MultiChem
ANALYTICAL SERVICES

MAS I.D. # 001026

February 18, 2000

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle WA 98102-3699

Attention : Elisabeth Black

Project Number : J-7057-12

Project Name : Gorst Landfill Site Investigation

Dear Ms. Black:

On January 12, 2000, MultiChem Analytical Services received three samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Sincerely,

S. Snyder
Susan M. Snyder
Project Manager

SMS/hal/trm

Enclosure

560 Naches Avenue SW, Suite 101, Renton, Washington 98055-2200 • 425-228-8335 • FAX 425-228-8336 • 1-800-609-0580 • info@multichem.com

MAS I.D. # 001026

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SAMPLE CROSS REFERENCE SHEET

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL SITE

MAS #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
001026-1	GL-SW-01	01/10/00	WATER
001026-2	GL-SW-02	01/11/00	WATER
001026-3	TRIP BLANK	01/11/00	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	3

MAS STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

MAS I.D. # 001026

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ANALYTICAL SERVICES

ANALYTICAL SCHEDULE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL SITE

ANALYSIS	TECHNIQUE	REFERENCE	LAB
VOLATILE ORGANICS ANALYSIS	GCMS	EPA 8260B	R
SEMIVOLATILE ORGANICS ANALYSISS	GCMS	EPA 8270	R
POLYCHLORINATED BIPHENYLS (PCBs)	GC/ECD	EPA 8082	R
ANTIMONY	ICAP	EPA 6010	R
ARSENIC	AA/GF	EPA 7060	R
BERYLLIUM	ICAP	EPA 6010	R
CADMIUM	ICAP	EPA 6010	R
CALCIUM	ICAP	EPA 6010	R
CHROMIUM	ICAP	EPA 6010	R
COPPER	ICAP	EPA 6010	R
HARDNESS	ICAP	EPA 6010	R
LEAD	AA/GF	EPA 7421	R
MAGNESIUM	ICAP	EPA 6010	R
MANGANESE	ICAP	EPA 6010	R
MERCURY	AA/COLD VAPOR	EPA 7470A	R
NICKEL	ICAP	EPA 6010	R
POTASSIUM	ICAP	EPA 6010	R
SELENIUM	AA/GF	EPA 7740	R
SILVER	ICAP	EPA 6010	R
SODIUM	ICAP	EPA 6010	R

CONTINUED ON NEXT PAGE

MAS I.D. # 001026

MultiChem
ANALYTICAL SERVICES

ANALYTICAL SCHEDULE
CONTINUED

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL SITE

ANALYSIS	TECHNIQUE	REFERENCE	LAB
THALLIUM	AA/GF	EPA 7841	R
ZINC	ICAP	EPA 6010	R
TOTAL ALKALINITY	COLORIMETRIC	EPA 310.1	R
BICARBONATE ALKALINITY	COLORIMETRIC	EPA 310.1	R
CARBONATE ALKALINITY	COLORIMETRIC	EPA 310.1	R
CHLORIDE	IC	EPA 300.0	R
NITRATE/NITRITE AS NITROGEN	COLORIMETRIC	EPA 353.3	R
SULFATE	IC	EPA 300.0	R
TOTAL SUSPENDED SOLIDS	GRAVIMETRIC	EPA 160.2	R

R = MAS - Renton
ANC = MAS - Anchorage
SUB = Subcontract

MultiChem ANALYTICAL SERVICES

560 Naches Ave. SW Suite 1[illegible] Renton, WA 98055
(800) 609-0580 • (425) 228-83[illegible] FAX (425) 228-8336

CASE NUMBER: [illegible]

DATE: 01/11/00
PAGE: 2 of 2

COMPANY: Hart Crowser
ADDRESS: 1910 Fairview Ave E
Seattle, WA 98102

PHONE: (206) 324-9530 FAX ( )
PROJ. MGR / CONTACT: Elisabeth Black
PROJECT NUMBER: J-7057-12
PROJECT NAME: Gorst Landfill
DISPOSAL: ☒ MAS ☐ HOLD ☐ RETURN

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TPH-HCID	BETX / TPH-G BETX / AK101	BETX (by 8021)	TPH-G	TPH-D TPHD-extended	8015 modified	418.1	413.2	AK-GRO AK101	AK-DRO AK102 / 103	8240 / 8260 GCMS Volatiles (CLP)	8270 GCMS Semivolatiles (CLP)	8081 Pesticides / PCBs	PCB only (by 8081) STD / LL	8021 Halogenated VOCs	8021 Aromatic VOCs	8310 HPLC PAHs	8041 Phenols	8151 OC Herbicides	Metals indicate below*	Total / Dissolved Lead	RCRA Metals (8)	PP Metals (13) (Total/TSS)	TAL Metals (23)	TCLP 8240 (ZHE)	TCLP 8270 Semivolatiles	TCLP 8081 Pesticides	TCLP 8151 Herbicides	TCLP Metals	TSS	Trans / Hardness			Total # of Containers
GL-SW-01	1/10/00		H2O												X	X	X	X									X							X	X			10
GL-SW-02	1/10/00		H2O												X	X		X									X							X	X			10
Trip Blank			H2O												X																							2

SAMPLE RECEIPT			
TOTAL # OF CONTAINERS	☐ Yes	☐ No	
CHAIN OF CUSTODY SEALS	☐ Yes	☐ No	
SAMPLES INTACT	☐ Yes	☐ No	
CONDITION COLD	☐ Yes	☐ No	
DATE RECEIVED AT LAB	☐ Yes	☐ No	
RECEIVED BY LAB	☐ Yes	☐ No	

TAT:
- ☐ 24 HOURS
- ☐ 48 HOURS
- ☐ 72 HOURS
- ☐ 7 DAYS
- ☐ SP
- ☒ STANDARD

SPECIAL INSTRUCTIONS/COMMENTS:

*METALS NEEDED:

RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:
SIGNATURE: E. Black	SIGNATURE: Mike Ryan	SIGNATURE:
PRINT NAME: Elisabeth Black	PRINT NAME: MIKE RYAN	PRINT NAME:
DATE: 01-12-00 TIME: 11:30	DATE: 1-12-00 TIME: 1205	DATE: TIME:
COMPANY: Hart Crowser	COMPANY: GOLDSTAR	COMPANY:

RECEIVED BY:	RECEIVED BY:	RECEIVED BY:
SIGNATURE: Mike Ryan	SIGNATURE: Susan Snyder	SIGNATURE:
PRINT NAME: MIKE RYAN	PRINT NAME: Susan Snyder	PRINT NAME:
DATE: 1-12-00 TIME: 1145	DATE: 1/12/00 TIME: 1205	DATE: TIME:
COMPANY: GOLDSTAR	COMPANY: MAS-LDM	COMPANY:

MAS USE ONLY: SUBCONTRACTED BY: ROA

NON-CONFORMANCES? (Y) (N) (if Y see other side)

MultiChem Analytical Services
SAMPLE LOG-IN CHECKLIST

DATE: 1/12/00
TIME: 1205
INITIALS: SS

ACCESSION NO. 001026
CLIENT: Hart Crowser
PROJECT: Gast Landfill

Shipping:

Type:
- ✓ Cooler
- ___ Box
- ___ Other

COC Seals:
- ✓ Ship. Cont.
- ___ On Bottles
- ___ None

Intact?
- (Y) N
- Y N

Packing Material:
- ___ Styrofoam
- ___ Bubble Bags
- ___ Foam Vial Packs
- ✓ Other none

Refrigerant:
- ✓ Gel Ice Pack
- ___ Loose Ice
- ___ Other
- ___ None

Frozen?
- (Y) N
- Y N
- Y N

Received Via:
- ___ Hand Delivery
- ___ Federal Express
- ___ Airborne
- ___ Other: ___
- ✓ Courier
- ___ UPS
- ___ Taxi
- ___ Goldstreak

Sample Information:

Samp. #	Bottle #	Type			
3 ~~2~~ 3 1/12/00	822 SS 1/12/00	Soil	Soil VOAs	0 headspace Y N	N ___
		(Water)	Water VOAs	0 headspace (Y) N	N ___
		Product		Preserved? (Y) N	___
		Other		Trip blanks? (Y) N	___

Condition of Samples:

Containers:
- Intact? (Bottle/Lid) (Y) N
- Correct Type? (Y) N

CA # ___ ___

Waters Preserved? (if needed) (Y) N N ___

ID's Match C.O.C. (Y) N N ___

Temperature: 4.4, 5.2 C ___ CA NO.
(See corrective action on reverse side for explanation if temperature is outside of the MAS recommended range.)

LAB USE ONLY ☐ NO NOTICE ☐ SEND OUTS NEEDED BY
☐ COC/TAT DOES NOT MATCH NOTICE ☐ NEED TESTS VERIFIED BY CLIENT

COMMENTS: no sampling date or times on COC or Bottles

UPS WORLDWIDE SERVICES WAYBILL
(NON-NEGOTIABLE)

Worldwide Olympic Partner

W601 246 754 2

DELIVERY 2

1 SHIPPER'S UPS ACCOUNT NO.

SHIPPER'S IDENTIFICATION NO. FOR CUSTOMS PURPOSES

SHIPPER

NAME OF SENDER: Ed Walker

TELEPHONE NO.:

COMPANY NAME AND ADDRESS:

COUNTRY:

2 CONSIGNEE'S UPS ACCOUNT NO.

CONSIGNEE'S IDENTIFICATION NO. FOR CUSTOMS PURPOSES (E.I.N., V.A.T., Importers No., R.F.C. No., Etc.)

CONSIGNEE

NAME OF CONTACT PERSON: Kim Anderson

TELEPHONE NO.: (206) 324-9530

COMPANY NAME AND ADDRESS:
Hart Crowser
1910 Fairview Avenue East
Seattle, WA
98102-3699

COUNTRY: USA

3 PAYMENT OF CHARGES

BILLING OPTION (Select one option only) Refer to the appropriate service guide for options available by country

- [x] PREPAID — Shipper pays all shipping charges. Consignee pays duty and V.A.T.
- [ ] FREIGHT COLLECT — Consignee pays all shipping charges, duty, and V.A.T.
- [ ] DELIVERED DUTY PAID, V.A.T. UNPAID — Shipper pays shipping charges and duty. Consignee pays V.A.T. (Shipper must have a UPS account)
- [ ] BILL DUTY, TAX AND SHIPPING CHARGES TO SHIPPER — Shipper pays destination country's duty & tax in addition to all shipping charges. (Shipper must have a UPS account)

BILL "SHIPPER'S" PORTION OF SHIPPING CHARGES AS INDICATED BELOW

FOR PREPAID BILLING OPTION ONLY: Bill UPS Account [x] | American Express | Master Card | Visa | UPS Use: Charge | Cash

THIRD PARTY'S COMPANY NAME

0287659701 06/99 CD

4 SERVICE LEVEL

EARLY A.M.℠	1+
EXPRESS	1
EXPEDITED	2
3 DAY SELECT℠	3
STANDARD	[x]

5 SHIPMENT INFORMATION

NO. OF PACKAGES IN SHIPMENT	TOTAL ACTUAL WEIGHT OF SHIPMENT (SPECIFY kg or lb)	TOTAL BILLABLE WEIGHT OF SHIPMENT (Dimensional, if applicable) (SPECIFY kg or lb)
3	110 lb	

[ ] UPS ENVELOPE [ ] UPS PAK [ ] 25KG BOX [x]

DESCRIPTION OF GOODS: 3 coolers. 1 is empty, 2 contain gel ice packs

INDICATE IF DOCUMENTS ONLY [ ] Mark "X" if shipment only contains documents of no commercial value

REFERENCE NO.1: 09-0901-21.06

REFERENCE NO.2:

6 COUNTRY OF ORIGIN (MANUFACTURE) OF GOODS

USA

7 SPECIAL INSTRUCTIONS

- [ ] SATURDAY DELIVERY (EARLY A.M. and EXPRESS ONLY) Affix routing label to package(s)
- [ ] VERBAL CONFIRMATION of DELIVERY (EARLY A.M. ONLY) See instructions on back
- [ ] OTHER - RECORD INSTRUCTIONS BELOW

Unless a greater value for liability is declared in writing in the space provided on this waybill, the shipper declares the released value of this shipment to be no greater than $100. However, the rates offered by this Warsaw Convention may apply. The carrier's liability is limited by the Warsaw Convention, as amended, and the other applicable Terms and Conditions on the reverse side of the Shipper's Copy of this waybill, which are incorporated by reference. An additional charge (premium) applies to declared value for insurance in excess of $100. (See the reverse side of the Shipper's Copy for details.)

