Attn : *Mr. Mike McClish*

KAR Project No. :	***006175***
Date Reported :	***12/12/00***
Date Activated :	***11/30/00***
Date Due :	***12/14/00***
Date Validated :	***12/11/00***

Project Description : ***Analysis of eight soil samples.***

Dear Client,

Your laboratory data is presented to you in this report. Unless otherwise stated under the "Comments" heading, all tests were performed within the maximum allowable holding times, have met or exceeded QC requirements and the result represents the sample as it was received.

If you wish to contact us about this work please mention KAR Project No. 006175. To arrange additional sampling or testing please contact our Client Services Department. If you have a question regarding quality assurance please contact William Rauch.

Thank you for the opportunity to serve you. Please do not hesitate to call if we can provide additional assistance.

Respectfully submitted,

Michael J. Jaeger
Director of Laboratories

POSITIVE RESULTS SUMMARY REPORT

Client: *Strebor Inc.*

KAR Project No.: *006175*

Date Reported: *12/12/2000*

Project Description: *Analysis of eight soil samples.*

Sample Description: *"GP-6 @ 4.3'"*

Test	Positive Result Concentration	Units
Barium, total, low level	2130	mg/kg dry sample
Cobalt, total, low level	5	mg/kg dry sample
Lead, total	263	mg/kg dry sample
Mercury, total, low level	2.9	mg/kg dry sample
Pentachlorophenol	550	ug/kg dry sample

Sample Description: *"GP-7 @ 3.5'"*

Test	Positive Result Concentration	Units
Barium, total, low level	96	mg/kg dry sample
Cobalt, total, low level	3	mg/kg dry sample
Lead, total	40	mg/kg dry sample
Mercury, total, low level	0.8	mg/kg dry sample

Sample Description: *"GP-8 @ 3.3'"*

Test	Positive Result Concentration	Units
Barium, total, low level	180	mg/kg dry sample
Cobalt, total, low level	5	mg/kg dry sample
Lead, total	48	mg/kg dry sample
Mercury, total, low level	0.8	mg/kg dry sample

Sample Description: *"GP-9 @ 3.5'"*

Test	Positive Result Concentration	Units
Barium, total, low level	110	mg/kg dry sample
Cobalt, total, low level	6	mg/kg dry sample
Lead, total	11	mg/kg dry sample

Sample Description: *"GP-10 @ 3.2'"*

Test	Positive Result Concentration	Units
Barium, total, low level	101	mg/kg dry sample
Cobalt, total, low level	3	mg/kg dry sample
Lead, total	23	mg/kg dry sample
Mercury, total, low level	0.5	mg/kg dry sample

Sample Description: *"GP-11 @ 3.2'"*

Test	Positive Result Concentration	Units
Barium, total, low level	142	mg/kg dry sample
Cobalt, total, low level	4	mg/kg dry sample
Lead, total	103	mg/kg dry sample

This Positive Results Summary Report provides an overview of the sample set and CONTAINS ONLY RESULTS ABOVE THE REPORTING LIMIT. It should not be used as a substitute for the attached detail report.

POSITIVE RESULTS SUMMARY REPORT

Client: *Strebor Inc.*

KAR Project No.: *006175*

Date Reported: *12/12/2000*

Project Description: *Analysis of eight soil samples.*

Sample Description: *"GP-11 @ 3.2'"*

Test	Positive Result Concentration	Units
Mercury, total, low level	0.3	mg/kg dry sample

Sample Description: *"GP-12 @ 3.4'"*

Test	Positive Result Concentration	Units
Barium, total, low level	112	mg/kg dry sample
Cobalt, total, low level	4	mg/kg dry sample
Lead, total	48	mg/kg dry sample
Mercury, total, low level	0.1	mg/kg dry sample

Sample Description: *"GP-13 @ 3.5'"*

Test	Positive Result Concentration	Units
Barium, total, low level	161	mg/kg dry sample
Cobalt, total, low level	5	mg/kg dry sample
Lead, total	76	mg/kg dry sample
Mercury, total, low level	0.3	mg/kg dry sample
Pentachlorophenol	430	ug/kg dry sample

This Positive Results Summary Report provides an overview of the sample set and CONTAINS ONLY RESULTS ABOVE THE REPORTING LIMIT. It should not be used as a substitute for the attached detail report.

LABORATORY DETAIL REPORT

Client: *Strebor Inc.*

KAR Project No. : *006175*
Date Reported : *12/12/00*

Project Desc. : *Analysis of eight soil samples.*

Sample ID : *"GP-6 @ 4.3'"*
Sampled By : *BG of Envirologic*
Sample Date : *11/29/2000*
Sample Time : *11:45am*

Date Received : *11/30/2000*
Sample Type : *soil*
KAR Sample No. : *006175-01*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	12/06/00	DBL	
Prep, metals	Completed		EPA 3050	12/04/00	PML	
Barium, total, low level	2130	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Cobalt, total, low level	5	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Lead, total	263	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Mercury, total, low level	2.9	mg/kg dry sample	EPA 7471A	12/07/00	PML	
Dry weight solids	81.24	% by weight	SM(18) 2540B mod	12/04/00	BLF	
Prep, SV Acid	Completed		EPA 3545	12/07/00	SAS	
Pentachlorophenol	550	ug/kg dry sample	EPA 625	12/08/00	KTL	

LABORATORY DETAIL REPORT

Client: *Strebor Inc.*

KAR Project No. : *006175*
Date Reported : *12/12/00*

Project
Desc. : *Analysis of eight soil samples.*

Sample ID : *"GP-7 @ 3.5'"*
Sampled By : *BG of Envirologic*
Sample Date : *11/29/2000*
Sample Time : *11:20am*

Date Received : *11/30/2000*
Sample Type : *soil*
KAR Sample No. : *006175-02*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	12/06/00	DBL	
Prep, metals	Completed		EPA 3050	12/04/00	PML	
Barium, total, low level	96	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Cobalt, total, low level	3	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Lead, total	40	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Mercury, total, low level	0.8	mg/kg dry sample	EPA 7471A	12/07/00	PML	
Dry weight solids	81.61	% by weight	SM(18) 2540B mod	12/04/00	BLF	
Prep, SV Acid	Completed		EPA 3545	12/07/00	SAS	
Pentachlorophenol	<330	ug/kg dry sample	EPA 625	12/08/00	KTL	

LABORATORY DETAIL REPORT

Client: *Strebor Inc.*

KAR Project No. : ***006175***
Date Reported : ***12/12/00***

Project Desc. : *Analysis of eight soil samples.*

Sample ID : *"GP-8 @ 3.3'"*
Sampled By : *BG of Envirologic*
Sample Date : *11/29/2000*
Sample Time : *10:52am*

Date Received : *11/30/2000*
Sample Type : *soil*
KAR Sample No. : *006175-03*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	12/06/00	DBL	
Prep, metals	Completed		EPA 3050	12/04/00	PML	
Barium, total, low level	180	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Cobalt, total, low level	5	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Lead, total	48	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Mercury, total, low level	0.8	mg/kg dry sample	EPA 7471A	12/07/00	PML	
Dry weight solids	80.62	% by weight	SM(18) 2540B mod	12/04/00	BLF	
Prep, SV Acid	Completed		EPA 3545	12/07/00	SAS	
Pentachlorophenol	<330	ug/kg dry sample	EPA 625	12/08/00	KTL	

LABORATORY DETAIL REPORT

Client: *Strebor Inc.*

KAR Project No. : *006175*
Date Reported : *12/12/00*

Project Desc. : *Analysis of eight soil samples.*

Sample ID : *"GP-9 @ 3.5'"*
Sampled By : *BG of Envirologic*
Sample Date : *11/29/2000*
Sample Time : *10:10am*

Date Received : *11/30/2000*
Sample Type : *soil*
KAR Sample No. : *006175-04*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	12/06/00	DBL	
Prep, metals	Completed		EPA 3050	12/04/00	PML	
Barium, total, low level	110	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Cobalt, total, low level	6	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Lead, total	11	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Mercury, total, low level	<0.1	mg/kg dry sample	EPA 7471A	12/07/00	PML	
Dry weight solids	81.85	% by weight	SM(18) 2540B mod	12/04/00	BLF	
Prep, SV Acid	Completed		EPA 3545	12/07/00	SAS	
Pentachlorophenol	<330	ug/kg dry sample	EPA 625	12/08/00	KTL	

LABORATORY DETAIL REPORT

Client: *Strebor Inc.*

KAR Project No. : *006175*
Date Reported : *12/12/00*

Project Desc. : *Analysis of eight soil samples.*

Sample ID : *"GP-10 @ 3.2'"*
Sampled By : *BG of Envirologic*
Sample Date : *11/29/2000*
Sample Time : *11:30am*

Date Received : *11/30/2000*
Sample Type : *soil*
KAR Sample No. : *006175-05*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	12/06/00	DBL	
Prep, metals	Completed		EPA 3050	12/04/00	PML	
Barium, total, low level	101	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Cobalt, total, low level	3	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Lead, total	23	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Mercury, total, low level	0.5	mg/kg dry sample	EPA 7471A	12/07/00	PML	
Dry weight solids	91.28	% by weight	SM(18) 2540B mod	12/04/00	BLF	
Prep, SV Acid	Completed		EPA 3545	12/07/00	SAS	
Pentachlorophenol	<330	ug/kg dry sample	EPA 625	12/08/00	KTL	

LABORATORY DETAIL REPORT

Client: *Strebor Inc.*

KAR Project No. : *006175*
Date Reported : *12/12/00*

Project Desc. : *Analysis of eight soil samples.*

Sample ID : *"GP-11 @ 3.2'"*
Sampled By : *BG of Envirologic*
Sample Date : *11/29/2000*
Sample Time : *11:08am*

Date Received : *11/30/2000*
Sample Type : *soil*
KAR Sample No. : *006175-06*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	12/06/00	DBL	
Prep, metals	Completed		EPA 3050	12/04/00	PML	
Barium, total, low level	142	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Cobalt, total, low level	4	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Lead, total	103	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Mercury, total, low level	0.3	mg/kg dry sample	EPA 7471A	12/07/00	PML	
Dry weight solids	82.37	% by weight	SM(18) 2540B mod	12/04/00	BLF	
Prep, SV Acid	Completed		EPA 3545	12/07/00	SAS	
Pentachlorophenol	<330	ug/kg dry sample	EPA 625	12/08/00	KTL	

LABORATORY DETAIL REPORT

Client: *Strebor Inc.*

KAR Project No. : *006175*
Date Reported : *12/12/00*

Project Desc. : *Analysis of eight soil samples.*

Sample ID : *"GP-12 @ 3.4'"*
Sampled By : *BG of Envirologic*
Sample Date : *11/29/2000*
Sample Time : *9:54am*

Date Received : *11/30/2000*
Sample Type : *soil*
KAR Sample No. : *006175-07*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	12/06/00	DBL	
Prep, metals	Completed		EPA 3050	12/04/00	PML	
Barium, total, low level	112	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Cobalt, total, low level	4	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Lead, total	48	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Mercury, total, low level	0.1	mg/kg dry sample	EPA 7471A	12/07/00	PML	
Dry weight solids	77.94	% by weight	SM(18) 2540B mod	12/04/00	BLF	
Prep, SV Acid	Completed		EPA 3545	12/07/00	SAS	
Pentachlorophenol	<330	ug/kg dry sample	EPA 625	12/08/00	KTL	

LABORATORY DETAIL REPORT

Client: *Strebor Inc.*

KAR Project No. : *006175*
Date Reported : *12/12/00*

Project Desc. : *Analysis of eight soil samples.*

Sample ID : *"GP-13 @ 3.5'"*
Sampled By : *BG of Envirologic*
Sample Date : *11/29/2000*
Sample Time : *10:35am*

Date Received : *11/30/2000*
Sample Type : *soil*
KAR Sample No. : *006175-08*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	12/06/00	DBL	
Prep, metals	Completed		EPA 3050	12/04/00	PML	
Barium, total, low level	161	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Cobalt, total, low level	5	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Lead, total	76	mg/kg dry sample	EPA 6010B	12/05/00	PML	
Mercury, total, low level	0.3	mg/kg dry sample	EPA 7471A	12/07/00	PML	
Dry weight solids	73.11	% by weight	SM(18) 2540B mod	12/04/00	BLF	
Prep, SV Acid	Completed		EPA 3545	12/07/00	SAS	
Pentachlorophenol	430	ug/kg dry sample	EPA 625	12/08/00	KTL	

CHAIN - OF - CUSTODY RECORD

Strebor Inc.

LAB: KAR Labs | PROJECT NUMBER | PROJECT MANAGER

SEND RESULTS TO: Mike McClish

TURNAROUND REQUEST: 5Td. | SAMPLE RETENTION: RETURN | DISPOSE

CHAIN-OF-CUSTODY NO. SI - 861

ITEM NO.	SAMPLE ID NUMBER	SAMPLE DATE / SAMPLE TIME	MATRIX	NUMBER AND TYPE OF CONTAINER	ANALYSIS CODE	Grab (G) Composite (C)	DESCRIPTION/COMMENTS
1	GP-12@3.4'	11/29/00 9:54 AM	O	1-1ℓ Amb. 1-145 mℓ	16,17,18 19,20,21	G	
2	GP-9@3.5'	11/29/00 10:40 AM	O	1-1ℓ Amb. 1-145 mℓ	16,17,18 19,20,21	G	
3	GP-13@3.5'	11/29/00 10:35 A	O	1-1ℓ Amb. 1-145 mℓ	16,17,18 19,20,21	G	
4	GP-8@3.3'	11/29/00 10:52 A	O	1-1ℓ Amb. 1-145 mℓ	16,17,18 19,20,21	G	
5	GP-11@3.2'	11/29/00 11:08 A	O	1-1ℓ Amb. 1-145 mℓ	16,17,18 19,20,21	G	
6	GP-7@3.5'	11/29/00 11:20 A	O	1-1ℓ Amb. 1-145 mℓ	16,17,18 19,20,21	G	
7	GP-10@3.2'	11/29/00 11:30 A	O	1-1ℓ Amb. 1-145 mℓ	16,17,18 19,20,21	G	
8	GP-6@4.3'	11/29/00 11:45 A	O	1-1ℓ Amb. 1-145 mℓ	16,17,18 19,20,21	G	

SAMPLER: Bradley A. Green

AFFILIATION: Enviro/logic

DATE: 11/29/00 TIME: 12:20 P

TRANS NO.	ITEM NO.	RELINQUISHED BY	ACCEPTED BY	DATE	TIME
1	1-8	[signature]	[signature]	11/29/00	12:20 P.
2	1-8	[signature]	[signature]	11/30/00	9:50A
3					
4					
5					

PRESERVATION:
All samples must be preserved at 4°C (39°F), unless specified otherwise.

Cd, Cr, Cu, Pb, Ni, Zn pH<2 with HNO3
Cn pH>12 with NaOH

Matrix:
W = Water
L = Liquid Sample
S = Solid Sample
SD = Solids Sample
SL = Sludge Sample
O = Other (specify Soil)

ANALYSIS CODES
- Cross out any unwanted parameter.
- List any extra parameters in section below.

01 VOC's EPA 601/602 (includes Xylenes)
02 Phenols EPA 625
03 Pentachlorophenol EPA 625
04 Total Suspended Solids EPA 160.2
05 PAH EPA 625
06 Phthalate Esters EPA 625
07 pH EPA 150.1
08 TPH EPA 8015 Modified
09 Cr, Cu,Ni,Zn EPA 200.7
10 Cd. EPA 213.2
11 Pb EPA 239.2
12 Hg EPA 245.2
13 CN (total) EPA 335.2
14 PCBs EPA 608
15 PCDDs/PCDFs EPA 1613
16 PCDD/PCDF
17 PenTachlorophenol
18 Barium
19 CobalT
20 Lead
21 Mercury
22
23
24
25

WHITE - CLIENT FILE COPY YELLOW - LABORATORY FILE COPY PINK - BAY WEST FILE COPY GOLDENROD - STREBOR INC. FILE COPY

Pace Analytical™
www.pacelabs.com PACE ANALYTICAL SERVICES, INC.
1700 Elm Street – Suite 200
Minneapolis, MN 55414

Pace Analytical Services, Inc.
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

TELEFAX COVER SHEET

Total Pages (including cover): 9

THIS MESSAGE IS TO:		THIS MESSAGE IS FROM:	
Name:	**Garrett Ervin**	**Name:**	**Scott Unze**
Company:	**Kar Laboratories**	**Date:**	**01/11/01**
Phone No:	**616/381-9666**	**Phone No:**	**612/607-6383**
Fax No:	**616/381-9698**	**Fax No:**	**612/607-6444**

MESSAGE:

Enclosed are 8 results for your dioxin project. Due to low internal standard recoveries, sample 006175-07 is being reanalyzed. Results for the reanalysis will be available shortly. If you have any questions please call or e-mail.

REPORT OF LABORATORY ANALYSIS

Pace Analytical™
1700 Elm Street - Suite 200
Minneapolis, MN 55414
Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Analysis Results

Client - KAR LABORATORIES

Client's Sample ID	006175-01 GP-6		
Lab Sample ID	2425725		
Filename	S01221X		
Injected By	CSH		
Total Amount Extracted	12.31 g	Matrix	SOIL
% Moisture	18.7	Dilution	5
Dry Weight Extracted	10.0 g	Collected	11/29/2000
ICAL Date	11/21/2000	Received	12/01/2000
CCal Filename(s)	S01221Q & S01221Z	Extracted	12/04/2000
Method Blank ID	BLANK-120400	Analyzed	12/22/2000 11:26

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	5.7	-----	1.10		2,3,7,8-TCDF-13C	2.00	70
Total TCDF	140.0	-----	1.10		2,3,7,8-TCDD-13C	2.00	70
					1,2,3,7,8-PeCDF-13C	2.00	70
2,3,7,8-TCDD	6.2	-----	0.94		2,3,4,7,8-PeCDF-13C	2.00	69
Total TCDD	140.0	-----	0.94		1,2,3,7,8-PeCDD-13C	2.00	72
					1,2,3,4,7,8-HxCDF-13C	2.00	64
1,2,3,7,8-PeCDF	13.0	-----	0.43	J	1,2,3,6,7,8-HxCDF-13C	2.00	64
2,3,4,7,8-PeCDF	35.0	-----	1.50		2,3,4,6,7,8-HxCDF-13C	2.00	67
Total PeCDF	660.0	-----	0.94		1,2,3,7,8,9-HxCDF-13C	2.00	64
					1,2,3,4,7,8-HxCDD-13C	2.00	65
1,2,3,7,8-PeCDD	20.0	-----	1.20	J	1,2,3,6,7,8-HxCDD-13C	2.00	76
Total PeCDD	660.0	-----	1.20		1,2,3,4,6,7,8-HpCDF-13C	2.00	61
					1,2,3,4,7,8,9-HpCDF-13C	2.00	61
1,2,3,4,7,8-HxCDF	120.0	-----	2.80		1,2,3,4,6,7,8-HpCDD-13C	2.00	64
1,2,3,6,7,8-HxCDF	-----	900	1.10	E	OCDD-13C	4.00	65
2,3,4,6,7,8-HxCDF	200.0	-----	1.40				
1,2,3,7,8,9-HxCDF	22.0	-----	1.70	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	2300.0	-----	1.80		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	91.0	-----	1.60		2,3,7,8-TCDD-37Cl4	0.20	63
1,2,3,6,7,8-HxCDD	440.0	-----	1.40				
1,2,3,7,8,9-HxCDD	210.0	-----	1.40				
Total HxCDD	4400.0	-----	1.40				
1,2,3,4,6,7,8-HpCDF	4400.0	-----	1.40		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	240.0	-----	2.50		Equivalence: 560 ng/Kg		
Total HpCDF	11000.0	-----	1.90		(Using ITE Factors		
1,2,3,4,6,7,8-HpCDD	19000.0	-----	4.10				
Total HpCDD	31000.0	-----	4.10				
OCDF	11000.0	-----	0.85				
OCDD	170000.0	-----	0.89	S			

Results reported on a dry weight basis

Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
EMPC = Estimated Maximum Possible Concentration
LOD = Limit of Detection
J = Concentration detected is below the calibration range
B = Less than 10 times higher than method blank level
P = Recovery outside of target range
Nn = Value obtained from additional analysis

I = Interference
E = PCDE Interference
S = Saturated signal
ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Report No.....00-1039361

REPORT OF LABORATORY ANALYSIS

Pace Analytical™
1700 Elm Street - Suite 200
Minneapolis, MN 55414
Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Analysis Results

Client - KAR LABORATORIES

Client's Sample ID	006175-02 GP-7		
Lab Sample ID	2425659		
Filename	S01221V		
Injected By	CSH		
Total Amount Extracted	12.21 g	Matrix	SOIL
% Moisture	16.9	Dilution	5
Dry Weight Extracted	10.2 g	Collected	11/29/2000
ICAL Date	11/21/2000	Received	12/01/2000
CCal Filename(s)	S01221Q & S01221Z	Extracted	12/04/2000
Method Blank ID	BLANK-120400	Analyzed	12/22/2000 09:04

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	21	-----	5.9		2,3,7,8-TCDF-13C	2.00	68	
Total TCDF	530	-----	5.9		2,3,7,8-TCDD-13C	2.00	70	
					1,2,3,7,8-PeCDF-13C	2.00	64	
2,3,7,8-TCDD	34	-----	5.0		2,3,4,7,8-PeCDF-13C	2.00	64	
Total TCDD	340	-----	5.0		1,2,3,7,8-PeCDD-13C	2.00	71	
					1,2,3,4,7,8-HxCDF-13C	2.00	61	
1,2,3,7,8-PeCDF	84	-----	5.4		1,2,3,6,7,8-HxCDF-13C	2.00	62	
2,3,4,7,8-PeCDF	140	-----	3.0		2,3,4,6,7,8-HxCDF-13C	2.00	59	
Total PeCDF	3600	-----	4.2		1,2,3,7,8,9-HxCDF-13C	2.00	59	
					1,2,3,4,7,8-HxCDD-13C	2.00	63	
1,2,3,7,8-PeCDD	160	-----	8.8		1,2,3,6,7,8-HxCDD-13C	2.00	70	
Total PeCDD	1500	-----	8.8		1,2,3,4,6,7,8-HpCDF-13C	2.00	66	
					1,2,3,4,7,8,9-HpCDF-13C	2.00	62	
1,2,3,4,7,8-HxCDF	510	-----	8.7		1,2,3,4,6,7,8-HpCDD-13C	2.00	73	
1,2,3,6,7,8-HxCDF	-----	3900	5.9	E	OCDD-13C	4.00	80	N2
2,3,4,6,7,8-HxCDF	990	-----	15.0					
1,2,3,7,8,9-HxCDF	92	-----	8.4		1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	15000	-----	9.6		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	630	-----	8.4		2,3,7,8-TCDD-37Cl4	0.20	79	
1,2,3,6,7,8-HxCDD	2200	-----	10.0					
1,2,3,7,8,9-HxCDD	1400	-----	9.8					
Total HxCDD	15000	-----	9.6					
1,2,3,4,6,7,8-HpCDF	20000	-----	4.8		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	1000	-----	7.3		Equivalence: 2700 ng/Kg			
Total HpCDF	42000	-----	6.1		(Using ITE Factors			
1,2,3,4,6,7,8-HpCDD	80000	-----	12.0					
Total HpCDD	130000	-----	12.0					
OCDF	26000	-----	5.4					
OCDD	840000	-----	25.0	N2				

Results reported on a dry weight basis

Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
EMPC = Estimated Maximum Possible Concentration
LOD = Limit of Detection
J = Concentration detected is below the calibration range
B = Less than 10 times higher than method blank level
P = Recovery outside of target range
Nn = Value obtained from additional analysis

I = Interference
E = PCDE Interference
S = Saturated signal
ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Report No.....00-1039361

REPORT OF LABORATORY ANALYSIS

Pace Analytical™
1700 Elm Street - Suite 200
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Tel: 612-607-1700
Fax: 612-607-6444