The shipper agrees to the Terms and Conditions on the reverse side of the Shipper's Copy of this waybill. The shipper authorizes UPS to act as forwarding agent for export control and customs purposes.

DELIVERY 1

EXPORT 2

EXPORT 1

W601 246 754 2

← PEEL HERE

UPS Waybill / Tracking No. W601 246 754 2

9 DATE OF SHIPMENT 12 06 99

SHIPPER'S SIGNATURE Ed Walker

RECEIVED FOR UPS BY:

DATE:

TIME:

GRAIN SIZE DISTRIBUTION TEST DATA

Client:
Project: Gorst Landfill
oject Number: J-7057-12

Sample Data

Source:
Sample No.: GL-SS-01
Elev. or Depth:
Sample Length (in./cm.):
Location:
Description: Silty, gravelly SAND
Liquid Limit:
Plasticity Index:
Natural Moisture:
USCS Classification: SM
Testing Remarks:

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	358.46	331.76
Tare =	151.63	151.63
Dry sample weight =	206.83	180.13

Minus #200 from wash= 12.9 %
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
.75 inch	0.00	100.0
.5 inch	20.62	90.0
.375 inch	30.81	85.1
# 4	56.76	72.6
# 10	77.39	62.6
# 20	100.29	51.5
# 40	125.09	39.5
# 60	152.75	26.2
# 100	168.43	18.6
# 200	178.51	13.7

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 27.4 (% coarse = % fine = 27.4)
% SAND = 58.9 (% coarse = 10.0 % medium = 23.1 % fine = 25.8)
% FINES = 13.7

D_{85}= 9.47 D_{60}= 1.60 D_{50}= 0.77
D_{30}= 0.29 D_{15}= 0.09

GRAIN SIZE DISTRIBUTION TEST DATA

Client:
Project: Gorst Landfill
Project Number: J-7057-12

Sample Data

Source:
Sample No.: GL-SS-02
Elev. or Depth:
Sample Length (in./cm.):
Location:
Description: Slightly silty, very gravelly SAND
Liquid Limit:
Plasticity Index:
Natural Moisture:
USCS Classification: SP-SM
Testing Remarks:

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	739.30	690.71
Tare =	318.64	318.64
Dry sample weight =	420.66	372.07

Minus #200 from wash= 11.6 %
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
1 inch	0.00	100.0
.75 inch	39.14	90.7
.5 inch	95.56	77.3
.375 inch	110.22	73.8
# 4	133.73	68.2
# 10	157.95	62.5
# 20	181.85	56.8
# 40	223.08	47.0
# 60	294.23	30.1
# 100	345.85	17.8
# 200	370.42	11.9

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 31.8 (% coarse = 9.3 % fine = 22.5)
% SAND = 56.3 (% coarse = 5.7 % medium = 15.5 % fine = 35.1)
% FINES = 11.9

D_{85}= 16.31 D_{60}= 1.34 D_{50}= 0.49
D_{30}= 0.25 D_{15}= 0.12

GRAIN SIZE DISTRIBUTION TEST DATA

Client:
Project: Gorst Landfill
Project Number: J-7057-12

Sample Data

Source:
Sample No.: GL-SS-03
Elev. or Depth: Sample Length (in./cm.):
Location:
Description: Slightly silty, gravelly SAND
Liquid Limit: Plasticity Index:
Natural Moisture: USCS Classification: SW-SM
Testing Remarks:

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	825.40	787.81
Tare =	429.13	429.13
Dry sample weight =	396.27	358.68

Minus #200 from wash= 9.5 %
Tare for cumulative weight retained= 110.40

Sieve	Cumul. Wt. retained	Percent finer
.75 inch	110.40	100.0
.5 inch	133.81	94.1
.375 inch	147.81	90.6
# 4	178.49	82.8
# 10	221.61	71.9
# 20	257.97	62.8
# 40	317.07	47.9
# 60	402.71	26.2
# 100	450.42	14.2
# 200	468.17	9.7

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 17.2 (% coarse = % fine = 17.2)
% SAND = 73.1 (% coarse = 10.9 % medium = 24.0 % fine = 38.2)
% FINES = 9.7

D_{85}= 5.74 D_{60}= 0.70 D_{50}= 0.45
D_{30}= 0.28 D_{15}= 0.16 D_{10}= 0.08
C_c= 1.3243 C_u= 8.4159

GRAIN SIZE DISTRIBUTION TEST DATA

Client:
Project: Gorst Landfill
oject Number: J-7057-12

Sample Data

Source:
Sample No.: GL-SS-04
Elev. or Depth:
Location:
Description: Gravelly SAND
Liquid Limit:
Natural Moisture:
Testing Remarks:

Sample Length (in./cm.):

Plasticity Index:
USCS Classification: SP

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	812.84	794.64
Tare =	382.35	382.35
Dry sample weight =	430.49	412.29

Minus #200 from wash= 4.2 %
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
.75 inch	0.00	100.0
.5 inch	23.09	94.6
.375 inch	45.25	89.5
# 4	100.36	76.7
# 10	150.40	65.1
# 20	191.55	55.5
# 40	260.79	39.4
# 60	356.95	17.1
# 100	399.42	7.2
# 200	410.87	4.6

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 23.3 (% coarse = % fine = 23.3)
% SAND = 72.1 (% coarse = 11.6 % medium = 25.7 % fine = 34.8)
% FINES = 4.6

D_{85}= 7.52 D_{60}= 1.23 D_{50}= 0.61
D_{30}= 0.34 D_{15}= 0.23 D_{10}= 0.19
C_c= 0.5031 C_u= 6.5646

GRAIN SIZE DISTRIBUTION TEST DATA

Client:
Project: Gorst Landfill
Project Number: J-7057-12

Sample Data

Source:
Sample No.: GL-SS-05
Elev. or Depth:
Sample Length (in./cm.):
Location:
Description: Very gravelly SAND
Liquid Limit:
Plasticity Index:
Natural Moisture:
USCS Classification: SP
Testing Remarks:

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	1042.40	1029.40
Tare =	433.60	433.60
Dry sample weight =	608.80	595.80

Minus #200 from wash= 2.1 %
Tare for cumulative weight retained= 51.10

Sieve	Cumul. Wt. retained	Percent finer
1.5 inch	51.10	100.0
1 inch	92.80	93.2
.75 inch	161.99	81.8
.5 inch	205.73	74.6
.375 inch	228.52	70.9
# 4	296.03	59.8
# 10	369.35	47.7
# 20	417.45	39.8
# 40	501.05	26.1
# 60	597.46	10.3
# 100	636.40	3.9
# 200	646.00	2.3

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 40.2 (% coarse = 18.2 % fine = 22.0)
% SAND = 57.5 (% coarse = 12.1 % medium = 21.6 % fine = 23.8)
% FINES = 2.3

D_{85}= 20.73 D_{60}= 4.81 D_{50}= 2.45
D_{30}= 0.49 D_{15}= 0.30 D_{10}= 0.25
C_c= 0.2038 C_u= 19.4903

GRAIN SIZE DISTRIBUTION TEST DATA

Client:
Project: Gorst Landfill
oject Number: J-7057-12

Sample Data

Source:
Sample No.: GL-SS-06
Elev. or Depth:
Sample Length (in./cm.):
Location:
Description: Silty, gravelly SAND
Liquid Limit:
Plasticity Index:
Natural Moisture:
USCS Classification: SM
Testing Remarks:

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	695.71	660.43
Tare =	409.90	409.90
Dry sample weight =	285.81	250.53

Minus #200 from wash= 12.3 %
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
.75 inch	0.00	100.0
.5 inch	2.92	99.0
.375 inch	16.00	94.4
# 4	40.68	85.8
# 10	63.69	77.7
# 20	84.20	70.5
# 40	123.77	56.7
# 60	192.40	32.7
# 100	234.24	18.0
# 200	249.05	12.9

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 14.2 (% coarse = % fine = 14.2)
% SAND = 72.9 (% coarse = 8.1 % medium = 21.0 % fine = 43.8)
% FINES = 12.9

D_{85}= 4.40 D_{60}= 0.47 D_{50}= 0.36
D_{30}= 0.23 D_{15}= 0.12

GRAIN SIZE DISTRIBUTION TEST DATA

Client:
Project: Gorst Landfill
Project Number: J-7057-12

Sample Data

Source:
Sample No.: GL-SS-07
Elev. or Depth:
Sample Length (in./cm.):
Location:
Description: Very gravelly SAND
Liquid Limit:
Plasticity Index:
Natural Moisture:
USCS Classification: SP
Testing Remarks:

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	697.41	680.89
Tare =	319.38	319.38
Dry sample weight =	378.03	361.51

Minus #200 from wash= 4.4 %
Tare for cumulative weight retained= .00

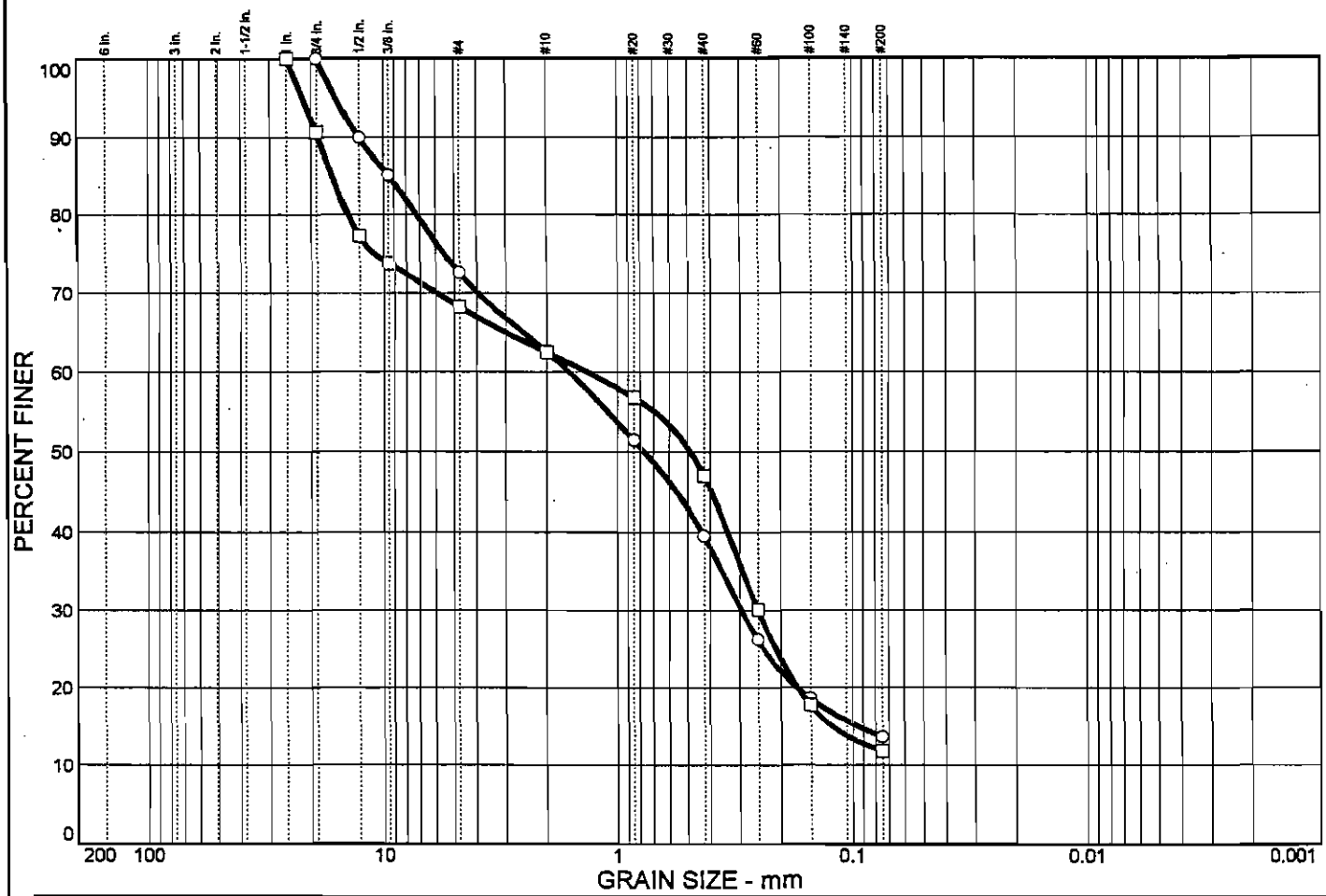
Sieve	Cumul. Wt. retained	Percent finer
.75 inch	0.00	100.0
.5 inch	39.32	89.6
.375 inch	63.02	83.3
# 4	122.19	67.7
# 10	180.77	52.2
# 20	229.29	39.4
# 40	279.94	26.0
# 60	325.88	13.8
# 100	349.58	7.5
# 200	359.42	4.9