Method 8290 Analysis Results

Client - KAR LABORATORIES

Client's Sample ID	006175-03 GP-8		
Lab Sample ID	2425667		
Filename	S012221		
Injected By	TM		
Total Amount Extracted	12.54 g	Matrix	SOIL
% Moisture	19.6	Dilution	10
Dry Weight Extracted	10.1 g	Collected	11/29/2000
ICAL Date	11/21/2000	Received	12/01/2000
CCal Filename(s)	S01221Z & S01222L	Extracted	12/04/2000
Method Blank ID	BLANK-120400	Analyzed	12/22/2000 23:53

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	9.2	-----	5.1	J	2,3,7,8-TCDF-13C	2.00	52
Total TCDF	190.0	-----	5.1		2,3,7,8-TCDD-13C	2.00	55
					1,2,3,7,8-PeCDF-13C	2.00	53
2,3,7,8-TCDD	ND	-----	8.1		2,3,4,7,8-PeCDF-13C	2.00	54
Total TCDD	12.0	-----	8.1		1,2,3,7,8-PeCDD-13C	2.00	57
					1,2,3,4,7,8-HxCDF-13C	2.00	55
1,2,3,7,8-PeCDF	30.0	-----	6.8	J	1,2,3,6,7,8-HxCDF-13C	2.00	53
2,3,4,7,8-PeCDF	45.0	-----	8.6	J	2,3,4,6,7,8-HxCDF-13C	2.00	55
Total PeCDF	1200.0	-----	7.7		1,2,3,7,8,9-HxCDF-13C	2.00	51
					1,2,3,4,7,8-HxCDD-13C	2.00	59
1,2,3,7,8-PeCDD	86.0	-----	4.3		1,2,3,6,7,8-HxCDD-13C	2.00	60
Total PeCDD	380.0	-----	4.3		1,2,3,4,6,7,8-HpCDF-13C	2.00	54
					1,2,3,4,7,8,9-HpCDF-13C	2.00	47
1,2,3,4,7,8-HxCDF	170.0	-----	4.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	53
1,2,3,6,7,8-HxCDF	-----	1700	8.5	E	OCDD-13C	4.00	63
2,3,4,6,7,8-HxCDF	340.0	-----	8.7				
1,2,3,7,8,9-HxCDF	19.0	-----	5.1	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	5400.0	-----	6.6		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	280.0	-----	11.0		2,3,7,8-TCDD-37Cl4	0.20	65
1,2,3,6,7,8-HxCDD	860.0	-----	6.3				
1,2,3,7,8,9-HxCDD	610.0	-----	12.0				
Total HxCDD	5400.0	-----	9.7				
1,2,3,4,6,7,8-HpCDF	6800.0	-----	6.1		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	300.0	-----	8.4		Equivalence: 890 ng/Kg		
Total HpCDF	14000.0	-----	7.2		(Using ITE Factors		
1,2,3,4,6,7,8-HpCDD	30000.0	-----	7.3				
Total HpCDD	48000.0	-----	7.3				
OCDF	8200.0	-----	8.3				
OCDD	220000.0	-----	4.6				

Results reported on a dry weight basis

Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
EMPC = Estimated Maximum Possible Concentration
LOD = Limit of Detection
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B = Less than 10 times higher than method blank level
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Report No.....00-1039361

REPORT OF LABORATORY ANALYSIS

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Method 8290 Analysis Results

Client - KAR LABORATORIES

Client's Sample ID	006175-04 GP-9		
Lab Sample ID	2425675		
Filename	S01222H		
Injected By	TM		
Total Amount Extracted	12.28 g	Matrix	SOIL
% Moisture	17.6	Dilution	10
Dry Weight Extracted	10.1 g	Collected	11/29/2000
ICAL Date	11/21/2000	Received	12/01/2000
CCal Filename(s)	S01221Z & S01222L	Extracted	12/04/2000
Method Blank ID	BLANK-120400	Analyzed	12/22/2000 22:59

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	3.1		2,3,7,8-TCDF-13C	2.00	61
Total TCDF	ND	-----	3.1		2,3,7,8-TCDD-13C	2.00	63
					1,2,3,7,8-PeCDF-13C	2.00	67
2,3,7,8-TCDD	ND	-----	3.5		2,3,4,7,8-PeCDF-13C	2.00	66
Total TCDD	ND	-----	3.5		1,2,3,7,8-PeCDD-13C	2.00	67
					1,2,3,4,7,8-HxCDF-13C	2.00	64
1,2,3,7,8-PeCDF	ND	-----	3.8		1,2,3,6,7,8-HxCDF-13C	2.00	65
2,3,4,7,8-PeCDF	ND	-----	3.2		2,3,4,6,7,8-HxCDF-13C	2.00	66
Total PeCDF	17.0	-----	3.5	J	1,2,3,7,8,9-HxCDF-13C	2.00	60
					1,2,3,4,7,8-HxCDD-13C	2.00	69
1,2,3,7,8-PeCDD	ND	-----	2.4		1,2,3,6,7,8-HxCDD-13C	2.00	83
Total PeCDD	ND	-----	2.4		1,2,3,4,6,7,8-HpCDF-13C	2.00	67
					1,2,3,4,7,8,9-HpCDF-13C	2.00	67
1,2,3,4,7,8-HxCDF	5.4	-----	3.3	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	70
1,2,3,6,7,8-HxCDF	----	30	4.4	E	OCDD-13C	4.00	69
2,3,4,6,7,8-HxCDF	ND	-----	2.2				
1,2,3,7,8,9-HxCDF	ND	-----	5.6		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	160.0	-----	3.9		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	4.3		2,3,7,8-TCDD-37Cl4	0.20	69
1,2,3,6,7,8-HxCDD	17.0	-----	3.3	J			
1,2,3,7,8,9-HxCDD	6.2	-----	3.8	J			
Total HxCDD	130.0	-----	3.8				
1,2,3,4,6,7,8-HpCDF	210.0	-----	5.0		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	9.4	-----	5.5	J	Equivalence: 17 ng/Kg		
Total HpCDF	650.0	-----	5.3		(Using ITE Factors		
1,2,3,4,6,7,8-HpCDD	590.0	-----	3.8				
Total HpCDD	960.0	-----	3.8				
OCDF	530.0	-----	8.2				
OCDD	5700.0	-----	5.3				

Results reported on a dry weight basis

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B = Less than 10 times higher than method blank level
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Report No.....00-1039361

REPORT OF LABORATORY ANALYSIS

Pace Analytical™
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Method 8290 Analysis Results

Client - KAR LABORATORIES

Client's Sample ID	006175-05 GP-10		
Lab Sample ID	2425683		
Filename	S01222G		
Injected By	TM		
Total Amount Extracted	11.3 g	Matrix	SOIL
% Moisture	10.3	Dilution	10
Dry Weight Extracted	10.1 g	Collected	11/29/2000
ICAL Date	11/21/2000	Received	12/01/2000
CCal Filename(s)	S01221Z & S01222L	Extracted	12/04/2000
Method Blank ID	BLANK-120400	Analyzed	12/22/2000 21:47

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	11	-----	3.0		2,3,7,8-TCDF-13C	2.00	62
Total TCDF	150	-----	3.0		2,3,7,8-TCDD-13C	2.00	67
					1,2,3,7,8-PeCDF-13C	2.00	64
2,3,7,8-TCDD	15	-----	4.1		2,3,4,7,8-PeCDF-13C	2.00	64
Total TCDD	140	-----	4.1		1,2,3,7,8-PeCDD-13C	2.00	66
					1,2,3,4,7,8-HxCDF-13C	2.00	63
1,2,3,7,8-PeCDF	24	-----	1.4	J	1,2,3,6,7,8-HxCDF-13C	2.00	63
2,3,4,7,8-PeCDF	63	-----	2.7		2,3,4,6,7,8-HxCDF-13C	2.00	63
Total PeCDF	860	-----	2.1		1,2,3,7,8,9-HxCDF-13C	2.00	60
					1,2,3,4,7,8-HxCDD-13C	2.00	65
1,2,3,7,8-PeCDD	-----	43	3.8	I	1,2,3,6,7,8-HxCDD-13C	2.00	74
Total PeCDD	460	-----	3.8		1,2,3,4,6,7,8-HpCDF-13C	2.00	63
					1,2,3,4,7,8,9-HpCDF-13C	2.00	63
1,2,3,4,7,8-HxCDF	240	-----	3.5		1,2,3,4,6,7,8-HpCDD-13C	2.00	69
1,2,3,6,7,8-HxCDF	-----	1900	5.2	E	OCDD-13C	4.00	82
2,3,4,6,7,8-HxCDF	300	-----	5.3				
1,2,3,7,8,9-HxCDF	50	-----	2.0		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4900	-----	4.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	130	-----	1.8		2,3,7,8-TCDD-37Cl4	0.20	61
1,2,3,6,7,8-HxCDD	830	-----	1.9				
1,2,3,7,8,9-HxCDD	320	-----	3.9				
Total HxCDD	4400	-----	2.6				
1,2,3,4,6,7,8-HpCDF	6500	-----	1.4		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	440	-----	5.0		Equivalence: 940 ng/Kg		
Total HpCDF	27000	-----	3.2		(Using ITE Factors		
1,2,3,4,6,7,8-HpCDD	35000	-----	13.0				
Total HpCDD	53000	-----	13.0				
OCDF	30000	-----	1.8				
OCDD	250000	-----	16.0	S			

Results reported on a dry weight basis

Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
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Nn = Value obtained from additional analysis

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Report No.....00-1039361

REPORT OF LABORATORY ANALYSIS

Pace Analytical™
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Method 8290 Analysis Results

Client - KAR LABORATORIES

Client's Sample ID	006175-06 GP-11		
Lab Sample ID	2425691		
Filename	S01222F		
Injected By	TM		
Total Amount Extracted	12.12 g	Matrix	SOIL
% Moisture	17.1	Dilution	10
Dry Weight Extracted	10.0 g	Collected	11/29/2000
ICAL Date	11/21/2000	Received	12/01/2000
CCal Filename(s)	S01221Z & S01222L	Extracted	12/04/2000
Method Blank ID	BLANK-120400	Analyzed	12/22/2000 20:32

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	90	-----	1.5		2,3,7,8-TCDF-13C	2.00	62	
Total TCDF	2700	-----	1.5		2,3,7,8-TCDD-13C	2.00	69	
					1,2,3,7,8-PeCDF-13C	2.00	61	
2,3,7,8-TCDD	34	-----	3.3		2,3,4,7,8-PeCDF-13C	2.00	60	
Total TCDD	500	-----	3.3		1,2,3,7,8-PeCDD-13C	2.00	68	
					1,2,3,4,7,8-HxCDF-13C	2.00	61	
1,2,3,7,8-PeCDF	320	-----	1.2		1,2,3,6,7,8-HxCDF-13C	2.00	63	
2,3,4,7,8-PeCDF	800	-----	2.5		2,3,4,6,7,8-HxCDF-13C	2.00	59	
Total PeCDF	22000	-----	1.9		1,2,3,7,8,9-HxCDF-13C	2.00	59	
					1,2,3,4,7,8-HxCDD-13C	2.00	65	
1,2,3,7,8-PeCDD	340	-----	1.5		1,2,3,6,7,8-HxCDD-13C	2.00	70	
Total PeCDD	4400	-----	1.5		1,2,3,4,6,7,8-HpCDF-13C	2.00	63	I
					1,2,3,4,7,8,9-HpCDF-13C	2.00	58	
1,2,3,4,7,8-HxCDF	3300	-----	7.9		1,2,3,4,6,7,8-HpCDD-13C	2.00	67	
1,2,3,6,7,8-HxCDF	-----	9700	6.7	E	OCDD-13C	4.00	48	I
2,3,4,6,7,8-HxCDF	3800	-----	3.1					
1,2,3,7,8,9-HxCDF	340	-----	5.6		1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	26000	-----	5.8		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	2000	-----	4.3		2,3,7,8-TCDD-37Cl4	0.20	69	
1,2,3,6,7,8-HxCDD	7200	-----	4.1					
1,2,3,7,8,9-HxCDD	4400	-----	2.0					
Total HxCDD	43000	-----	3.5					
1,2,3,4,6,7,8-HpCDF	54000	-----	3.2	S	Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	2400	-----	4.5		Equivalence: 5300 ng/Kg			
Total HpCDF	100000	-----	3.8	S	(Using ITE Factors			
1,2,3,4,6,7,8-HpCDD	140000	-----	1.6	S				
Total HpCDD	230000	-----	1.6	S				
OCDF	79000	-----	5.2					
OCDD	490000	-----	7.3	S				

Results reported on a dry weight basis

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Report No.....00-1039361

REPORT OF LABORATORY ANALYSIS

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Method 8290 Analysis Results

Client - KAR LABORATORIES

Client's Sample ID	006175-07 GP-12		
Lab Sample ID	2425709		
Filename	S01221Y		
Injected By	BAL		
Total Amount Extracted	13.79 g	Matrix	SOIL
% Moisture	27.1	Dilution	10
Dry Weight Extracted	10.1 g	Collected	11/29/2000
ICAL Date	11/21/2000	Received	12/01/2000
CCal Filename(s)	S01221Q & S01221Z	Extracted	12/04/2000
Method Blank ID	BLANK-120400	Analyzed	12/22/2000 12:27

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	ND	-----	24		2,3,7,8-TCDF-13C	2.00	6	P
Total TCDF	ND	-----	24		2,3,7,8-TCDD-13C	2.00	6	P
					1,2,3,7,8-PeCDF-13C	2.00	7	P
2,3,7,8-TCDD	ND	-----	22		2,3,4,7,8-PeCDF-13C	2.00	7	P
Total TCDD	ND	-----	22		1,2,3,7,8-PeCDD-13C	2.00	7	P
					1,2,3,4,7,8-HxCDF-13C	2.00	7	P
1,2,3,7,8-PeCDF	ND	-----	28		1,2,3,6,7,8-HxCDF-13C	2.00	7	P
2,3,4,7,8-PeCDF	ND	-----	27		2,3,4,6,7,8-HxCDF-13C	2.00	6	P
Total PeCDF	99	-----	28		1,2,3,7,8,9-HxCDF-13C	2.00	7	P
					1,2,3,4,7,8-HxCDD-13C	2.00	8	P
1,2,3,7,8-PeCDD	ND	-----	30		1,2,3,6,7,8-HxCDD-13C	2.00	8	P
Total PeCDD	ND	-----	30		1,2,3,4,6,7,8-HpCDF-13C	2.00	7	P
					1,2,3,4,7,8,9-HpCDF-13C	2.00	6	P
1,2,3,4,7,8-HxCDF	ND	-----	26		1,2,3,4,6,7,8-HpCDD-13C	2.00	8	P
1,2,3,6,7,8-HxCDF	-----	140	23	E	OCDD-13C	4.00	7	P
2,3,4,6,7,8-HxCDF	ND	-----	44					
1,2,3,7,8,9-HxCDF	ND	-----	24		1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	630	-----	29		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	35	-----	30	J	2,3,7,8-TCDD-37Cl4	0.20	63	
1,2,3,6,7,8-HxCDD	120	-----	43					
1,2,3,7,8,9-HxCDD	60	-----	30					
Total HxCDD	580	-----	34					
1,2,3,4,6,7,8-HpCDF	520	-----	16		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	ND	-----	34		Equivalence: ~~100~~ ng/Kg 210			
Total HpCDF	1800	-----	25		(Using ITE Factors ~~210~~			
1,2,3,4,6,7,8-HpCDD	2900	-----	61					
Total HpCDD	5100	-----	61					
OCDF	1700	-----	31					
OCDD	43000	-----	75					

Results reported on a dry weight basis

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Report No.....00-1039361

REPORT OF LABORATORY ANALYSIS

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Method 8290 Analysis Results

Client - KAR LABORATORIES

Client's Sample ID	006175-08 GP-13		
Lab Sample ID	2425717		
Filename	V10104G		
Injected By	BAL		
Total Amount Extracted	12.4 g	Matrix	SOIL
% Moisture	18.7	Dilution	20
Dry Weight Extracted	10.1 g	Collected	11/29/2000
ICAL Date	10/04/2000	Received	12/01/2000
CCal Filename(s)	V10104A & V10104K	Extracted	12/04/2000
Method Blank ID	BLANK-120400	Analyzed	01/04/2001 16:04

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	13.0		2,3,7,8-TCDF-13C	2.00	71
Total TCDF	ND	-----	13.0		2,3,7,8-TCDD-13C	2.00	73
					1,2,3,7,8-PeCDF-13C	2.00	63
2,3,7,8-TCDD	ND	-----	21.0		2,3,4,7,8-PeCDF-13C	2.00	77
Total TCDD	98	-----	21.0		1,2,3,7,8-PeCDD-13C	2.00	73
					1,2,3,4,7,8-HxCDF-13C	2.00	68
1,2,3,7,8-PeCDF	ND	-----	8.0		1,2,3,6,7,8-HxCDF-13C	2.00	66
2,3,4,7,8-PeCDF	-----	35	9.2	I	2,3,4,6,7,8-HxCDF-13C	2.00	69
Total PeCDF	770	-----	8.6		1,2,3,7,8,9-HxCDF-13C	2.00	64
					1,2,3,4,7,8-HxCDD-13C	2.00	72
1,2,3,7,8-PeCDD	25	-----	13.0	J	1,2,3,6,7,8-HxCDD-13C	2.00	76
Total PeCDD	610	-----	13.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	61
					1,2,3,4,7,8,9-HpCDF-13C	2.00	70
1,2,3,4,7,8-HxCDF	150	-----	5.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	63
1,2,3,6,7,8-HxCDF	230	-----	6.2		OCDD-13C	4.00	72
2,3,4,6,7,8-HxCDF	150	-----	9.2				
1,2,3,7,8,9-HxCDF	ND	-----	13.0		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4200	-----	8.5		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	92	-----	14.0	J	2,3,7,8-TCDD-37Cl4	0.20	86
1,2,3,6,7,8-HxCDD	460	-----	9.8				
1,2,3,7,8,9-HxCDD	210	-----	13.0				
Total HxCDD	5000	-----	12.0				
1,2,3,4,6,7,8-HpCDF	4200	-----	6.2		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	220	-----	16.0		Equivalence: 640 ng/Kg		
Total HpCDF	12000	-----	11.0		(Using ITE Factors		
1,2,3,4,6,7,8-HpCDD	20000	-----	14.0				
Total HpCDD	37000	-----	14.0				
OCDF	9500	-----	8.7				
OCDD	250000	-----	16.0				

Results reported on a dry weight basis

Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
EMPC = Estimated Maximum Possible Concentration
LOD = Limit of Detection
J = Concentration detected is below the calibration range
B = Less than 10 times higher than method blank level
P = Recovery outside of target range
Nn = Value obtained from additional analysis

I = Interference
E = PCDE Interference
S = Saturated signal
ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Report No.....00-1039361

REPORT OF LABORATORY ANALYSIS

KAR *Laboratories, Inc.*

4425 Manchester Road
Kalamazoo, MI 49001
Phone 616 381-9666
Fax 616 381-9698
www.karlabs.com

Strebor Inc.
2305 Superior Avenue
Kalamazoo, MI 49001

Attn : *Mr. Mike McClish*

KAR Project No. :	***010472***
Date Reported :	***02/05/01***
Date Activated :	***01/30/01***
Date Due :	***02/06/01***
Date Validated :	***02/02/01***

Project Description : *Analysis of six soil samples.*

Dear Client,

Your laboratory data is presented to you in this report. Unless otherwise stated under the "Comments" heading, all tests were performed within the maximum allowable holding times, have met or exceeded QC requirements and the result represents the sample as it was received.

If you wish to contact us about this work please mention KAR Project No. 010472. To arrange additional sampling or testing please contact our Client Services Department. If you have a question regarding quality assurance please contact William Rauch.

Thank you for the opportunity to serve you. Please do not hesitate to call if we can provide additional assistance.

Respectfully submitted,

Michael J. Jaeger
Director of Laboratories

POSITIVE RESULTS SUMMARY REPORT

Client: *Strebor Inc.*

KAR Project No.: *010472*

Date Reported: *2/5/01*

Project Description: *Analysis of six soil samples.*

Sample Description: ***"GP-16"***

Test	Positive Result Concentration	Units
1,2,4-Trimethylbenzene	7000	ug/kg dry sample
1,3,5-Trimethylbenzene	2700	ug/kg dry sample
Isopropylbenzene	770	ug/kg dry sample
M-and/or p-xylene	870	ug/kg dry sample
N-Propylbenzene	1300	ug/kg dry sample

This Positive Results Summary Report provides an overview of the sample set and CONTAINS ONLY RESULTS ABOVE THE REPORTING LIMIT. It should not be used as a substitute for the attached detail report.

LABORATORY DETAIL REPORT

KAR Project No. : ***010472***

Client: ***Strebor Inc.***

Date Reported : ***02/05/01***

Project Desc. : ***Analysis of six soil samples.***

Sample ID : ***"BG-1"***
Sampled By : ***MM of Strebor***
Sample Date : ***1/29/01***
Sample Time : ***1425***

Date Received : ***1/30/01***
Sample Type : ***soil***
KAR Sample No. : ***010472-01***

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	01/31/01	MJB	
Mercury, total, low level	<0.1	mg/kg dry sample	EPA 7471A	02/01/01	DBL	
Dry weight solids	86.24	% by weight	SM(18) 2540B mod	01/30/01	BLF	

Sample ID : ***"BG-2"***
Sampled By : ***MM of Strebor***
Sample Date : ***1/29/01***
Sample Time : ***1320***

Date Received : ***1/30/01***
Sample Type : ***soil***
KAR Sample No. : ***010472-02***

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	01/31/01	MJB	
Mercury, total, low level	<0.1	mg/kg dry sample	EPA 7471A	02/01/01	DBL	
Dry weight solids	85.12	% by weight	SM(18) 2540B mod	01/30/01	BLF	

Sample ID : ***"BG-3"***
Sampled By : ***MM of Strebor***
Sample Date : ***1/29/01***
Sample Time : ***1510***

Date Received : ***1/30/01***
Sample Type : ***soil***
KAR Sample No. : ***010472-03***

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	01/31/01	MJB	
Mercury, total, low level	<0.1	mg/kg dry sample	EPA 7471A	02/01/01	DBL	
Dry weight solids	87.43	% by weight	SM(18) 2540B mod	01/30/01	BLF	

LABORATORY DETAIL REPORT

KAR Project No. : *010472*

Client: *Strebor Inc.*

Date Reported : *02/05/01*

Project Desc. : *Analysis of six soil samples.*

Sample ID : *"BG-4"*
Sampled By : *MM of Strebor*
Sample Date : *1/29/01*
Sample Time : *1535*

Date Received : *1/30/01*
Sample Type : *soil*
KAR Sample No. : *010472-04*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Prep, Hg	Completed		EPA 7471A	01/31/01	MJB	
Mercury, total, low level	<0.1	mg/kg dry sample	EPA 7471A	02/01/01	DBL	
Dry weight solids	86.61	% by weight	SM(18) 2540B mod	01/30/01	BLF	

Sample ID : *"GP-12"*
Sampled By : *MM of Strebor*
Sample Date : *1/29/01*
Sample Time : *1600*

Date Received : *1/30/01*
Sample Type : *soil*
KAR Sample No. : *010472-05*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Dry weight solids	74.68	% by weight	SM(18) 2540B mod	01/30/01	BLF	
EPA 8260 Plus	See below		EPA 8260	01/31/01	DLB	
Prep, VOA	Completed		EPA 5035	01/31/01	DLB	Sample was field-preserved at time of collection.
1,1,1,2-Tetrachloroethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,1,1-Trichloroethane	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,1,2,2-Tetrachloroethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,1,2-Trichloroethane	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,1-Dichloroethane	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,1-Dichloroethene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2,3-Trichloropropane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2,4-Trichlorobenzene	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2,4-Trimethylbenzene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2-Dibromo-3-chloropropane	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2-Dichlorobenzene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2-Dichloroethane	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2-Dichloropropane	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,3,5-Trimethylbenzene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,3-Dichlorobenzene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,4-Dichlorobenzene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
2-Butanone	<750	ug/kg dry sample	EPA 8260	01/31/01	DLB	
2-Hexanone	<2500	ug/kg dry sample	EPA 8260	01/31/01	DLB	
2-Methylnaphthalene by 8260	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
4-Methyl-2-pentanone	<2500	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Acetone	<750	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Acrylonitrile	<2500	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Benzene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Bromochloromethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Bromodichloromethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	