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 32.3 (% coarse = % fine = 32.3)
% SAND = 62.8 (% coarse = 15.5 % medium = 26.2 % fine = 21.1)
% FINES = 4.9

D_{85}= 10.31 D_{60}= 3.20 D_{50}= 1.73
D_{30}= 0.51 D_{15}= 0.27 D_{10}= 0.20
C_c= 0.4153 C_u= 16.4137

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	27.4	10.0	23.1	25.8	13.7	
□	0.0	9.3	22.5	5.7	15.5	35.1	11.9	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			9.47	1.60	0.765	0.293	0.0939			
□			16.3	1.34	0.485	0.249	0.121			

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
○ Silty, gravelly SAND	SM	
□ Slightly silty, very gravelly SAND	SP-SM	

Remarks:

○

□

Project: Gorst Landfill

Client:

○ **Source:** **Sample No.:** GL-SS-01

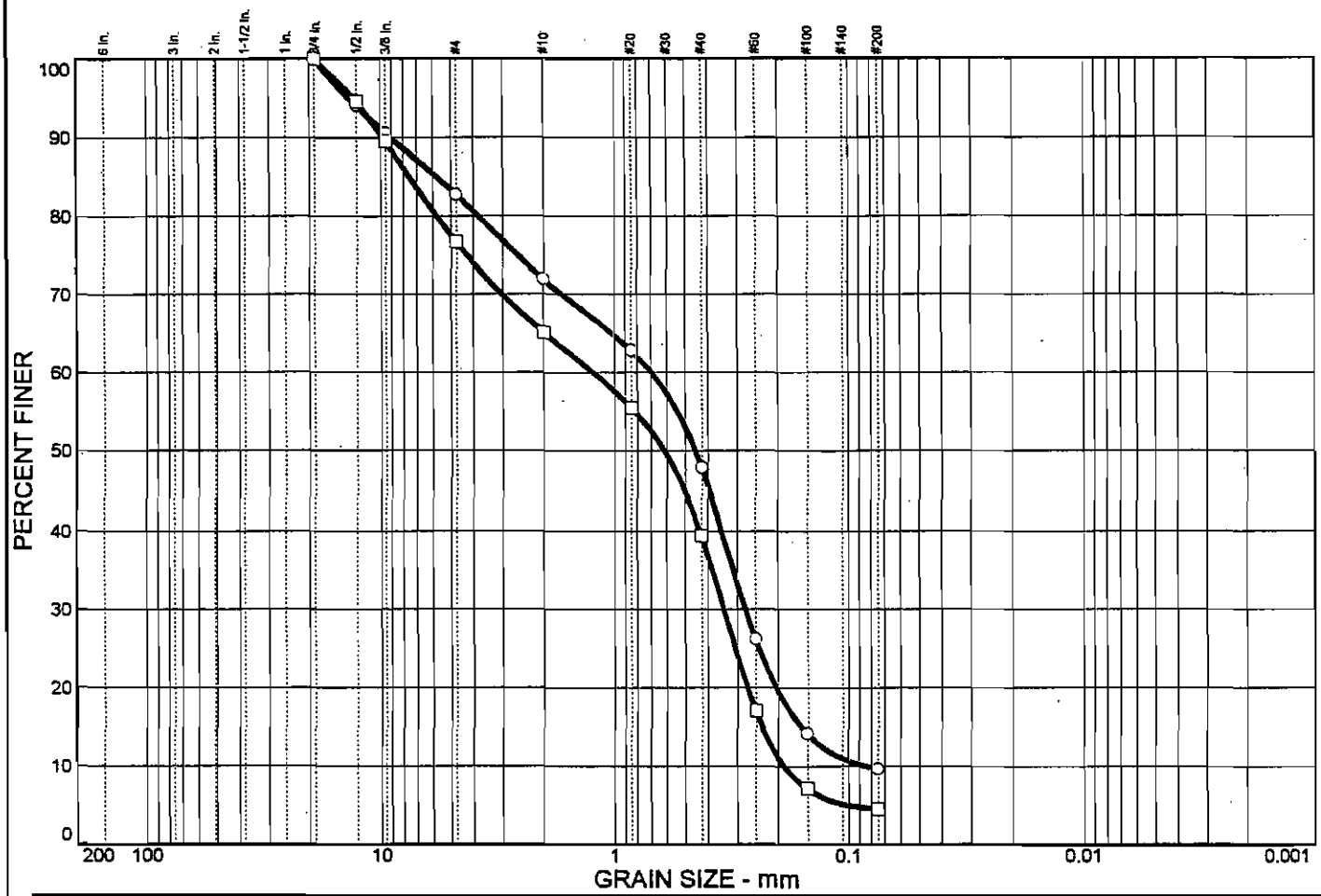
□ **Source:** **Sample No.:** GL-SS-02

HARTCROWSER

J-7057-12 1/17/00

Figure No.

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	17.2	10.9	24.0	38.2	9.7	
□	0.0	0.0	23.3	11.6	25.7	34.8	4.6	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			5.74	0.696	0.452	0.276	0.159	0.0827	1.32	8.42
□			7.52	1.23	0.613	0.341	0.234	0.188	0.50	6.56

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
○ Slightly silty, gravelly SAND	SW-SM	
□ Gravelly SAND	SP	

Remarks:

○

□

Project: Gorst Landfill

Client:

○ **Source:** **Sample No.:** GL-SS-03

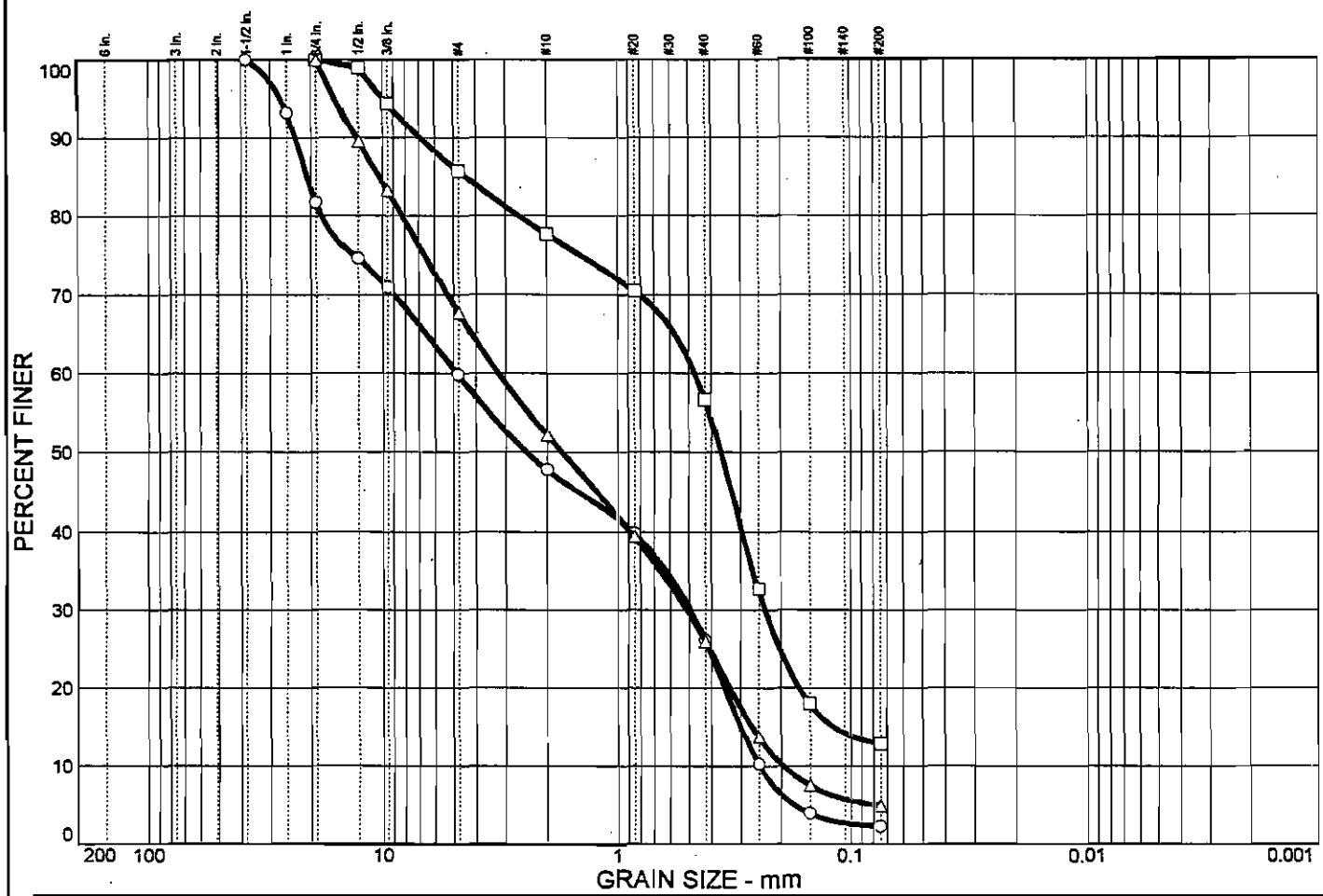
□ **Source:** **Sample No.:** GL-SS-04

HARTCROWSER

J-7057-12 1/17/00

Figure No.

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	18.2	22.0	12.1	21.6	23.8	2.3	
□	0.0	0.0	14.2	8.1	21.0	43.8	12.9	
△	0.0	0.0	32.3	15.5	26.2	21.1	4.9	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			20.7	4.81	2.45	0.492	0.298	0.247	0.20	19.49
□			4.40	0.468	0.362	0.234	0.118			
△			10.3	3.20	1.73	0.509	0.266	0.195	0.42	16.41

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
○ Very gravelly SAND	SP	
□ Silty, gravelly SAND	SM	
△ Very gravelly SAND	SP	

Remarks:

○

□

△

Project: Gorst Landfill

Client:

○ **Source:** **Sample No.:** GL-SS-05

□ **Source:** **Sample No.:** GL-SS-06

△ **Source:** **Sample No.:** GL-SS-07

HARTCROWSER

J-7057-12 1/17/00

Figure No.