LABORATORY DETAIL REPORT

KAR Project No. : ***010472***

Client: ***Strebor Inc.***

Date Reported : ***02/05/01***

Project Desc. : ***Analysis of six soil samples.***

Sample ID : ***"GP-12"***
Sampled By : ***MM of Strebor***
Sample Date : ***1/29/01***
Sample Time : ***1600***

Date Received : ***1/30/01***
Sample Type : ***soil***
KAR Sample No. : ***010472-05***

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Bromoform	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Bromomethane	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Carbon disulfide	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Carbon tetrachloride	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Chlorobenzene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Chloroethane	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Chloroform	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Chloromethane	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Cis-1,2-Dichloroethene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Cis-1,3-Dichloropropene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Dibromochloromethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Dibromomethane	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Dichlorodifluoromethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Diethyl ether	<2500	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Ethylbenzene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Ethylene dibromide	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Hexachloroethane by 8260	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Isopropylbenzene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
M-and/or p-xylene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Methyl iodide	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Methyl t-butyl ether (MTBE)	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Methylene chloride	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
N-Propylbenzene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Naphthalene	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
O-Xylene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Styrene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Tetrachloroethene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Toluene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Trans-1,2-Dichloroethene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Trans-1,3-Dichloropropene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Trans-1,4-Dichloro-2-butene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Trichloroethene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Trichlorofluoromethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Vinyl chloride	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	

LABORATORY DETAIL REPORT

KAR Project No. : ***010472***

Client: ***Strebor Inc.***

Date Reported : ***02/05/01***

Project Desc. : ***Analysis of six soil samples.***

Sample ID : ***"GP-16"***
Sampled By : ***MM of Strebor***
Sample Date : ***1/29/01***
Sample Time : ***1635***

Date Received : ***1/30/01***
Sample Type : ***soil***
KAR Sample No. : ***010472-06***

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Dry weight solids	74.57	% by weight	SM(18) 2540B mod	01/30/01	BLF	
EPA 8260 Plus	See below		EPA 8260	01/31/01	DLB	
Prep, VOA	Completed		EPA 5035	01/31/01	DLB	Sample was field-preserved at time of collection.
1,1,1,2-Tetrachloroethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,1,1-Trichloroethane	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,1,2,2-Tetrachloroethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,1,2-Trichloroethane	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,1-Dichloroethane	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,1-Dichloroethene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2,3-Trichloropropane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2,4-Trichlorobenzene	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2,4-Trimethylbenzene	7000	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2-Dibromo-3-chloropropane	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2-Dichlorobenzene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2-Dichloroethane	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,2-Dichloropropane	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,3,5-Trimethylbenzene	2700	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,3-Dichlorobenzene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
1,4-Dichlorobenzene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
2-Butanone	<750	ug/kg dry sample	EPA 8260	01/31/01	DLB	
2-Hexanone	<2500	ug/kg dry sample	EPA 8260	01/31/01	DLB	
2-Methylnaphthalene by 8260	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
4-Methyl-2-pentanone	<2500	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Acetone	<750	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Acrylonitrile	<2500	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Benzene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Bromochloromethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Bromodichloromethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Bromoform	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Bromomethane	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Carbon disulfide	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Carbon tetrachloride	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Chlorobenzene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Chloroethane	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Chloroform	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Chloromethane	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Cis-1,2-Dichloroethene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Cis-1,3-Dichloropropene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Dibromochloromethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Dibromomethane	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Dichlorodifluoromethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Diethyl ether	<2500	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Ethylbenzene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Ethylene dibromide	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	

LABORATORY DETAIL REPORT

KAR Project No. : *010472*

Client: *Strebor Inc.*

Date Reported : *02/05/01*

Project Desc. : *Analysis of six soil samples.*

Sample ID : *"GP-16"*
Sampled By : *MM of Strebor*
Sample Date : *1/29/01*
Sample Time : *1635*

Date Received : *1/30/01*
Sample Type : *soil*
KAR Sample No. : *010472-06*

Test	Result	Units of Measure	Method	Analyzed	Analyst	Comments
Hexachloroethane by 8260	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Isopropylbenzene	770	ug/kg dry sample	EPA 8260	01/31/01	DLB	
M-and/or p-xylene	870	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Methyl iodide	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Methyl t-butyl ether (MTBE)	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Methylene chloride	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
N-Propylbenzene	1300	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Naphthalene	<250	ug/kg dry sample	EPA 8260	01/31/01	DLB	
O-Xylene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Styrene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Tetrachloroethene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Toluene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Trans-1,2-Dichloroethene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Trans-1,3-Dichloropropene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Trans-1,4-Dichloro-2-butene	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Trichloroethene	<50	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Trichlorofluoromethane	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	
Vinyl chloride	<100	ug/kg dry sample	EPA 8260	01/31/01	DLB	

CHAIN - OF - CUSTODY RECORD

Strebor Inc.

LAB: KAR Labs
PROJECT NUMBER | PROJECT MANAGER
SEND RESULTS TO: Mike McClish
TURNAROUND REQUEST: 5-Day
SAMPLE RETENTION: RETURN | DISPOSE
CHAIN-OF-CUSTODY NO.: SI - 879

ITEM NO.	SAMPLE ID NUMBER	SAMPLE DATE / SAMPLE TIME	MATRIX	NUMBER AND TYPE OF CONTAINER	ANALYSIS CODE	Grab (G) Composite (C)	DESCRIPTION/COMMENTS
02 1	BG-2	1-29-01 / 13:20	O	1x125 mL	12	G	
01 2	BG-1	1-29-01 / 14:25	O	1x125 mL	12	G	
03 3	BG-3	1-29-01 / 15:10	O	1x125 mL	12	G	
04 4	BG-4	1-29-01 / 15:35	O	1x125 mL	12	G	
05 5	GP-12	1-29-01 / 16:00	O	1x40 mL 1x Bag	16	G	
06 6	GP-16	1-29-01 / 16:35	O	1x40 mL 1x Bag	16	G	
7							
8							

ANALYSIS CODES
- Cross out any unwanted parameter.
- List any extra parameters in section below.

01 VOC's EPA 601/602 (includes Xylenes)
02 Phenols EPA 625
03 Pentachlorophenol EPA 625
04 Total Suspended Solids EPA 160.2
05 PAH EPA 625
06 Phthalate Esters EPA 625
07 pH EPA 150.1
08 TPH EPA 8015 Modified
09 Cr, Cu, Ni, Zn EPA 200.7
10 Cd. EPA 213.2
11 Pb EPA 239.2
(12) Hg ~~EPA 245.2~~
13 CN (total) EPA 335.2
14 PCBs EPA 608
15 PCDDs/PCDFs EPA 1613
(16) VOCs EPA 8260 +
17
18
19
20
21
22
23
24
25

SAMPLER: Mike McClish
AFFILIATION: Bay West, Inc.
DATE: 1-29-01
TIME:

TRANS NO.	ITEM NO.	RELINQUISHED BY	ACCEPTED BY	DATE	TIME
1	1-6	[signature]	[signature]	1/30/01	10:40a
2					
3					
4					
5					

PRESERVATION:
All samples must be preserved at 4°C (39°F), unless specified otherwise.

Cd, Cr, Cu, Pb, Ni, Zn pH<2 with HNO3
Cn pH>12 with NaOH

Matrix:
W = Water
L = Liquid Sample
S = Solid Sample
SD = Solids Sample
SL = Sludge Sample
O = Other (specify Soil)

WHITE - CLIENT FILE COPY YELLOW - LABORATORY FILE COPY PINK - BAY WEST FILE COPY GOLDENROD - STREBOR INC. FILE COPY

File 990088 - IV D

CHAIN - OF - CUSTODY RECORD

Strebor Inc.

LAB: Pace Analytical

SEND RESULTS TO: Erika Schlecht, Bay West, Inc.

CHAIN-OF-CUSTODY NO. SI - 878

PROJECT NUMBER	PROJECT MANAGER	TURNAROUND REQUEST	SAMPLE RETENTION: RETURN	SAMPLE RETENTION: DISPOSE
		Rush 2-3 Weeks		

ITEM NO.	SAMPLE ID NUMBER	SAMPLE DATE / SAMPLE TIME	MATRIX	NUMBER AND TYPE OF CONTAINER	ANALYSIS CODE	Grab (G) Composite (C)	DESCRIPTION/COMMENTS
1	GP-11(2)@3.2'	1-12-01 / 10:15	O	1x500mL	16	G	
2	GP-18@3.5'	1-15-01 / 13:15	O	1x1L	16	G	
3	GP-17@3.0'	1-15-01 / 13:50	O	1x500mL	16	G	
4							
5							
6							
7							
8							

SAMPLER: Michael McClish

AFFILIATION: Bay West, Inc.

DATE: 1-16-01

TIME:

TRANS NO.	ITEM NO.	RELINQUISHED BY	ACCEPTED BY	DATE	TIME
1	1-3	Michael McClish			
2					
3					
4					
5					

PRESERVATION:
All samples must be preserved at 4°C (39°F), unless specified otherwise.

Cd, Cr, Cu, Pb, Ni, Zn pH<2 with HNO3
Cn pH>12 with NaOH

Matrix:
W = Water
L = Liquid Sample
S = Solid Sample
SD = Solids Sample
SL = Sludge Sample
O = Other (specify Soil)

ANALYSIS CODES
- Cross out any unwanted parameter.
- List any extra parameters in section below.

01 VOC's EPA 601/602 (includes Xylenes)
02 Phenols EPA 625
03 Pentachlorophenol EPA 625
04 Total Suspended Solids EPA 160.2
05 PAH EPA 625
06 Phthalate Esters EPA 625
07 pH EPA 150.1
08 TPH EPA 8015 Modified
09 Cr, Cu,Ni,Zn EPA 200.7
10 Cd. EPA 213.2
11 Pb EPA 239.2
12 Hg EPA 245.2
13 CN (total) EPA 335.2
14 PCBs EPA 608
15 PCDDs/PCDFs EPA 1613
16 PCDDs/PCDFs EPA 8290
17
18
19
20
21
22
23
24
25

WHITE - CLIENT FILE COPY YELLOW - LABORATORY FILE COPY PINK - BAY WEST FILE COPY GOLDENROD - STREBOR INC. FILE COPY

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DETERMINATION OF PCDD/PCDF LEVELS

Prepared for:
Baywest
Attn: Erika Schlicht
5 Empire Drive
St. Paul, MN 55103

Project: Chemical Analysis

Client Purchase Order Number: 06012

REPORT OF LABORATORY ANALYSIS

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REPORT OF: CHEMICAL ANALYSES

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PROJECT: **PCDD/PCDF ANALYSES**

DATE: February 8, 2001

ISSUED TO: Baywest
Attn: Ms. Erika Schlicht
5 Empire Drive
St. Paul, MN 55103

REPORT NO: 01-1040828

INTRODUCTION

This report presents the results from the analyses performed on three samples which were submitted by a representative of Baywest. The samples were analyzed for the presence or absence of polychlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs) using a modified version of USEPA Method 8290 as described below.

SAMPLE IDENTIFICATION

Client ID	Sample Type	Date Received	Pace ID
GP-11(2)@3.2'	Solid	1/17/00	2502879
GP-17@3.0'	Solid	1/17/00	2502895
GP-18@3.5'	Solid	1/17/00	2502887

METHODOLOGY

Sample Extraction

A portion of each sample was spiked with $^{13}C_{12}$-labeled PCDD/PCDF internal standards (Table 1) and extracted with toluene in a Soxhlet extractor. The extract was quantitatively transferred to a Kuderna-Danish concentrator, concentrated, and solvent exchanged to hexane. The hexane extract was then spiked with 2,3,7,8-TCDD-$^{37}Cl_4$ enrichment efficiency standard (Table 1) and processed through the analyte enrichment procedures described below. Moisture content was determined by taking an aliquot of each solid sample to constant weight in an oven.

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PCDD/PCDF Analyte Enrichment

The extraction procedure often removes a variety of compounds, in addition to the PCDDs and PCDFs, from the sample matrix. Some of these compounds can directly interfere with the analyses while others can overload the capillary column causing degradation in chromatographic resolution or sensitivity. The analyte enrichment steps described below are used to remove interferences from the extracts.