GRAIN SIZE DISTRIBUTION TEST DATA

Client:
Project: Gorst Landfill
Project Number: J-7057-12

Sample Data

Source:
Sample No.: GL-SED-01
Elev. or Depth:
Sample Length (in./cm.):
Location:
Description: SAND
Liquid Limit:
Plasticity Index:
Natural Moisture:
USCS Classification: SP
Testing Remarks:

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	708.32	703.34
Tare =	436.46	436.46
Dry sample weight =	271.86	266.88

Minus #200 from wash= 1.8 %
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
.375 inch	0.00	100.0
# 4	3.11	98.9
# 10	59.29	78.2
# 20	134.75	50.4
# 40	203.36	25.2
# 60	247.13	9.1
# 100	262.14	3.6
# 200	265.90	2.2

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 1.1 (% coarse = % fine = 1.1)
% SAND = 96.7 (% coarse = 20.7 % medium = 53.0 % fine = 23.0)
% FINES = 2.2

D_{85}= 2.59 D_{60}= 1.12 D_{50}= 0.84
D_{30}= 0.49 D_{15}= 0.31 D_{10}= 0.26
C_c= 0.8088 C_u= 4.2905

GRAIN SIZE DISTRIBUTION TEST DATA

Client:
Project: Gorst Landfill
oject Number: J-7057-12

Sample Data

Source:
Sample No.: GL-SED-02
Elev. or Depth:
Sample Length (in./cm.):
Location:
Description: Silty, gravelly SAND
Liquid Limit:
Plasticity Index:
Natural Moisture:
USCS Classification: SM
Testing Remarks:

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	550.27	454.10
Tare =	89.20	89.20
Dry sample weight =	461.07	364.90

Minus #200 from wash= 20.9 %
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
1 inch	0.00	100.0
.75 inch	28.52	93.8
.5 inch	47.16	89.8
.375 inch	78.36	83.0
# 4	132.32	71.3
# 10	178.83	61.2
# 20	213.25	53.8
# 40	251.91	45.4
# 60	304.03	34.1
# 100	339.38	26.4
# 200	364.07	21.0

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 28.7 (% coarse = 6.2 % fine = 22.5)
% SAND = 50.3 (% coarse = 10.1 % medium = 15.8 % fine = 24.4)
% FINES = 21.0

D_{85}= 10.30 D_{60}= 1.76 D_{50}= 0.58
D_{30}= 0.20

GRAIN SIZE DISTRIBUTION TEST DATA

Client:
Project: Gorst Landfill
Project Number: J-7057-12

Sample Data

Source:
Sample No.: GL-SED-03
Elev. or Depth:
Sample Length (in./cm.):
Location:
Description: Gravelly SAND
Liquid Limit:
Plasticity Index:
Natural Moisture:
USCS Classification: SP
Testing Remarks:

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	694.72	690.40
Tare =	89.55	89.55
Dry sample weight =	605.17	600.85

Minus #200 from wash= 0.7 %
Tare for cumulative weight retained= .00

Sieve	Cumul. Wt. retained	Percent finer
.75 inch	0.00	100.0
.5 inch	59.31	90.2
.375 inch	88.70	85.3
# 4	160.79	73.4
# 10	234.22	61.3
# 20	335.14	44.6
# 40	467.77	22.7
# 60	569.35	5.9
# 100	595.33	1.6
# 200	600.80	0.7

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 26.6 (% coarse = % fine = 26.6)
% SAND = 72.7 (% coarse = 12.1 % medium = 38.6 % fine = 22.0)
% FINES = 0.7

D_{85}= 9.35 D_{60}= 1.83 D_{50}= 1.06
D_{30}= 0.52 D_{15}= 0.34 D_{10}= 0.29
C_c= 0.5088 C_u= 6.2385

GRAIN SIZE DISTRIBUTION TEST DATA

Client:
Project: Gorst Landfill
Project Number: J-7057-12

Sample Data

Source:
Sample No.: GL-SED-04
Elev. or Depth:
Sample Length (in./cm.):
Location:
Description: Very gravelly SAND
Liquid Limit:
Plasticity Index:
Natural Moisture:
USCS Classification: SP
Testing Remarks:

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	806.90	804.70
Tare =	109.29	109.29
Dry sample weight =	697.61	695.41

Minus #200 from wash= 0.3 %
Tare for cumulative weight retained= .00

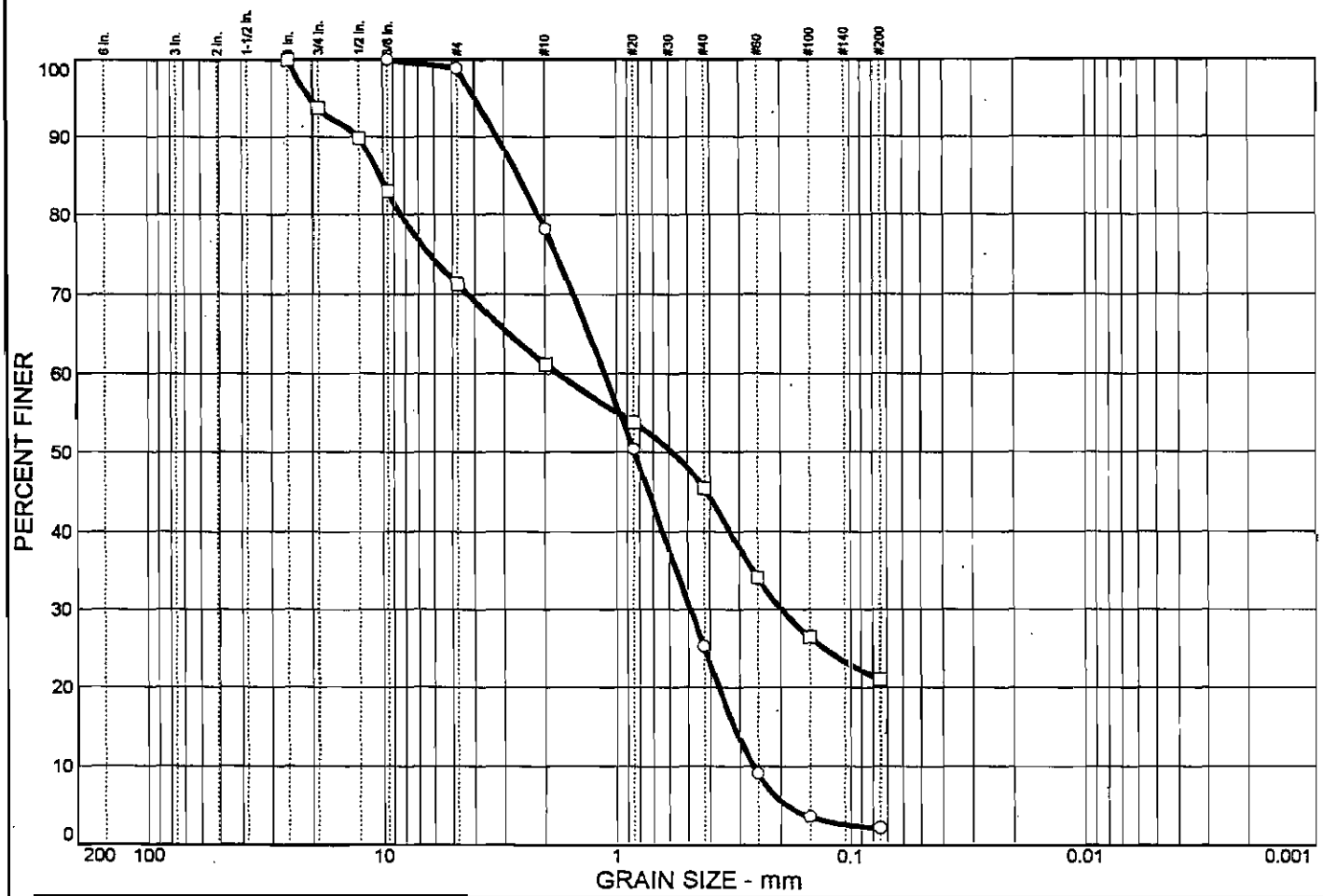
Sieve	Cumul. Wt. retained	Percent finer
1.5 inch	0.00	100.0
1 inch	34.62	95.0
.75 inch	60.92	91.3
.5 inch	121.29	82.6
.375 inch	178.32	74.4
# 4	339.60	51.3
# 10	448.73	35.7
# 20	540.43	22.5
# 40	628.70	9.9
# 60	679.90	2.5
# 100	692.20	0.8
# 200	695.20	0.4

Fractional Components

Gravel/Sand based on #4
Sand/Fines based on #200
% + 3" = % GRAVEL = 48.7 (% coarse = 8.7 % fine = 40.0)
% SAND = 50.9 (% coarse = 15.6 % medium = 25.8 % fine = 9.5)
% FINES = 0.4

D_{85}= 13.98 D_{60}= 6.25 D_{50}= 4.53
D_{30}= 1.35 D_{15}= 0.56 D_{10}= 0.43
C_c= 0.6791 C_u= 14.6327

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	1.1	20.7	53.0	23.0	2.2	
□	0.0	6.2	22.5	10.1	15.8	24.4	21.0	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			2.59	1.12	0.841	0.485	0.314	0.261	0.81	4.29
□			10.3	1.76	0.578	0.198				

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
○ SAND	SP	
□ Silty, gravelly SAND	SM	

Remarks:

○

□

Project: Gorst Landfill

Client:

○ **Source:** **Sample No.:** GL-SED-01

□ **Source:** **Sample No.:** GL-SED-02

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J-7057-12 1/17/00

Figure No.

PARTICLE SIZE DISTRIBUTION TEST REPORT

	% + 3"	% GRAVEL		% SAND			% FINES	
		CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
○	0.0	0.0	26.6	12.1	38.6	22.0	0.7	
□	0.0	8.7	40.0	15.6	25.8	9.5	0.4	

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			9.35	1.83	1.06	0.524	0.343	0.294	0.51	6.24
□			14.0	6.25	4.53	1.35	0.563	0.427	0.68	14.63

MATERIAL DESCRIPTION	USCS	NAT. MOIST.
○ Gravelly SAND	SP	
□ Very gravelly SAND	SP	

Remarks:

○

□

Project: Gorst Landfill

Client:

○ **Source:** **Sample No.:** GL-SED-03

□ **Source:** **Sample No.:** GL-SED-04

HARTCROWSER

J-7057-12 1/17/00

Figure No.

MultiChem

GC/MS VOLATILES
CLPOLM03.2

Raw Data Deliverable

SDG: 001026

MAS I.D. # 001026

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL SITE

CASE NARRATIVE: VOLATILE ORGANICS ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

Based on the relative retention times of the compounds dibromochloromethane and bromoform, MultiChem associates them with the internal standard chlorobenzene-d5 instead of the contract stated internal standard of 1,4-difluorobenzene. In addition, the compound 4-methyl-2-pentanone is associated with the internal standard 1,4-difluorobenzene instead of the contract stated internal standard of chlorobenzene-d5.

The target compound methylene chloride was detected in the method blank analyzed on January 14, 2000, at a concentration which was less than the contract required reporting limit of 10ug/L. The concentration of methylene chloride was "J" flagged on the appropriate method blank Form I. All detected concentrations of methylene chloride in the associated samples have been "B" flagged on the appropriate Form I's. No further corrective action was performed.

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK0114A

58

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: VBLK0114A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B1392

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SW-01

08

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: 001026-1

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B1394

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. _____ Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	~~1~~	~~BJ~~
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

10U

2/22/00
JHL

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SW-02

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: 001026-2

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B1395

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. _____ Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	~~1~~	~~BJ~~	10 U
67-64-1	Acetone	10	U	
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-3	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
67-66-3	Chloroform	10	U	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	2/22/00
10061-01-5	cis-1,3-Dichloropropene	10	U	JAL
79-01-6	Trichloroethene	10	U	
124-48-1	Dibromochloromethane	10	U	
79-00-5	1,1,2-Trichloroethane	10	U	
71-43-2	Benzene	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (Total)	10	U	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP BLANK

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: 001026-3

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B1396

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. _____ Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	~~2~~ ~~BJ~~	10 U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

2/22/00 JM

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

01

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

	EPA SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	VBLK0114A	100	94	102		0
02	VBLK0114AMS	96	98	98		0
03	GL-SW-01	96	92	102		0
04	GL-SW-02	96	94	100		0
05	TRIP BLANK	96	96	102		0
06	GL-SW-01MS	96	96	102		0
07	GL-SW-01MSD	98	96	102		0
08						
09						
10						
11						
12						
13						
14						
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16						
17						
18						
19						
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23						
24						
25						
26						
27						
28						
29						
30						

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(88-110)
SMC2 (BFB)	= Bromofluorobenzene	(86-115)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(76-114)

Column to be used to flag recovery values

* Values outside of contract required QC limits

4 1/14/00
SJC 1/17/00

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

02

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix Spike - EPA Sample No.: GL-SW-01

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	0.0	56	112	61-145
Trichloroethene	50	0.0	53	106	71-120
Benzene	50	0.0	54	108	76-127
Toluene	50	0.0	52	104	76-125
Chlorobenzene	50	0.0	52	104	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50	55	110	2	14	61-145
Trichloroethene	50	52	104	2	14	71-120
Benzene	50	52	104	4	11	76-127
Toluene	50	52	104	0	13	76-125
Chlorobenzene	50	52	104	0	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

AM 1/14/00
SL 1/17/00
SL

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

03

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix Spike - EPA Sample No.: VBLK0114A

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	0.0	52	104	61-145
Trichloroethene	50	0.0	49	98	71-120
Benzene	50	0.0	51	102	76-127
Toluene	50	0.0	50	100	76-125
Chlorobenzene	50	0.0	50	100	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS:

AM 1/14/00
SK 1/17/00

MultiChem

GC/MS SEMIVOLATILES
CLP OLM 3.0

Raw Data Deliverable

Accession: 001026

MAS I.D. # 001026

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL SITE

CASE NARRATIVE: SEMIVOLATILE ORGANICS ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

Bis(2-ethylhexyl)phthalate was detected in the method blank at a concentration below the reporting limit. This value was flagged "J" for reporting purposes and should be considered estimated. Any sample results demonstrating the presence of this compound have been flagged "B" to denote its presence in the associated method blank.

Due to insufficient sample volume, a blank spike/blank spike duplicate was extracted and analyzed in lieu of a matrix spike/matrix spike duplicate (MS/MSD).

In the initial calibration the percent relative standard deviation (%RSD) for 1,2-dichlorobenzene, 4-chlorophenyl-phenylether, fluorene and acenaphthene exceeded 20%. Since the OLM3.0 statement of work (SOW) permits up to four ontinuing calibration compounds (CCC) to exceed the relative percent difference (RPD) control limits, technical acceptance criteria were met.

In the continuing calibration verification (CCV) analyzed on January 24, 2000, the relative response factors (RRF) for CCC 4-methylphenol and benzo(g,h,i)perylene differed from the initial calibration by more than 20%. Since no more than four CCCs exceeded 25%, and since the percent deviation for each RRF fell between 25% and 40%, technical acceptance criteria were met.

The RPD for spiking compound n-nitroso-di-n-propylamine exceeded MultiChem's established control limits in the analysis of the BS/BSD. Since the percent recoveries for all MS analytes in the BS were within the control limits, no further corrective action was performed.

The percent recovery of the matrix spiking compound 4-nitrophenol exceeded MultiChem's established control limits in the analysis of the BSD. Since percent recoveries of all matrix spiking compounds in the BS were all within control limits, no further corrective action was performed.

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

00001

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	A0117WBLK	72	74	64	81	61	75	80	64	0
02	A0117WBLKBS	70	70	58	75	59	72	69	62	0
03	A0117WBLKBSD	74	74	66	81	65	83	76	64	0
04	GL-SW-01	70	72	60	79	61	80	77	62	0
05	GL-SW-02	68	72	68	80	59	84	77	62	0
06										
07										
08										
09										
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		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(35-114)	
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)	
S3 (TPH)	= Terphenyl-d14	(33-141)	
S4 (PHL)	= Phenol-d5	(10-110)	
S5 (2FP)	= 2-Fluorophenol	(21-110)	
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)	
S7 (2CP)	= 2-Chlorophenol-d4	(33-110)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(16-110)	(advisory)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

AL 2.08.00

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix Spike - EPA Sample No.: A0117WBLK

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Phenol	75	0.0	48	64	12-110
2-Chlorophenol	75	0.0	48	64	27-123
1,4-Dichlorobenzene	50	0.0	33	66	36- 97
N-Nitroso-di-n-prop.(1)	50	0.0	33	66	41-116
1,2,4-Trichlorobenzene	50	0.0	38	76	39- 98
4-Chloro-3-Methylphenol	75	0.0	49	65	23- 97
Acenaphthene	50	0.0	39	78	46-118
4-Nitrophenol	75	0.0	59	79	10- 80
2,4-Dinitrotoluene	50	0.0	37	74	24- 96
Pentachlorophenol	75	0.0	61	81	9-103
Pyrene	50	0.0	32	64	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	75	52	69	8	42	12-110
2-Chlorophenol	75	52	69	8	40	27-123
1,4-Dichlorobenzene	50	35	70	6	28	36- 97
N-Nitroso-di-n-prop.(1)	50	51	102	43*	38	41-116
1,2,4-Trichlorobenzene	50	41	82	8	28	39- 98
4-Chloro-3-Methylphenol	75	56	75	14	42	23- 97
Acenaphthene	50	42	84	7	31	46-118
4-Nitrophenol	75	64	85*	7	50	10- 80
2,4-Dinitrotoluene	50	40	80	8	38	24- 96
Pentachlorophenol	75	69	92	13	50	9-103
Pyrene	50	35	70	9	31	26-127

(1) N-Nitroso-di-n-propylamine
Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 1 out of 11 outside limits
Spike Recovery: 1 out of 22 outside limits

COMMENTS: _____

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 00101

A0117WBLK

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: A0117WBLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6724

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

Pr 2-8-00

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A0117WBLK

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: A0117WBLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6724

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	0.5	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SW-01

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: 001026-1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6727

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SW-01

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: 001026-1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6727

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~0.4~~	~~BJ~~ 10 U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

2/22/00 JTH

(1) - Cannot be separated from Diphenylamine

R 2.8.00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SW-02

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: 001026-2

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6728

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SW-02

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: 001026-2

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6728

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~4~~	~~BJ~~ 10 U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

2/22/00 JHL

(1) - Cannot be separated from Diphenylamine

PL 2.8.00

MultiChem

EPA 8082
water

Raw Data Deliverable

Accession: 001026

MAS I.D. # 001026

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL SITE

CASE NARRATIVE: POLYCHLORINATED BIPHENYLS ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

Some of the individual continuing calibration verification (CCV) responses exceed the 15% CCV limit, but the average CCV percent recovery is within criteria.

The tetrachloro-m-xylene (TCMX) surrogate percent recovery was below criteria for all the runs in this accession. The decachlorobiphenyl (DCBP) percent recoveries are in criteria for all these runs. The TCMX was probably lost in the concentration or solvent exchange step, which would not affect any of the Aroclors.

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

FORM 2
WATER SEMIVOLATILE SURROGATE RECOVERY

00001

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

GC Column(1): DB-1701 ID: 0.53 (mm) GC Column(2): DB608 ID: 0.53 (mm)

	Client SAMPLE NO.	S1 1 %REC #	S1 2 %REC #	S2 1 %REC #	S2 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	A0113-BLK	10*	9*	76	67			2
02	A0113-BLKBS	4*	4*	80	71			2
03	A0113-BLKBSD	3*	3*	83	75			2
04	GL-SW-01	10*	9*	70	62			2
05	GL-SW-02	2*	2*	70	63			2
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

		QC LIMITS
S1	= TCMX	(29-116)
S2	= DCBP	(20-161)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

JK 2/9/00
PES 02/11/00

FORM 3
WATER SEMIVOLATILE BLANK SPIKE RECOVERY

00002

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix Spike - Client Sample No.: A0113-BLK

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Aroclor-1016	5.0	0.000	3.80	76	50-150
Aroclor-1260	5.0	0.000	4.31	86	60-144

COMPOUND	SPIKE ADDED (ug/L)	BSD CONCENTRATION (ug/L)	BSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor-1016	5.0	3.22	64	17	20	50-150
Aroclor-1260	5.0	4.34	87	1	20	60-144

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

COMMENTS:

FORM III SV

Pg 82/11/00
JC 2/9/00

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

A0113-BLK

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: A0113-BLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: R2081E03

% Moisture: _____ decanted: (Y/N)___ Date Collected: _____

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 01/13/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/08/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
1114-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U
	Total Aroclor Concentration	1.0	U

PK 2/7/00
RES 02/11/00

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SW-01

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: 001026-1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: R2081E06

% Moisture: _____ decanted: (Y/N)___ Date Collected: 01/10/00

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 01/13/00 -OK

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/08/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
1114-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U
	Total Aroclor Concentration	1.0	U

PEG 2/11/00
JK 2/9/00

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SW-02

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001026

Matrix: (soil/water) WATER Lab Sample ID: 001026-2

Sample wt/vol: 1000 (g/mL) ML Lab File ID: R2081E07

% Moisture: _____ decanted: (Y/N)___ Date Collected: 01/11/00

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 01/13/00 OK

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/08/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
1114-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U
	Total Aroclor Concentration	1.0	U

JK 4/9/00
PGS 02/11/00

MultiChem

METALS ANALYSES

Raw Data Deliverable

Accession: 001026

INORGANICS SW-846

5A
SPIKE SAMPLE RECOVERY

CLIENT ID

GLSW01S

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury	73-140	2.1000		0.2000		2.00	95.0		CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

INORGANICS SW-846

6
DUPLICATES

CLIENT ID

00102303D

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony		50.0000	U	50.0000	U			P
Arsenic		5.0000	U	5.0000	U			F
Barium								NR
Beryllium		5.0000	U	5.0000	U			P
Cadmium		5.0000	U	5.0000	U			P
Calcium								NR
Chromium		10.0000	U	10.0000	U			P
Cobalt								NR
Copper	10.0	43.9367		43.6867		0.6		P
Iron	50.0	162.0933		150.9300		7.1		P
Lead		3.0000	U	3.0000	U			F
Magnesium		10710.9700		10942.3833		2.1		P
Manganese		196.4967		195.6133		0.5		P
Mercury								NR
Nickel		111.4433		114.3900		2.6		P
Potassium		5388.5233		5469.9633		1.5		P
Selenium		5.0000	U	5.0000	U			F
Silver		10.0000	U	10.0000	U			P
Sodium		6110.3467		6102.3900		0.1		P
Thallium		5.0000	U	5.0000	U			F
Vanadium								NR
Zinc		1506.4833		1503.7033		0.2		P
Cyanide								NR

INORGANICS SW-846

6
DUPLICATES

CLIENT ID

GLSW01D

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury		0.2000		0.2000	U	200.0		CV
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide								NR

INORGANICS SW-846

7

LABORATORY CONTROL SAMPLE

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Solid LCS Source: _____

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony	1000.0	1000.6	100.1						
Arsenic	25.0	23.9	95.6						
Barium									
Beryllium	1000.0	924.0	92.4						
Cadmium	1000.0	995.7	99.6						
Calcium									
Chromium	1000.0	962.4	96.2						
Cobalt									
Copper	1000.0	966.2	96.6						
Iron	1000.0	933.7	93.4						
Lead	25.0	23.2	92.8						
Magnesium	1000.0	1083.7	108.4						
Manganese	1000.0	940.4	94.0						
Mercury	2.0	2.0	100.0						
Nickel	1000.0	949.7	95.0						
Potassium	10000.0	9277.2	92.8						
Selenium	25.0	22.4	89.6						
Silver	1000.0	1054.3	105.4						
Sodium	1000.0	942.1	94.2						
Thallium	25.0	23.0	92.0						
Vanadium									
Zinc	1000.0	1009.0	100.9						
Cyanide									

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	200.0	U	200.0	U	200.0	U	200.0	U			P
Antimony	50.0	U	50.0	U	50.0	U	50.0	U	50.000	U	P
Arsenic	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	F
Barium											
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Calcium	100.0	U	100.0	U	100.0	U	100.0	U			P
Chromium	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Cobalt											
Copper	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Iron	50.0	U	50.0	U	50.0	U	50.0	U	50.000	U	P
Lead	3.0	U	3.0	U	3.0	U	3.0	U	3.000	U	F
Magnesium	50.0	U	50.0	U	50.0	U	50.0	U	50.000	U	P
Manganese	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.200	U	CV
Nickel	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Potassium	200.0	U	200.0	U	200.0	U	200.0	U	200.000	U	P
Selenium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	F
Silver	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Sodium	100.0	U	100.0	U	100.0	U	100.0	U	100.000	U	P
Thallium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	F
Vanadium											
Zinc	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Cyanide											

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			200.0	U	200.0	U	200.0	U			P
Antimony			50.0	U	50.0	U	50.0	U			P
Arsenic			5.0	U							F
Barium											
Beryllium			5.0	U	5.0	U	5.0	U			P
Cadmium			5.0	U	5.0	U	5.0	U			P
Calcium			100.0	U	100.0	U	100.0	U			P
Chromium											
Cobalt											
Copper											
Iron			50.0	U	50.0	U	50.0	U			P
Lead			3.0	U	3.0	U					F
Magnesium			50.0	U	50.0	U	50.0	U			P
Manganese											
Mercury											
Nickel			10.0	U	10.0	U	10.0	U			P
Potassium			200.0	U	200.0	U	200.0	U			P
Selenium											
Silver			10.0	U	10.0	U	10.0	U			P
Sodium			100.0	U	100.0	U	100.0	U			P
Thallium											
Vanadium											
Zinc			10.0	U	10.0	U	10.0	U			P
Cyanide											

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	200.0	U	200.0	U	200.0	U	200.0	U			P
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium	100.0	U	100.0	U	100.0	U	100.0	U			P
Chromium											
Cobalt											
Copper											
Iron	50.0	U	50.0	U	50.0	U	50.0	U			P
Lead											
Magnesium	50.0	U	50.0	U	50.0	U	50.0	U			P
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium	100.0	U	100.0	U	100.0	U	100.0	U			P
Thallium											
Vanadium											
Zinc											
Cyanide											

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	200.0	U	200.0	U	200.0	U					P
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium	100.0	U	100.0	U	100.0	U					P
Chromium											
Cobalt											
Copper											
Iron	50.0	U	50.0	U	50.0	U					P
Lead											
Magnesium	50.0	U	50.0	U	50.0	U					P
Manganese											
Mercury											
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