Each extract was diluted to 100 mL with hexane, transferred to a separatory funnel, and washed with 1N sodium hydroxide, concentrated sulfuric acid, and aqueous sodium chloride (5% w/v) as needed. The hexane extract was quantitatively transferred to a liquid chromatography column containing alternating layers of silica gel, 40% concentrated sulfuric acid on silica gel, and 33% 1 N sodium hydroxide on silica gel. The column was eluted with 90 mL of hexane and the entire eluate was collected and concentrated, under ambient conditions, to a volume of 1 mL.

Each extract was then fractionated on a liquid chromatography column containing 4 g of activated alumina. The column was eluted with 20 mL of hexane followed by 15 mL of 60% methylene chloride/hexane. The 60% methylene chloride/hexane fraction was concentrated to 1 mL under a stream of dry nitrogen and applied to the top of a chromatography column containing 1 g of 5% AX-21 activated carbon in silica gel. The column was eluted with two 2-mL portions of hexane, 2 mL of cyclohexane/methylene chloride (50:50 v/v) and cyclohexane/methanol/toluene (75:20:5 v/v) in the forward direction, and then with toluene in the reverse direction. The toluene fraction was collected, concentrated, spiked with recovery standards (1,2,3,4-TCDD-$^{13}C_{12}$ and 1,2,3,7,8,9-HxCDD-$^{13}C_{12}$) and taken to a final volume of 20 uL.

PCDD/PCDF Analyses

Each sample extract was analyzed for the presence of PCDDs and PCDFs using combined capillary column gas chromatography/high resolution mass spectrometry (HRGC/HRMS). The instrumentation consisted of a Hewlett Packard Model 5890 gas chromatograph interfaced to a VG Model 70SE high-resolution mass spectrometer. The capillary column was interfaced directly into the ion source of the mass spectrometer, thus providing the highest possible sensitivity while minimizing degradation of the chromatographic resolution.

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PCDD/PCDF Analyses (Cont.)

The mass spectrometer was operated in the electron impact ionization mode at a mass resolution of 10,000-11,000 (M/ΔM, 10 percent valley definition). This resolution is sufficient to resolve most interferences, such as PCBs, thus providing the highest level of confidence that the detected levels of PCDD/PCDF were not false positives resulting from interferences. Typical operating parameters for the HRGC/HRMS analyses are summarized in Table 2.

The data were acquired by selected-ion-recording (SIR) using groups of ion masses similar to those described in USEPA Method 8290. The five groups corresponded to the tetrachlorinated through octachlorinated congener classes. Each group contained two ion masses for the PCDDs, two ion masses for the PCDFs, the corresponding ion masses from the two isotopically labeled internal standards, and the ion mass characteristic of the polychlorinated diphenylether (PCDE) which, if present, could cause false responses in the dibenzofuran channels.

Each group of ion masses also contained a lock mass which was used by the data system to automatically correct the mass focus of the instrument. The data system determined the centroid of the lock mass during each data acquisition cycle and corrected the mass focus of the analyte and internal standard ion masses to assure that the centers of the mass peaks were being monitored.

The criteria used to judge positive responses for a PCDD/PCDF isomer included:

* Simultaneous response at both ion masses of the PCDD or PCDF
* Signal-to-noise ratio equal to or greater than 2.5:1.0 for both ion masses
* Chlorine isotope ratio within 15% of the theoretical value
* Chromatographic retention time within +/- 2 seconds of the expected retention time
* Chromatographic retention times within elution windows determined from analyses of standard mixtures
* Absence of simultaneous response in the PCDF and PCDPE ion traces

A list of the exact ion masses monitored for the determination of PCDD/PCDF isomers and the PCDE interferences is presented in Table 3. Also included are the theoretical chlorine isotope ratios for the ten congener classes.

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PCDD/PCDF Quantification and Calculations

The PCDD/PCDF isomers were quantified by comparison of their responses to the responses of the labeled internal standards. Relative response factors were calculated from analyses of standard mixtures containing representatives of each of the PCDD/PCDF congener classes at five concentration levels, and each of the internal standards at one concentration level, as shown in Table 4. The PCDD/PCDF response factors were calculated by comparing the sum of the responses from the two ion masses monitored for each chlorine congener class to the sum of the responses from the two ion masses of the corresponding isotopically labeled internal standard. The formula for the response factor calculation is:

$$Rf = \frac{An \times Qis}{Ais \times Qn}$$

where:

Rf = Response factor
An = Sum of integrated areas for native isomer
Qis = Quantity of labeled internal standard
Ais = Sum of integrated areas for labeled internal standard
Qn = Quantity of native isomer

The levels of PCDD/PCDF in each sample were quantified using the following equation:

$$C = \frac{An \times Qis}{Ais \times W \times Rf}$$

where:

C = Concentration of target isomer or congener class
An = Sum of integrated areas for the target isomer or congener class
Qis = Quantity of labeled internal standard added to the sample
Ais = Sum of integrated areas for the labeled internal standard
W = Sample amount
Rf = Response factor

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PCDD/PCDF Quantification and Calculations (Cont.)

Each pair of ion mass peaks in the selected-ion-current chromatograms was evaluated manually to determine if it met the criteria for a PCDD or PCDF isomer. Areas of all peaks exhibiting correct ion ratios, having retention times within the correct windows, and having areas corresponding to concentrations in the range covered by the initial calibration were then summed for calculations of total congener concentrations. The toxic equivalence of each sample was calculated using the factors listed in Table 5.

A limit of detection (LOD) based on producing a signal that is 2.5 times the noise level, was calculated for each undetected 2,3,7,8-substituted isomer of any tetra through octa chlorinated congener class. The noise heights used to calculate the detection limits were measured at the retention time of the specific isomer. The formula used for calculating the LOD is:

$$LOD = \frac{Hn \times Qis \times 2.5}{His \times W \times Rf}$$

where:

LOD = Single isomer limit of detection
Hn = Sum of noise heights at native isomer retention time
Qis = Quantity of labeled internal standard
His = Sum of peak heights for labeled internal standard
W = Sample amount
Rf = Response factor

The recovery of the 2,3,7,8-TCDD-$^{37}Cl_4$ enrichment efficiency standard and each $^{13}C_{12}$-labeled internal standard, relative to either 1,2,3,4-TCDD-$^{13}C_{12}$ or 1,2,3,7,8,9-HxCDD-$^{13}C_{12}$, was calculated using the following equation:

$$\%R = \frac{Ais \times Qrs \times 100\%}{Rfr \times Ars \times Qis}$$

where:

%R = Percent recovery of labeled internal standard
Ais = Sum of integrated areas of labeled internal standard
Qrs = Quantity of recovery standard
Ars = Sum of integrated areas of recovery standard
Rfr = Response factor of the specific labeled internal standard relative to the recovery standard
Qis = Quantity of the labeled internal standard congener added to the sample

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PROJECT: PCDD/PCDF ANALYSES **DATE:** February 8, 2001

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Quality Control for PCDD/PCDF Analyses

The performance of the sample processing steps and the instrumentation are monitored on a routine basis. The procedures and criteria are summarized below.

One method blank and one laboratory spike sample are typically prepared with each ten samples of any given matrix. Recoveries of the native PCDD/PCDF analytes in the laboratory spike samples generally range from 70 to 130%. Recoveries of selected analytes outside this range do not invalidate the data but provide information, which is used by the laboratory to monitor recovery trends and to assure optimization of the method.

Internal standards are spiked into each sample prior to extraction in order to monitor the level of recovery, which is achieved for each individual sample. Acceptable recoveries range from 40 to 135 percent for the internal standards unless a deviation is due to variation in instrument response as a result of analytical interferences.

The resolution of the mass spectrometer is verified prior to each analysis to be 10,000 or greater. Hardcopies of the reference peaks are printed at the beginning and end of each analysis day. The resolving power of the DB-5MS chromatographic column is checked daily by analyzing a standard solution containing 2,3,7,8-TCDD and the adjacent TCDD isomers. The DB-225 column resolution is checked daily by analyzing a standard solution containing 2,3,7,8-TCDF and the adjacent TCDF isomers. Acceptable performance is achieved when 2,3,7,8-TCDD or 2,3,7,8-TCDF is resolved from the adjacent isomers by a valley of 25% or less. The group times for the selected-ion-monitoring data acquisitions are also checked daily by analyzing the column performance mix which has been modified to contain the first and last eluting isomers of each congener class. In this way one is assured of collecting data representative of the total PCDD/PCDF content and that the 2,3,7,8-substituted isomers are suitably resolved.

Initial calibrations are generated by analyzing standard solutions (see Table 4) containing target native and labeled PCDD/PCDF compounds. Response factors are calculated and averaged for each compound. These averages are used for quantification and for comparison to the daily continuing calibration. The relative standard deviation for each native compound must be 20% or less (30% or less for the labeled compounds) as specified in Method 8290. A continuing calibration standard is analyzed at the beginning and end of each 12-hour shift on days when initial calibrations are not performed. The initial calibration is considered to be valid when the response factors from the continuing calibration analysis fall to within the ranges specified in Method 8290.

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RESULTS

The results from the analyses are presented in the following:

Appendix A - Documentation
Appendix B - PCDD/PCDF Analysis Results

DISCUSSION

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts generally ranged from 67-128% and indicate a level of efficiency through the extraction and enrichment steps that is considered typical for this matrix. An elevated recovery was obtained for the labeled OCDD internal standard in sample GP-17@3.0', which was affected by an interference. However, since the quantifications of the native 2,3,7,8-substituted isomers were based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

One sample was found to contain polychlorinated diphenylethers (PCDEs) and other compounds, which interfere with the determination of co-eluting PCDD and PCDF isomers. Any responses in the PCDF ion traces with corresponding responses in the PCDE ion traces are not included in the reported PCDF concentrations. Any affected 2,3,7,8-substituted isomers are flagged "E" on the data summary sheet.

All three samples were diluted to bring selected analytes on scale. These samples contained levels of selected PCDD isomers that saturated the detector after dilution and are flagged "S" on the data summary sheets.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results, found at the beginning of Appendix B, show the blank to contain trace levels of selected PCDD and PCDF isomers. The samples contained these isomers at levels over 2-4 orders of magnitude higher than seen in the blank. In general, levels less than ten times the background are not considered statistically different from the background. This indicates that the sample processing procedures did not significantly impact the results of the analyses.

A laboratory spike sample was also prepared with the sample batch by extracting clean sand that had been fortified with native standard materials. The results, found at the end of Appendix B, show that the spiked native compounds were recovered at 99-109%. This indicates high degrees of accuracy and precision for these determinations.

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REMARKS

The sample extracts will be retained for a period of 30 days from the date of this report and then discarded unless other arrangements are made. The raw mass spectral data will be archived on magnetic tape for a period of not less than one year. Questions regarding the data contained in this report may be directed to the authors at the numbers provided below.