MultiChem

INORGANICS ANALYSES

Raw Data Deliverable

ACCESSION: 001026

MAS I.D. # 001026

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL SITE

CASE NARRATIVE: GENERAL CHEMISTRY ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

INORGANICS SW-846

1

INORGANIC ANALYSIS DATA SHEET

00001

CLIENT ID

GLSW01

Lab Name: MULTICHEM

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-1

% Solids:

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
	Fluoride				NR
	Chloride	1690			IC
	Nitrite				NR
	Nitrate				NR
	Phosphate				NR
	Sulfate	2260			IC
	Alkalinity	10000			T
	Carbon				NR
	NO3-NO2	114			C
	TDS				NR
	TSS	10000	U		GR

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSW02

Lab Name: MULTICHEM

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-2

% Solids:

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
	Fluoride				NR
	Chloride	1690			IC
	Nitrite				NR
	Nitrate				NR
	Phosphate				NR
	Sulfate	2890			IC
	Alkalinity	12000			T
	Carbon				NR
	NO3-NO2	99.5			C
	TDS				NR
	TSS	10000	U		GR

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM

SDG No.: 001026

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Fluoride											
Chloride	400.0	U	400.0	U	400.0	U	~~400.0~~	~~U~~	400.000	U	IC
Nitrite											
Nitrate											
Phosphate											
Sulfate	800.0	U	800.0	U	800.0	U	~~800.0~~	~~U~~	800.000	U	IC
Alkalinity	5000.0	U									T
Carbon											
NO3-NO2	25.0	U	25.0	U					25.000	U	C
TDS											
TSS	10000.0	U					BL				GR
							2/16/00				

MAS I.D. # 001026

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL SITE

CASE NARRATIVE: METALS ANALYSIS

The following anomaly was associated with the preparation and/or analysis of the samples in this accession:

On the ICP run of January 24, 2000, the continuing calibration verification (CCV) for silver was above the control limit. All samples were below the reporting limit. The affected samples are 001026-1 (GL-SW-01) and 001026-2 (GL-SW-02).

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSW01

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-1T

% Solids:

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	222			P
7439-92-1	Lead	3.0	U		F
7439-95-4	Magnesium	1080			P
7439-96-5	Manganese	10.0	U		P
7439-97-6	Mercury	0.20			CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	489			P
7782-49-2	Selenium	5.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	1820			P
7440-28-0	Thallium	5.0	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSW01

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-1

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	3.0	U	~~W~~ [illegible]	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	5.0	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSW02

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-2T

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	219			P
7439-92-1	Lead	3.0	U		F
7439-95-4	Magnesium	1160			P
7439-96-5	Manganese	10.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	482			P
7782-49-2	Selenium	5.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	1790			P
7440-28-0	Thallium	5.0	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSW02

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-2

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	3.0	U	W 2/14/00	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	5.0	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

5A
SPIKE SAMPLE RECOVERY

00022

CLIENT ID

00102303S

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	74-115	1042.7900		50.0000	U	1000.00	104.3		P
Arsenic	49-144	25.2400	B	5.0000	U	25.00	101.0		F
Barium									NR
Beryllium	70-120	958.4700		5.0000	U	1000.00	95.8		P
Cadmium	85-115	997.6467		5.0000	U	1000.00	99.8		P
Calcium									NR
Chromium	76-113	966.7433		10.0000	U	1000.00	96.7		P
Cobalt									NR
Copper	76-112	1023.2600		43.9367		1000.00	97.9		P
Iron	59-121	9750.4900		162.0933		10000.00	95.9		P
Lead	78-115	23.4950		3.0000	U	25.00	94.0		F
Magnesium	61-127	20735.3033		10710.9700		10000.00	100.2		P
Manganese	70-116	1148.6367		196.4967		1000.00	95.2		P
Mercury									NR
Nickel	74-112	1058.9400		111.4433		1000.00	94.7		P
Potassium	84-115	14964.3667		5388.5233		10000.00	95.8		P
Selenium	48-124	20.9950	B	5.0000	U	25.00	84.0		F
Silver	83-117	1059.1067		10.0000	U	1000.00	105.9		P
Sodium	52-141	15839.5833		6110.3467		10000.00	97.3		P
Thallium	55-121	23.9000	B	5.0000	U	25.00	95.6		F
Vanadium									NR
Zinc	75-117	2507.9267		1506.4833		1000.00	100.1		P
Cyanide									NR

Comments:

Form V (Part 1) - IN

INORGANICS SW-846

5A
SPIKE SAMPLE RECOVERY

CLIENT ID

GLSW01

Lab Name: MULTICHEM

SDG No.: 001026

Matrix (soil/water): WATER

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Fluoride									NR
Chloride	80-120	3993.0000		1694.0000		2000.00	115.0		IC
Nitrite									NR
Nitrate									NR
Phosphate									NR
Sulfate	80-120	6125.0000		2265.0000		4000.00	96.5		IC
Alkalinity									NR
Carbon									NR
NO3-NO2									NR
TDS									NR
TSS									NR

Comments:

INORGANICS SW-846

5A
SPIKE SAMPLE RECOVERY

CLIENT ID

GLSW02

Lab Name: MULTICHEM

SDG No.: 001026

Matrix (soil/water): WATER

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Fluoride									NR
Chloride									NR
Nitrite									NR
Nitrate									NR
Phosphate									NR
Sulfate									NR
Alkalinity									NR
Carbon									NR
NO3-NO2	75-125	634.7176		113.5556		500.00	104.2		C
TDS									NR
TSS									NR

Comments:

INORGANICS SW-846

6
DUPLICATES

00009

CLIENT ID

GLSW01

Lab Name: MULTICHEM

SDG No.: 001026

Matrix (soil/water): WATER

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Fluoride								NR
Chloride	400.0	1694.0000		1666.0000		1.7		IC
Nitrite								NR
Nitrate								NR
Phosphate								NR
Sulfate	800.0	2265.0000		2224.0000		1.8		IC
Alkalinity	5000.0	10000.0000		9000.0000		10.5		T
Carbon								NR
NO3-NO2								NR
TDS								NR
TSS		10000.0000	U	10000.0000	U			GR

INORGANICS SW-846

6
DUPLICATES

CLIENT ID

GLSW02

Lab Name: MULTICHEM

SDG No.: 001026

Matrix (soil/water): WATER

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Fluoride								NR
Chloride								NR
Nitrite								NR
Nitrate								NR
Phosphate								NR
Sulfate								NR
Alkalinity								NR
Carbon								NR
NO3-NO2	25.0	113.5556		117.0652		3.0		C
TDS								NR
TSS								NR

INORGANICS SW-846

7

LABORATORY CONTROL SAMPLE

Lab Name: MULTICHEM

SDG No.: 001026

Solid LCS Source:

Aqueous LCS Source: APG

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Fluoride									
Chloride	2000.0	2017.0	100.8						
Nitrite									
Nitrate									
Phosphate									
Sulfate	4000.0	4089.0	102.2						
Alkalinity	84570.0	84000.0	99.3						
Carbon									
NO3-NO2	500.0	552.1	110.4						
TDS									
TSS	130000.	104000.0	80.0						

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 001041

February 24, 2000

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle WA 98102-3699

Attention : Elisabeth Black

Project Number : J-7057-12

Project Name : Gorst Landfill

Dear Ms. Black:

On January 14, 2000, MultiChem Analytical Services received two samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Sincerely,

Susan M. Snyder
Project Manager

SMS/hal/sms

Enclosure

560 Naches Avenue SW, Suite 101, Renton, Washington 98055-2200 • 425-228-8335 • FAX 425-228-8336 • 1-800-609-0580 • info@multichem.com

MAS I.D. # 001041

MultiChem
ANALYTICAL SERVICES

ANALYTICAL SCHEDULE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : Gorst Landfill

ANALYSIS	TECHNIQUE	REFERENCE	LAB
VOLATILE ORGANICS ANALYSIS	GCMS	EPA 8260B	R
SEMIVOLATILE ORGANICS ANALYSIS	GCMS	EPA 8270	R
POLYCHLORINATED BIPHENYLS (PCBs)	GC/ECD	EPA 8082 LOW LEVEL	R
ANTIMONY	ICAP	EPA 6010	R
ARSENIC	AA/GF	EPA 7060	R
BERYLLIUM	ICAP	EPA 6010	R
CHROMIUM	ICAP	EPA 6010	R
COPPER	ICAP	EPA 6010	R
LEAD	AA/GF	EPA 7421	R
MERCURY	AA/GF	EPA 7470A	R
NICKEL	ICAP	EPA 6010	R
SELENIUM	AA/GF	EPA 7740	R
SILVER	ICAP	EPA 6010	R
THALLIUM	AA/GF	EPA 7841	R
ZINC	ICAP	EPA 6010	R
TOTAL SUSPENDED SOLIDS	GRAVIMETRIC	EPA 160.2	R

R = MAS - Renton
ANC = MAS - Anchorage
SUB = Subcontract

MultiChem ANALYTICAL SERVICES

560 Naches Ave. SW Suite 1 Renton, WA 98055
(800) 609-0580 ◆ (425) 228-8335 ◆ FAX (425) 228-8336

LAB NUMBER: 001071

DATE: 1/14/00
PAGE: 1 of 1

COMPANY: Hart Crowser
ADDRESS: 1910 Fairview Ave E. Seattle, WA 98102
PHONE: (206) 324-9530 FAX (206) 328-5581
PROJ. MGR / CONTACT: Elisabeth Black
PROJECT NUMBER: 7057-12
PROJECT NAME: Gorst Landfill
DISPOSAL: ☒ MAS ☐ HOLD ☐ RETURN

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TPH-HCID	BETX / TPH-G BETX / AK101	BETX (by 8021)	TPH-G	TPH-D TPHO-extended	8015 modified	418.1	413.2	AK-GRO AK101	AK-DRO AK102 / 103	8240 / 8260 GCMS Volatiles (CLP)	8270 GCMS Semivolatiles (CLP)	8081 Pesticides / PCBs	PCB only (by 8081) STO / LL	8021 Halogenated VOCs	8021 Aromatic VOCs	8310 HPLC PAHs	8041 Phenols	8151 OC Herbicides	Metals indicate below*	Total / Dissolved Lead	RCRA Metals (8)	PP Metals (13) (total/Dis)	TAL Metals (23)	TCLP 8240 (ZHE)	TCLP 8270 Semivolatiles	TCLP 8081 Pesticides	TCLP 8151 Herbicides	TCLP Metals	TSS					Total # of Containers
G-L-GW-BR-11	01/14	11:15	Water	1											X	X		X									X								X					9
G-L-GW-BR-12	01/14	11:15	Water	2											X	X		X									X								X					9

SAMPLE RECEIPT
TOTAL # OF CONTAINERS: ☐ YES ☐ NO
CHAIN OF CUSTODY: ☐ YES ☐ NO
SAMPLES INTACT: ☐ YES ☐ NO
COOLER INTACT: ☐ YES ☐ NO
PRESERVATION: ☐ YES ☐ NO

TAT:
☐ 24 HOURS
☐ 48 HOURS
☐ 72 HOURS
☐ 7 DAYS
☐ SP
☒ STANDARD

SPECIAL INSTRUCTIONS/COMMENTS:

*METALS NEEDED:

RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:
SIGNATURE: E. Black	SIGNATURE:	SIGNATURE:
PRINT NAME: Elisabeth Black	PRINT NAME:	PRINT NAME:
DATE: 01-14 TIME: 14:45	DATE: TIME:	DATE: TIME:
COMPANY: Hart Crowser	COMPANY:	COMPANY:
RECEIVED BY:	**RECEIVED BY:**	**RECEIVED BY:**
SIGNATURE: Susan Snyder	SIGNATURE:	SIGNATURE:
PRINT NAME: Susan Snyder	PRINT NAME:	PRINT NAME:
DATE: 1/14/00 TIME: 12:45	DATE: TIME:	DATE: TIME:
COMPANY: MCS-INA	COMPANY:	COMPANY:

MAS USE ONLY SUBCONTRACT LAB: COST:

NON-CONFORMANCES?
Y (N)
(if Y see other side)

MultiChem Analytical Services
SAMPLE LOG-IN CHECKLIST

DATE: 01/14/00
TIME: 1555
INITIALS: CR

ACCESSION NO. 001041
CLIENT: Hart Crowser
PROJECT: Gorst Landfill

Shipping:

Type:
- ✓ Cooler
- Box
- Other

COC Seals:
- ✓ Ship. Cont.
- On Bottles
- None

Intact?
- (Y) N
- Y N

Packing Material:
- Styrofoam
- Bubble Bags
- Foam Vial Packs
- Other

None

Refrigerant:
- ✓ Gel Ice Pack
- Loose Ice
- Other
- None

Frozen?
- (Y) N
- Y N
- Y N

Received Via:
- Hand Delivery
- Federal Express
- Airborne
- Other
- Courier
- UPS
- Taxi
- Goldstreak

Sample Information:

Samp. #	Bottle #	Type
2	CL-14 2R1 8	Soil / Water / Product / Other

Soil VOAs / Water VOAs

0 headspace Y N N
0 headspace (Y) N N
Preserved? (Y) N
Trip blanks? Y (N)

Condition of Samples:
Containers:
Intact? (Bottle/Lid) (Y) N
Correct Type? (Y) N

CA #

Waters Preserved? (if needed) (Y) N N

ID's Match C.O.C. (Y) N N

Temperature: 57 C CA NO.
(See corrective action on reverse side for explanation if temperature is outside of the MAS recommended range.)

LAB USE ONLY: ☐ NO NOTICE ☐ SEND OTHER NEEDED BY
☐ COC/TAG DOES NOT MATCH NOTICE ☐ NEED TESTS VERIFIED BY CLIENT

COMMENTS:

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.: 00101

A0120-PCBBLK

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: A0120-PCBBLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: R1261E30

% Moisture: _____ decanted: (Y/N)___ Date Collected: _____

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/20/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/27/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
1114-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U
	Total Aroclor Concentration	1.0	U

FORM I SV

02/17/00
JR 2/16/00

FORM 2
WATER SEMIVOLATILE SURROGATE RECOVERY

00001

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

GC Column(1): DB-1701 ID: 0.53 (mm) GC Column(2): DB608 ID: 0.53 (mm)

	Client SAMPLE NO.	S1 1 %REC #	S1 2 %REC #	S2 1 %REC #	S2 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	A0120-PCBBLK	64	74	79	83			0
02	A0120-PCBBLK	62	71	79	83			0
03	A0120-PCBBLK	62	72	79	85			0
04	GL-GW-BR-11	64	74	69	73			0
05	GL-GW-BR-12	63	73	69	75			0
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

		QC LIMITS
S1	= TCMX	(29-116)
S2	= DCBP	(20-161)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

2/17/00
JK 2/16/00

FORM 3
WATER SEMIVOLATILE BLANK SPIKE RECOVERY

00002

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix Spike - Client Sample No.: A0120-PCB

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BS CONCENTRATION (ug/L)	BS % REC #	QC. LIMITS REC.
Aroclor-1016	5.00	0.000	4.64	93	50-150
Aroclor-1260	5.00	0.000	4.25	85	60-144

COMPOUND	SPIKE ADDED (ug/L)	BSD CONCENTRATION (ug/L)	BSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor-1016	5.00	4.42	88	5	20	50-150
Aroclor-1260	5.00	4.42	88	4	20	60-144

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

COMMENTS:

FORM III SV

2/17/00
JK 2/16/00

MultiChem

GC/MS VOLATILES
CLP OLM03.2

Raw Data Deliverable

SDG: 001041

MAS I.D. # 001041

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : Gorst Landfill

CASE NARRATIVE: VOLATILE ORGANICS ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

Based on the relative retention times of the compounds dibromochloromethane and bromoform, MultiChem associates them with the internal standard chlorobenzene-d5 instead of the contract stated internal standard of 1,4-difluorobenzene. In addition, the compound 4-methyl-2-pentanone is associated with the internal standard 1,4-difluorobenzene instead of the contract stated internal standard of chlorobenzene-d5.

The target compound acetone fell outside of contract stated percent difference range of ± 25% in the continuing calibration verification sample analyzed on January 18, 2000. Since this compound is not a continuing calibration compound (ccc), no further corrective action was performed

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

00050
EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLK0118A

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: VBLK0118A

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B1434

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 01/18/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-GW-BR-12

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: 001041-2

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B1437

Level: (low/med) LOW Date Received: 01/14/00

% Moisture: not dec. _____ Date Analyzed: 01/18/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	SK 1/18/00 ~~0.9~~	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
00008
GL-GW-BR-11

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: 001041-1

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: B1436

Level: (low/med) LOW Date Received: 01/14/00

% Moisture: not dec. _____ Date Analyzed: 01/18/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

3A
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

C0002

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix Spike - EPA Sample No.: GL-GW-BR-11

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	0.0	50	100	61-145
Trichloroethene	50	0.0	49	98	71-120
Benzene	50	0.0	49	98	76-127
Toluene	50	0.0	49	98	76-125
Chlorobenzene	50	0.0	50	100	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	50	46	92	8	14	61-145
Trichloroethene	50	46	92	6	14	71-120
Benzene	50	46	92	6	11	76-127
Toluene	50	47	94	4	13	76-125
Chlorobenzene	50	49	98	2	13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

AM 1/18/00
SL 1/19/00

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix Spike - EPA Sample No.: VBLK0118A

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	0.0	45	90	61-145
Trichloroethene	50	0.0	45	90	71-120
Benzene	50	0.0	46	92	76-127
Toluene	50	0.0	47	94	76-125
Chlorobenzene	50	0.0	48	96	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS:

AM 1/18/00
SL 1/18/00

MultiChem

GC/MS SEMIVOLATILES
CLP OLM 3.0

Raw Data Deliverable

Accession: 001041

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 001041

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : Gorst Landfill

CASE NARRATIVE: SEMIVOLATILE ORGANICS ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

Bis(2-ethylhexyl) phthalate was detected in the method blank at a concentration below the reporting limit. This value was flagged "J" for reporting purposes and should be considered estimated. Any sample results demonstrating the presence of this compound have been flagged "B" to denote its presence in the associated method blank.

Due to insufficient sample volume, a blank spike/blank spike duplicate (BS/BSD) was extracted and analyzed in lieu of a matrix spike/matrix spike duplicate (MS/MSD).

In the initial calibration the percent relative standard deviation (RSD) for 1,2-dichlorobenzene, 4-chlorophenyl-phenylether, fluorene, and acenaphthene exceeded 20 percent. Since the OLM3.0 statement of work (SOW) permits up to four continuing calibration compounds (CCC) to exceed RPD limits, technical acceptance criteria were met.

In the continuing calibration verification (CCV) analyzed on January 24, 2000, the relative response factors (RRF) for continuing calibration compounds (CCC) 4-methylphenol and benzo(g,h,i)perylene differed from the initial calibration by more than 20 percent. Since no more than four CCCs exceeded 25 percent and since the percent deviation for each RRF fell between 25 and 40 percent, technical acceptance criteria were met.

The relative percent difference (RPD) for spiking compound n-nitroso-di-n-propylamine exceeded control limits in the analysis of the BS/BSD. The recoveries for all matrix spike analytes in the BS were all within control.

The recovery of the matrix spiking compound 4-nitrophenol exceeded control limits in the analysis of the BSD. Since efficiences of between 80 and 100 percent have been consistently demonstrated for this analyte by continuous liquid-liquid extraction, no further corrective action was performed.

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	A0117WBLK	72	74	64	81	61	75	80	64	0
02	A0117WBLKBS	70	70	58	75	59	72	69	62	0
03	A0117WBLKBSD	74	74	66	81	65	83	76	64	0
04	GL-SW-BR-11	74	76	66	81	60	77	80	68	0
05	GL-GW-BR-12	74	76	68	83	64	81	81	68	0
06										
07										
08										
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		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(35-114)	
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)	
S3 (TPH)	= Terphenyl-d14	(33-141)	
S4 (PHL)	= Phenol-d5	(10-110)	
S5 (2FP)	= 2-Fluorophenol	(21-110)	
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)	
S7 (2CP)	= 2-Chlorophenol-d4	(33-110)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(16-110)	(advisory)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

PL 2.7.00

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix Spike - EPA Sample No.: A0117WBLK

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Phenol	75	0.0	48	64	12-110
2-Chlorophenol	75	0.0	48	64	27-123
1,4-Dichlorobenzene	50	0.0	33	66	36- 97
N-Nitroso-di-n-prop.(1)	50	0.0	33	66	41-116
1,2,4-Trichlorobenzene	50	0.0	38	76	39- 98
4-Chloro-3-Methylphenol	75	0.0	49	65	23- 97
Acenaphthene	50	0.0	39	78	46-118
4-Nitrophenol	75	0.0	59	79	10- 80
2,4-Dinitrotoluene	50	0.0	37	74	24- 96
Pentachlorophenol	75	0.0	61	81	9-103
Pyrene	50	0.0	32	64	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	75	52	69	8	42	12-110
2-Chlorophenol	75	52	69	8	40	27-123
1,4-Dichlorobenzene	50	35	70	6	28	36- 97
N-Nitroso-di-n-prop.(1)	50	51	102	43*	38	41-116
1,2,4-Trichlorobenzene	50	41	82	8	28	39- 98
4-Chloro-3-Methylphenol	75	56	75	14	42	23- 97
Acenaphthene	50	42	84	7	31	46-118
4-Nitrophenol	75	64	85*	7	50	10- 80
2,4-Dinitrotoluene	50	40	80	8	38	24- 96
Pentachlorophenol	75	69	92	13	50	9-103
Pyrene	50	35	70	9	31	26-127

(1) N-Nitroso-di-n-propylamine
Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 1 out of 11 outside limits
Spike Recovery: 1 out of 22 outside limits

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 0095

A0117WBLK

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: A0117WBLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6724

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A0117WBLK

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: A0117WBLK

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6724

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	0.5	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

PL 2-9-00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SW-BR-11

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: 001041-1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6729

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-~~SW~~G-BR-11

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: 001041-1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6729

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~2 BJ~~	10 u
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

3/2/00 JHL

(1) - Cannot be separated from Diphenylamine

PL 2-8-00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-GW-BR-12

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: 001041-2

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6730

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-GW-BR-12

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: 001041-2

Sample wt/vol: 1000 (g/mL) ML Lab File ID: J6730

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 01/17/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/24/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~3~~	~~BJ~~ 10U
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

3/2/00 JAL

MultiChem

EPA 8082

Raw Data Deliverable

Accession: 001041

MAS I.D. # 001041

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : Gorst Landfill

CASE NARRATIVE: POLYCHLORINATED BIPHENYLS (PCBs)

There were no anomalies associated with the preparation and/or analysis of the samples in this accession.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-GW-BR-11

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: 001041-1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: R1261E33

% Moisture: _____ decanted: (Y/N)___ Date Collected: 01/14/00

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/20/00 -DF

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/27/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
1114-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U
----------	Total Aroclor Concentration	1.0	U

PS 02/17/00
JK 2/16/00

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-GW-BR-12

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001041

Matrix: (soil/water) WATER Lab Sample ID: 001041-2

Sample wt/vol: 1000 (g/mL) ML Lab File ID: R1261E34

% Moisture: _____ decanted: (Y/N)___ Date Collected: 01/14/00

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/20/00 - OK

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/27/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
1114-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U
	Total Aroclor Concentration	1.0	U

PS 02/17/00
JK 2/16/00

MultiChem

METALS ANALYSES

Raw Data Deliverable

Accession: 001041

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 001041

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : Gorst Landfill

CASE NARRATIVE: METALS ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

On the GF run of February 10, 2000, for selenium, the analytical spike recovery on the blank spike was out of control. Since all other recoveries were in control this was deemed to be an isolated autosampler malfunction. The affected samples were 001041-1 (GL-GW-BR-11) and 001041-2 (GL-GW-BR-12).

All other associate quality assurance/quality control parameters were within established MultiChem control limits.