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TABLE 1. Spike Levels of PCDD/PCDF Standards

Internal Standards	Spike Level (ng)
2,3,7,8-TCDF-$^{13}C_{12}$	2.0
2,3,7,8-TCDD-$^{13}C_{12}$	2.0
1,2,3,7,8-PeCDF-$^{13}C_{12}$	2.0
2,3,4,7,8-PeCDF-$^{13}C_{12}$	2.0
1,2,3,7,8-PeCDD-$^{13}C_{12}$	2.0
1,2,3,4,7,8-HxCDF-$^{13}C_{12}$	2.0
1,2,3,6,7,8-HxCDF-$^{13}C_{12}$	2.0
1,2,3,7,8,9-HxCDF-$^{13}C_{12}$	2.0
2,3,4,6,7,8-HxCDF-$^{13}C_{12}$	2.0
1,2,3,4,7,8-HxCDD-$^{13}C_{12}$	2.0
1,2,3,6,7,8-HxCDD-$^{13}C_{12}$	2.0
1,2,3,4,6,7,8-HpCDF-$^{13}C_{12}$	2.0
1,2,3,4,7,8,9-HpCDF-$^{13}C_{12}$	2.0
1,2,3,4,6,7,8-HpCDD-$^{13}C_{12}$	2.0
OCDD-$^{13}C_{12}$	4.0
Recovery Standards	
1,2,3,4-TCDD-$^{13}C_{12}$	2.0
1,2,3,7,8,9-HxCDD-$^{13}C_{12}$	2.0
Enrichment Efficiency Standard	
2,3,7,8-TCDD-$^{37}Cl_4$	0.2

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TABLE 2. High Resolution PCDD/PCDF Analyses
HRGC/HRMS Operating Parameters

Mass Resolution	10,000-11,000 (M/ΔM, 10% valley)
Electron Energy	32 electron volts
Accelerating Voltage	8,000 volts
Source Temperature	275°C
Preamplifier Gain	10^{-6} amp/volt
Multiplier Gain	~10^5
Chromatographic Column	60 M DB-5MS
Transfer Line Temperature	260°C
Injection Mode	Splitless
Carrier Gas	Helium
Carrier Flow Velocity	~30 cm/sec

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TABLE 3. Exact Ion Masses Monitored for the Determination of PCDDs, PCDFs, and PCDEs

Compound	Accurate Mass		Theoretical Ratio
	Mass 1	Mass 2	Mass 1/Mass 2
Tetra-CDDs	319.8965	321.8936	0.77
Tetra-CDFs	303.9016	305.8987	0.77
Hexa-CDEs	375.8364		
Penta-CDDs	355.8546	357.8517	1.54
Penta-CDFs	339.8597	341.8567	1.54
Hepta-CDEs	409.7974		
Hexa-CDDs	389.8156	391.8127	1.23
Hexa-CDFs	373.8207	375.8178	1.23
Octa-CDEs	445.7555		
Hepta-CDDs	423.7766	425.7737	1.03
Hepta-CDFs	407.7817	409.7788	1.03
Nona-CDEs	479.7165		
Octa-CDD	457.7377	459.7347	0.88
Octa-CDF	441.7428	443.7398	0.88
Deca-CDE	513.6775		

CDDs = Chlorinated Dibenzo-p-dioxins
CDFs = Chlorinated Dibenzofurans
CDEs = Chlorinated Diphenylethers

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TABLE 4. High Resolution Calibration Solutions

	Concentration (pg/uL)				
Native CDDs/CDFs	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**
2,3,7,8-TCDD	0.5	2	10	40	200
2,3,7,8 TCDF	0.5	2	10	40	200
1,2,3,7,8-PeCDD	2.5	10	50	200	1000
1,2,3,7,8-PeCDF	2.5	10	50	200	1000
2,3,4,7,8-PeCDF	2.5	10	50	200	1000
1,2,3,4,7,8-HxCDD	2.5	10	50	200	1000
1,2,3,6,7,8-HxCDD	2.5	10	50	200	1000
1,2,3,7,8,9-HxCDD	2.5	10	50	200	1000
1,2,3,4,7,8-HxCDF	2.5	10	50	200	1000
1,2,3,6,7,8-HxCDF	2.5	10	50	200	1000
1,2,3,7,8,9-HxCDF	2.5	10	50	200	1000
2,3,4,6,7,8-HxCDF	2.5	10	50	200	1000
1,2,3,4,6,7,8-HpCDD	2.5	10	50	200	1000
1,2,3,4,6,7,8-HpCDF	2.5	10	50	200	1000
1,2,3,4,7,8,9-HpCDF	2.5	10	50	200	1000
OCDD	5.0	20	100	400	2000
OCDF	5.0	20	100	400	2000
Internal Standards					
2,3,7,8-TCDD-$^{13}C_{12}$	100	100	100	100	100
2,3,7,8-TCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,7,8-PeCDD-$^{13}C_{12}$	100	100	100	100	100
1,2,3,7,8-PeCDF-$^{13}C_{12}$	100	100	100	100	100
2,3,4,7,8-PeCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,4,7,8-HxCDD-$^{13}C_{12}$	100	100	100	100	100
1,2,3,6,7,8-HxCDD-$^{13}C_{12}$	100	100	100	100	100
1,2,3,4,7,8-HxCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,6,7,8-HxCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,7,8,9-HxCDF-$^{13}C_{12}$	100	100	100	100	100
2,3,4,6,7,8-HxCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,4,6,7,8-HpCDD-$^{13}C_{12}$	100	100	100	100	100
1,2,3,4,6,7,8-HpCDF-$^{13}C_{12}$	100	100	100	100	100
1,2,3,4,7,8,9-HpCDF-$^{13}C_{12}$	100	100	100	100	100
OCDD-$^{13}C_{12}$	200	200	200	200	200
Recovery Standards					
1,2,3,4-TCDD-$^{13}C_{12}$	100	100	100	100	100
1,2,3,7,8,9-HxCDD-$^{13}C_{12}$	100	100	100	100	100
Enrichment Efficiency Standard					
2,3,7,8-TCDD-$^{37}C1_4$	0.5	2	10	40	200

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TABLE 5. 2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.1
4	1,2,3,7,8,9-HxCDD	0.1
5	1,2,3,4,7,8-HxCDD	0.1
6	1,2,3,4,6,7,8-HpCDD	0.01
7	OCDD	0.001
8	* Total - TCDD	0.0
9	* Total - PeCDD	0.0
10	* Total - HxCDD	0.0
11	* Total - HpCDD	0.0
12	2,3,7,8-TCDF	0.10
13	1,2,3,7,8-PeCDF	0.05
14	2,3,4,7,8-PeCDF	0.5
15	1,2,3,6,7,8-HxCDF	0.1
16	1,2,3,7,8,9-HxCDF	0.1
17	1,2,3,4,7,8-HxCDF	0.1
18	2,3,4,6,7,8-HxCDF	0.1
19	1,2,3,4,6,7,8-HpCDF	0.01
20	1,2,3,4,7,8,9-HpCDF	0.01
21	OCDF	0.001
22	* Total - TCDF	0.0
23	* Total - PeCDF	0.0
24	* Total - HxCDF	0.0
25	* Total - HpCDF	0.0

*Excluding the 2,3,7,8-substituted congeners.

Reference: 1989 ITEFs

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Appendix A

REPORT OF LABORATORY ANALYSIS

CHAIN - OF - CUSTODY RECORD

1040828

Strebor Inc.

LAB: Pace Analytical
SEND RESULTS TO: Erika Schlecht Bay West, Inc.
PROJECT NUMBER | PROJECT MANAGER
TURNAROUND REQUEST: Rush 2-3 Weeks
SAMPLE RETENTION: RETURN | DISPOSE
CHAIN-OF-CUSTODY NO.: SI - 878

ITEM NO.	SAMPLE ID NUMBER	SAMPLE DATE / SAMPLE TIME	MATRIX	NUMBER AND TYPE OF CONTAINER	ANALYSIS CODE	Grab (G) Composite (C)	DESCRIPTION/COMMENTS
1	GP-11(2)@3.2'	1-12-01 / 10:15	O	1x500mL	16	G	2502879 ~~2502788~~ 0611 H1701
2	GP-18@3.5'	1-15-01 / 13:15	O	1x1L	16	G	2502887 ~~2502796~~
3	GP-17@3.0'	1-15-01 / 13:50	O	1x500mL	16	G	2502895 ~~2502804~~
4							
5							
6							
7							
8							

ANALYSIS CODES
- Cross out any unwanted parameter.
- List any extra parameters in section below.

01	VOC's EPA 601/602 (includes Xylenes)
02	Phenols EPA 625
03	Pentachlorophenol EPA 625
04	Total Suspended Solids EPA 160.2
05	PAH EPA 625
06	Phthalate Esters EPA 625
07	pH EPA 150.1
08	TPH EPA 8015 Modified
09	Cr, Cu,Ni,Zn EPA 200.7
10	Cd. EPA 213.2
11	Pb EPA 239.2
12	Hg EPA 245.2
13	CN (total) EPA 335.2
14	PCBs EPA 608
15	PCDDs/PCDFs EPA 1613
16	PCDDs/PCDFs EPA 8290
17	
18	
19	
20	
21	
22	
23	
24	
25	

SAMPLER: Michael McClish
AFFILIATION: Bay West, Inc.
DATE: 1-16-01
TIME:

TRANS NO.	ITEM NO.	RELINQUISHED BY	ACCEPTED BY	DATE	TIME
1	1-3	Michael McClish			
2			[signature]	1/17/01	10:35
3					
4					
5					

PRESERVATION:
All samples must be preserved at 4°C (39°F), unless specified otherwise.

Cd, Cr, Cu, Pb, Ni, Zn pH<2 with HNO3
Cn pH>12 with NaOH

Matrix:
W = Water
L = Liquid Sample
S = Solid Sample
SD = Solids Sample
SL = Sludge Sample
O = Other (specify Soil)

WHITE - CLIENT FILE COPY YELLOW - LABORATORY FILE COPY PINK - BAY WEST FILE COPY GOLDENROD - STREBOR INC. FILE COPY

KSR 1-17-01
Vial A 1/17

T=4°C

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, Inc.
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Appendix B

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Blank Analysis Results

Client - BAYWEST

Lab Sample ID	BLANK-012401	Matrix	SOLID
Filename	V10130E	Dilution	NA
Total Amount Extracted	10.15 g	Extracted	01/24/2001
ICAL Date	01/25/2001	Analyzed	01/30/2001 11:59
CCal Filename(s)	V10130B & V10130M	Injected By	CSH

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.38		2,3,7,8-TCDF-13C	2.00	55
Total TCDF	ND	-----	0.38		2,3,7,8-TCDD-13C	2.00	58
					1,2,3,7,8-PeCDF-13C	2.00	53
2,3,7,8-TCDD	ND	-----	0.68		2,3,4,7,8-PeCDF-13C	2.00	51
Total TCDD	ND	-----	0.68		1,2,3,7,8-PeCDD-13C	2.00	55
					1,2,3,4,7,8-HxCDF-13C	2.00	61
1,2,3,7,8-PeCDF	ND	-----	0.42		1,2,3,6,7,8-HxCDF-13C	2.00	55
2,3,4,7,8-PeCDF	ND	-----	0.46		2,3,4,6,7,8-HxCDF-13C	2.00	64
Total PeCDF	ND	-----	0.44		1,2,3,7,8,9-HxCDF-13C	2.00	64
					1,2,3,4,7,8-HxCDD-13C	2.00	97
1,2,3,7,8-PeCDD	ND	-----	0.70		1,2,3,6,7,8-HxCDD-13C	2.00	67
Total PeCDD	ND	-----	0.70		1,2,3,4,6,7,8-HpCDF-13C	2.00	64
					1,2,3,4,7,8,9-HpCDF-13C	2.00	89
1,2,3,4,7,8-HxCDF	ND	-----	0.57		1,2,3,4,6,7,8-HpCDD-13C	2.00	88
1,2,3,6,7,8-HxCDF	ND	-----	0.54		OCDD-13C	4.00	85
2,3,4,6,7,8-HxCDF	ND	-----	0.45				
1,2,3,7,8,9-HxCDF	ND	-----	0.50		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	0.95	-----	0.52	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	0.37		2,3,7,8-TCDD-37Cl4	0.20	66
1,2,3,6,7,8-HxCDD	ND	-----	0.44				
1,2,3,7,8,9-HxCDD	ND	-----	0.39				
Total HxCDD	ND	-----	0.40				
1,2,3,4,6,7,8-HpCDF	3.00	-----	0.31	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	0.45		Equivalence: 0.040 ng/Kg		
Total HpCDF	3.00	-----	0.38	J	(Using ITE Factors		
1,2,3,4,6,7,8-HpCDD	-----	0.76	0.38	I			
Total HpCDD	ND	-----	0.38				
OCDF	4.50	-----	0.60	J			
OCDD	5.70	-----	0.33	J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
LOD = Limit of Detection
J = Concentration detected is below the calibration range
P = Recovery outside of target range
I = Interference
E = PCDE Interference
ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Report No.....01-1040828

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Pace Analytical™

Method 8290 Analysis Results

Client - BAYWEST

Client's Sample ID	GP-11(2)@3.2'		
Lab Sample ID	2502879		
Filename	V10206N		
Injected By	BAL		
Total Amount Extracted	12.25 g	Matrix	SOLID
% Moisture	16.9	Dilution	5
Dry Weight Extracted	10.2 g	Collected	01/12/2001
ICAL Date	01/25/2001	Received	01/17/2001
CCal Filename(s)	V10206F & V10206O	Extracted	01/24/2001
Method Blank ID	BLANK-012401	Analyzed	02/06/2001 21:42

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	11	-----	0.85		2,3,7,8-TCDF-13C	2.00	86
Total TCDF	300	-----	0.85		2,3,7,8-TCDD-13C	2.00	90
					1,2,3,7,8-PeCDF-13C	2.00	91
2,3,7,8-TCDD	11	-----	2.00		2,3,4,7,8-PeCDF-13C	2.00	92
Total TCDD	250	-----	2.00		1,2,3,7,8-PeCDD-13C	2.00	109
					1,2,3,4,7,8-HxCDF-13C	2.00	99
1,2,3,7,8-PeCDF	ND	-----	1.10		1,2,3,6,7,8-HxCDF-13C	2.00	84
2,3,4,7,8-PeCDF	60	-----	0.77		2,3,4,6,7,8-HxCDF-13C	2.00	90
Total PeCDF	1600	-----	0.93		1,2,3,7,8,9-HxCDF-13C	2.00	88
					1,2,3,4,7,8-HxCDD-13C	2.00	109
1,2,3,7,8-PeCDD	54	-----	1.70		1,2,3,6,7,8-HxCDD-13C	2.00	90
Total PeCDD	1400	-----	1.70		1,2,3,4,6,7,8-HpCDF-13C	2.00	77
					1,2,3,4,7,8,9-HpCDF-13C	2.00	68
1,2,3,4,7,8-HxCDF	210	-----	0.78		1,2,3,4,6,7,8-HpCDD-13C	2.00	82
1,2,3,6,7,8-HxCDF	190	-----	0.44		OCDD-13C	4.00	75
2,3,4,6,7,8-HxCDF	220	-----	1.30				
1,2,3,7,8,9-HxCDF	31	-----	1.40		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	5700	-----	0.98		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	220	-----	2.00		2,3,7,8-TCDD-37Cl4	0.20	95
1,2,3,6,7,8-HxCDD	910	-----	2.40				
1,2,3,7,8,9-HxCDD	440	-----	2.00				
Total HxCDD	8900	-----	2.10				
1,2,3,4,6,7,8-HpCDF	4500	-----	2.20		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	360	-----	2.00		Equivalence: 800 ng/Kg		
Total HpCDF	14000	-----	2.10		(Using ITE Factors		
1,2,3,4,6,7,8-HpCDD	30000	-----	2.50				
Total HpCDD	40000	-----	2.50				
OCDF	13000	-----	2.20				
OCDD	150000	-----	6.80	S			

Results reported on a dry weight basis

Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
EMPC = Estimated Maximum Possible Concentration
LOD = Limit of Detection
J = Concentration detected is below the calibration range
B = Less than 10 times higher than method blank level
P = Recovery outside of target range
Nn = Value obtained from additional analysis

I = Interference
E = PCDE Interference
S = Saturated signal
ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Report No.....01-1040828

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Pace Analytical™

Method 8290 Analysis Results

Client - BAYWEST

Client's Sample ID	GP-17@3.0'		
Lab Sample ID	2502895		
Filename	V10207G		
Injected By	BAL		
Total Amount Extracted	12.23 g	Matrix	SOLID
% Moisture	12.8	Dilution	5
Dry Weight Extracted	10.7 g	Collected	01/15/2001
ICAL Date	01/25/2001	Received	01/17/2001
CCal Filename(s)	V10207D & V10207H	Extracted	01/24/2001
Method Blank ID	BLANK-012401	Analyzed	02/07/2001 16:09

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	27	-----	4.1		2,3,7,8-TCDF-13C	2.00	81	
Total TCDF	560	-----	4.1		2,3,7,8-TCDD-13C	2.00	90	
					1,2,3,7,8-PeCDF-13C	2.00	86	
2,3,7,8-TCDD	24	-----	5.5		2,3,4,7,8-PeCDF-13C	2.00	85	
Total TCDD	260	-----	5.5		1,2,3,7,8-PeCDD-13C	2.00	105	
					1,2,3,4,7,8-HxCDF-13C	2.00	92	
1,2,3,7,8-PeCDF	110	-----	2.2		1,2,3,6,7,8-HxCDF-13C	2.00	81	
2,3,4,7,8-PeCDF	230	-----	4.1		2,3,4,6,7,8-HxCDF-13C	2.00	86	
Total PeCDF	3700	-----	3.2		1,2,3,7,8,9-HxCDF-13C	2.00	92	
					1,2,3,4,7,8-HxCDD-13C	2.00	118	
1,2,3,7,8-PeCDD	150	-----	5.4		1,2,3,6,7,8-HxCDD-13C	2.00	101	
Total PeCDD	1400	-----	5.4		1,2,3,4,6,7,8-HpCDF-13C	2.00	92	
					1,2,3,4,7,8,9-HpCDF-13C	2.00	127	
1,2,3,4,7,8-HxCDF	660	-----	3.9		1,2,3,4,6,7,8-HpCDD-13C	2.00	128	
1,2,3,6,7,8-HxCDF	940	-----	3.1		OCDD-13C	4.00	189	IP
2,3,4,6,7,8-HxCDF	1200	-----	4.9					
1,2,3,7,8,9-HxCDF	220	-----	2.8		1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	25000	-----	3.7		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	550	-----	2.5		2,3,7,8-TCDD-37Cl4	0.20	104	
1,2,3,6,7,8-HxCDD	3100	-----	3.2					
1,2,3,7,8,9-HxCDD	1400	-----	4.5					
Total HxCDD	17000	-----	3.4					
1,2,3,4,6,7,8-HpCDF	26000	-----	3.2		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	1700	-----	2.3		Equivalence: 2400 ng/Kg			
Total HpCDF	78000	-----	2.7		(Using ITE Factors			
1,2,3,4,6,7,8-HpCDD	89000	-----	2.3	S				
Total HpCDD	140000	-----	2.3					
OCDF	55000	-----	3.0					
OCDD	200000	-----	4.3	S				

Results reported on a dry weight basis

Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
EMPC = Estimated Maximum Possible Concentration
LOD = Limit of Detection
J = Concentration detected is below the calibration range
B = Less than 10 times higher than method blank level
P = Recovery outside of target range
Nn = Value obtained from additional analysis

I = Interference
E = PCDE Interference
S = Saturated signal
ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Report No.....01-1040828

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Pace Analytical™

Method 8290 Analysis Results

Client - BAYWEST

Client's Sample ID	GP-18@3.5'		
Lab Sample ID	2502887		
Filename	V10207F		
Injected By	BAL		
Total Amount Extracted	13.81 g	Matrix	SOLID
% Moisture	20.5	Dilution	2
Dry Weight Extracted	11.0 g	Collected	01/15/2001
ICAL Date	01/25/2001	Received	01/17/2001
CCal Filename(s)	V10207D & V10207H	Extracted	01/24/2001
Method Blank ID	BLANK-012401	Analyzed	02/07/2001 15:05

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LOD ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	9.1	-----	0.82		2,3,7,8-TCDF-13C	2.00	71
Total TCDF	360.0	-----	0.82		2,3,7,8-TCDD-13C	2.00	83
					1,2,3,7,8-PeCDF-13C	2.00	75
2,3,7,8-TCDD	5.1	-----	1.60		2,3,4,7,8-PeCDF-13C	2.00	70
Total TCDD	160.0	-----	1.60		1,2,3,7,8-PeCDD-13C	2.00	88
					1,2,3,4,7,8-HxCDF-13C	2.00	74
1,2,3,7,8-PeCDF	-----	34	0.83	E	1,2,3,6,7,8-HxCDF-13C	2.00	67
2,3,4,7,8-PeCDF	60.0	-----	0.84		2,3,4,6,7,8-HxCDF-13C	2.00	69
Total PeCDF	1500.0	-----	0.83		1,2,3,7,8,9-HxCDF-13C	2.00	73
					1,2,3,4,7,8-HxCDD-13C	2.00	100
1,2,3,7,8-PeCDD	39.0	-----	1.20		1,2,3,6,7,8-HxCDD-13C	2.00	78
Total PeCDD	830.0	-----	1.20		1,2,3,4,6,7,8-HpCDF-13C	2.00	71
					1,2,3,4,7,8,9-HpCDF-13C	2.00	95
1,2,3,4,7,8-HxCDF	180.0	-----	0.73		1,2,3,4,6,7,8-HpCDD-13C	2.00	83
1,2,3,6,7,8-HxCDF	180.0	-----	0.68		OCDD-13C	4.00	99
2,3,4,6,7,8-HxCDF	230.0	-----	0.68				
1,2,3,7,8,9-HxCDF	21.0	-----	0.46		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4700.0	-----	0.64		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	150.0	-----	0.51		2,3,7,8-TCDD-37Cl4	0.20	90
1,2,3,6,7,8-HxCDD	580.0	-----	0.73				
1,2,3,7,8,9-HxCDD	390.0	-----	1.20				
Total HxCDD	4400.0	-----	0.80				
1,2,3,4,6,7,8-HpCDF	5500.0	-----	0.45		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	190.0	-----	0.83		Equivalence: 540 ng/Kg		
Total HpCDF	11000.0	-----	0.64		(Using ITE Factors		
1,2,3,4,6,7,8-HpCDD	19000.0	-----	0.67				
Total HpCDD	27000.0	-----	0.67				
OCDF	7500.0	-----	0.65				
OCDD	56000.0	-----	0.75	S			

Results reported on a dry weight basis

Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
EMPC = Estimated Maximum Possible Concentration
LOD = Limit of Detection
J = Concentration detected is below the calibration range
B = Less than 10 times higher than method blank level
P = Recovery outside of target range
Nn = Value obtained from additional analysis

I = Interference
E = PCDE Interference
S = Saturated signal
ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Report No.....01-1040828

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Pace Analytical™

Method 8290 Laboratory Control Spike Results

Client - BAYWEST

Lab Sample ID	SPIKE-012401		
Filename	V10205G	Matrix	SOLID
Total Amount Extracted	10.41 g	Dilution	NA
ICAL Date	01/25/2001	Extracted	01/24/2001
CCal Filename(s)	V10205E & V10205Q	Analyzed	02/05/2001 12:53
Method Blank ID	BLANK-012401	Injected By	MASB

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.21	107	2,3,7,8-TCDF-13C	2.00	68
				2,3,7,8-TCDD-13C	2.00	73
				1,2,3,7,8-PeCDF-13C	2.00	84
2,3,7,8-TCDD	0.20	0.21	103	2,3,4,7,8-PeCDF-13C	2.00	69
				1,2,3,7,8-PeCDD-13C	2.00	82
				1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	1.00	1.08	108	1,2,3,6,7,8-HxCDF-13C	2.00	75
2,3,4,7,8-PeCDF	1.00	1.09	109	2,3,4,6,7,8-HxCDF-13C	2.00	80
				1,2,3,7,8,9-HxCDF-13C	2.00	85
				1,2,3,4,7,8-HxCDD-13C	2.00	97
1,2,3,7,8-PeCDD	1.00	1.08	108	1,2,3,6,7,8-HxCDD-13C	2.00	78
				1,2,3,4,6,7,8-HpCDF-13C	2.00	104
				1,2,3,4,7,8,9-HpCDF-13C	2.00	118
1,2,3,4,7,8-HxCDF	1.00	1.03	103	1,2,3,4,6,7,8-HpCDD-13C	2.00	121
1,2,3,6,7,8-HxCDF	1.00	1.05	105	OCDD-13C	4.00	119
2,3,4,6,7,8-HxCDF	1.00	1.04	104			
1,2,3,7,8,9-HxCDF	1.00	1.03	103	1,2,3,4-TCDD-13C	2.00	NA
				1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	1.02	102	2,3,7,8-TCDD-37Cl4	0.20	93
1,2,3,6,7,8-HxCDD	1.00	1.08	108			
1,2,3,7,8,9-HxCDD	1.00	1.09	109			
1,2,3,4,6,7,8-HpCDF	1.00	1.09	109			
1,2,3,4,7,8,9-HpCDF	1.00	1.05	105			
1,2,3,4,6,7,8-HpCDD	1.00	1.05	105			
OCDF	2.00	1.97	99			
OCDD	2.00	2.12	106			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
P = Recovery outside of target range
X = Background subtracted value
Nn = Value obtained from additional analysis
NA = Not Applicable

Report No.....01-1040828

REPORT OF LABORATORY ANALYSIS