INORGANICS SW-846

00001

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLGWBR11

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Matrix (soil/water): WATER

Lab Sample ID: 001041-1

% Solids: _____

Date Received: 01/14/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	3.0	U		F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	5.0	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - IN

INORGANICS SW-846

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLGWBR11

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Matrix (soil/water): WATER

Lab Sample ID: 001041-1T

% Solids: _____

Date Received: 01/14/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	3.0	U		F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	5.0	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - IN

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLGWBR12

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Matrix (soil/water): WATER

Lab Sample ID: 001041-2

% Solids:

Date Received: 01/14/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	3.0	U		F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U	W	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	5.0	U	W	F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

2121100

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

INORGANICS SW-846

00004

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLGWBR12

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Matrix (soil/water): WATER

Lab Sample ID: 001041-2T

% Solids: _____

Date Received: 01/14/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U	W	F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	3.0	U		F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U	W	F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	5.0	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

SL 2/21/00

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - IN

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	200.0	U	200.0	U	200.0	U					P
Antimony	50.0	U	50.0	U	50.0	U			50.000	U	P
Arsenic	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	F
Barium											
Beryllium	5.0	U	5.0	U	5.0	U			5.000	U	P
Cadmium	5.0	U	5.0	U	5.0	U			5.000	U	P
Calcium	100.0	U	100.0	U	100.0	U					P
Chromium	10.0	U	10.0	U	10.0	U			10.000	U	P
Cobalt											
Copper	10.0	U	10.0	U	10.0	U			10.000	U	P
Iron	50.0	U	50.0	U	50.0	U					P
Lead	3.0	U	3.0	U	3.0	U	3.0	U	3.000	U	F
Magnesium	50.0	U	50.0	U	50.0	U					P
Manganese											
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.200	U	CV
Nickel	10.0	U	10.0	U	10.0	U			10.000	U	P
Potassium											
Selenium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	F
Silver	10.0	U	10.0	U	10.0	U			10.000	U	P
Sodium											
Thallium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	F
Vanadium											
Zinc	10.0	U	10.0	U	10.0	U			10.000	U	P
Cyanide											

INORGANICS SW-846

3
BLANKS

00014

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic			5.0	U	5.0	U	5.0	U			F
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead			3.0	U	3.0	U					F
Magnesium											
Manganese											
Mercury			0.2	U							CV
Nickel											
Potassium											
Selenium			5.0	U	5.0	U	5.0	U			F
Silver											
Sodium											
Thallium			5.0	U	5.0	U					F
Vanadium											
Zinc											
Cyanide											

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic	5.0	U	5.0	U							F
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium			5.0	U	5.0	U	5.0	U			F
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium			5.0	U	5.0	U					F
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

INORGANICS SW-846

5A
SPIKE SAMPLE RECOVERY

CLIENT ID

00102601S

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Matrix (soil/water): WATER

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury	73-140	2.1000		0.2000		2.00	95.0		CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

INORGANICS SW-846

5A
SPIKE SAMPLE RECOVERY

00013

CLIENT ID

GLGWBR11S

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Matrix (soil/water): WATER

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	74-115	912.7700		50.0000	U	1000.00	91.3		P
Arsenic	49-144	23.9150	B	5.0000	U	25.00	95.7		F
Barium									NR
Beryllium	70-120	893.0000		5.0000	U	1000.00	89.3		P
Cadmium	85-115	935.6433		5.0000	U	1000.00	93.6		P
Calcium									NR
Chromium	76-113	933.7767		10.0000	U	1000.00	93.4		P
Cobalt									NR
Copper	76-112	912.0267		10.0000	U	1000.00	91.2		P
Iron									NR
Lead	78-115	24.2700		3.0000	U	25.00	97.1		F
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel	74-112	900.2467		10.0000	U	1000.00	90.0		P
Potassium									NR
Selenium	48-124	24.7600	B	5.0000	U	25.00	99.0		F
Silver	83-117	988.5067		10.0000	U	1000.00	98.9		P
Sodium									NR
Thallium	55-121	22.7650	B	5.0000	U	25.00	91.1		F
Vanadium									NR
Zinc	75-117	927.8567		10.0000	U	1000.00	92.8		P
Cyanide									NR

8 2/21/00

Comments:

Form V (Part 1) - IN

INORGANICS SW-846

6
DUPLICATES

CLIENT ID

00102601D

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Matrix (soil/water): WATER

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury		0.2000		0.2000	U	200.0		CV
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide								NR

INORGANICS SW-846

6
DUPLICATES

00021

CLIENT ID

GLGWBR11D

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Matrix (soil/water): WATER

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony		50.0000	U	50.0000	U			P
Arsenic		5.0000	U	5.0000	U			F
Barium								NR
Beryllium		5.0000	U	5.0000	U			P
Cadmium		5.0000	U	5.0000	U			P
Calcium								NR
Chromium		10.0000	U	10.0000	U			P
Cobalt								NR
Copper		10.0000	U	10.0000	U			P
Iron								NR
Lead		3.0000	U	3.0000	U			F
Magnesium								NR
Manganese								NR
Mercury								NR
Nickel		10.0000	U	10.0000	U			P
Potassium								NR
Selenium		5.0000	U	5.0000	U			F
Silver		10.0000	U	10.0000	U			P
Sodium								NR
Thallium		5.0000	U	5.0000	U			F
Vanadium								NR
Zinc		10.0000	U	10.0000	U			P
Cyanide								NR

INORGANICS SW-846

7

LABORATORY CONTROL SAMPLE

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001041

Solid LCS Source: _____

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony	1000.0	988.7	98.9						
Arsenic	25.0	23.5	94.0						
Barium									
Beryllium	1000.0	961.4	96.1						
Cadmium	1000.0	1011.4	101.1						
Calcium									
Chromium	1000.0	1014.9	101.5						
Cobalt									
Copper	1000.0	999.7	100.0						
Iron									
Lead	25.0	22.7	90.8						
Magnesium									
Manganese									
Mercury	2.0	2.0	100.0						
Nickel	1000.0	984.4	98.4						
Potassium									
Selenium	25.0	24.8	99.2						
Silver	1000.0	1037.9	103.8						
Sodium									
Thallium	25.0	23.4	93.6						
Vanadium									
Zinc	1000.0	1004.7	100.5						
Cyanide									

MultiChem

INORGANICS ANALYSES

Raw Data Deliverable

ACCESSION: 001041

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 001041

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : Gorst Landfill

CASE NARRATIVE: GENERAL CHEMISTRY ANALYSIS

There were no anomalies associated with the preparation and/or analysis of the samples in this accession.

INORGANICS SW-846

0001

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GL-GW-BR-11

Lab Name: MULTICHEM

SDG No.: 01041

Matrix (soil/water): WATER

Lab Sample ID: 001041-1

% Solids:

Date Received: 01/14/00

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

CAS No.	Analyte	Concentration	C	Q	M
	TDS				NR
	TSS	10.0	U		GR

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

INORGANICS SW-846

0002

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GL-GW-BR-12

Lab Name: MULTICHEM

SDG No.: 01041

Matrix (soil/water): WATER

Lab Sample ID: 001041-2

% Solids:

Date Received: 01/14/00

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

CAS No.	Analyte	Concentration	C	Q	M
	TDS				NR
	TSS	10.0	U		GR

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

INORGANICS SW-846

6
DUPLICATES

0003

CLIENT ID

GL-GW-BR-11

Lab Name: MULTICHEM

SDG No.: 01041

Matrix (soil/water): WATER

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
TDS								NR
TSS		10.0000	U	10.0000	U	N/C		GR

FORM VI - IN

INORGANICS SW-846

7

LABORATORY CONTROL SAMPLE

Lab Name: MULTICHEM

SDG No.: 01041

Solid LCS Source:

Aqueous LCS Source: APG

BL 7/22/00

Analyte	Aqueous (~~ug/L~~ mg/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
TDS									
TSS	130.0	109.0	83.8						

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 001025

February 25, 2000

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle WA 98102-3699

Attention : Elisabeth Black

Project Number : J-7057-12

Project Name : Gorst Landfill

Dear Ms. Black:

On January 12, 2000, MultiChem Analytical Services received 12 samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Sincerely,

Susan M. Snyder
Project Manager

SMS/hal/trm

Enclosure

560 Naches Avenue SW, Suite 101, Renton, Washington 98055-2200 • 425-228-8335 • FAX 425-228-8336 • 1-800-609-0580 • info@multichem.com

MAS I.D. # 001025

MultiChem
ANALYTICAL SERVICES

SAMPLE CROSS REFERENCE SHEET

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

MAS #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
001025-1	GL-SS-01	01/10/00	SOIL
001025-2	GL-SS-02	01/10/00	SOIL
001025-3	GL-SS-03	01/10/00	SOIL
001025-4	GL-SS-04	01/10/00	SOIL
001025-5	GL-SS-05	01/10/00	SOIL
001025-6	GL-SS-06	01/10/00	SOIL
001025-7	GL-SS-07	01/10/00	SOIL
001025-8	GL-SS-08	01/10/00	SOIL
001025-9	GL-SED-01	01/10/00	SEDIMENT
001025-10	GL-SED-02	01/11/00	SEDIMENT
001025-11	GL-SED-03	01/11/00	SEDIMENT
001025-12	GL-SED-04	01/11/00	SEDIMENT

----- TOTALS -----

MATRIX	# SAMPLES
SEDIMENT	4
SOIL	8

MAS STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

MAS I.D. # 001025

MultiChem
ANALYTICAL SERVICES

ANALYTICAL SCHEDULE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

ANALYSIS	TECHNIQUE	REFERENCE	LAB
VOLATILE ORGANICS ANALYSIS	GCMS	EPA 8260B	R
SEMIVOLATILE ORGANICS ANALYSISS	GCMS	EPA 8270	R
ORGANOCHLORINE PESTICIDES & PCBs	GC/ECD	EPA 8081A/8082	R
TOTAL PETROLEUM HYDROCARBONS: GAS	GC/FID	NWTPH-Gx	R
TOTAL PETROLEUM HYDROCARBONS: DIESEL	GC/FID	NWTPH-Dx	R
ANTIMONY	ICAP	EPA 6010	R
ARSENIC	AA/GF	EPA 7060	R
BERYLLIUM	ICAP	EPA 6010	R
ADMIUM	ICAP	EPA 6010	R
CHROMIUM	ICAP	EPA 6010	R
COPPER	ICAP	EPA 6010	R
LEAD	ICAP	EPA 6010	R
MERCURY	AA/COLD VAPOR	EPA 7470A	R
NICKEL	ICAP	EPA 6010	R
SELENIUM	AA/GF	EPA 7740	R
SILVER	ICAP	EPA 6010	R
THALLIUM	AA/GF	EPA 7841	R
ZINC	ICAP	EPA 6010	R
TOTAL ORGANIC CARBON	TOC ANALYZER	EPA 9060M	R
MOISTURE	GRAVIMETRIC	CLP SOW OLM4.0	R

R = MAS - Renton
ANC = MAS - Anchorage
SUB = Subcontract

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 001025

GENERAL CHEMISTRY ANALYSIS

CLIENT : HART CROWSER, INC. MATRIX : SOIL/SEDIMENT
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

PARAMETER	DATE ANALYZED
MOISTURE	01/18/00

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 001025

GENERAL CHEMISTRY ANALYSIS
DATA SUMMARY

CLIENT : HART CROWSER, INC. MATRIX : SOIL/SEDIMENT
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL UNITS : %

MAS I.D. #	CLIENT I.D.	MOISTURE
001025-1	GL-SS-01	25
001025-2	GL-SS-02	15
001025-3	GL-SS-03	15
001025-4	GL-SS-04	11
001025-5	GL-SS-05	8.4
001025-6	GL-SS-06	18
001025-7	GL-SS-07	17
001025-8	GL-SS-08	17
001025-9	GL-SED-01	23
001025-10	GL-SED-02	48
001025-11	GL-SED-03	18
001025-12	GL-SED-04	18

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ANALYTICAL SERVICES

MAS I.D. # 001025

GENERAL CHEMISTRY ANALYSIS
QUALITY CONTROL DATA

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

MATRIX : SOIL/SEDIMENT
UNITS : %

PARAMETER	MAS I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
MOISTURE	001025-3	15	15	0	N/A	N/A	N/A
MOISTURE	001025-5	8.4	8.3	1	N/A	N/A	N/A

CONTROL LIMITS	RPD
MOISTURE	31

MultiChem ANALYTICAL SERVICES

560 Naches Ave. SW Suite 1 Renton, WA 98055
(800) 609-0580 • (425) 228-8335 • FAX (425) 228-8336

LAB NUMBER: 001103

01/11/00

COMPANY: Hart Crowser
ADDRESS: 1910 Fairview Ave E
Seattle, WA 98102
PHONE: (206) 324-9550 FAX (206) 328-5581
PROJ. MGR / CONTACT: Elisabeth Black
PROJECT NUMBER: J-7057-12
PROJECT NAME: Gorst Landfill
DISPOSAL: ☒ MAS ☐ HOLD ☐ RETURN

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TPH-HCID	BETX / TPH-G BETX / AK101	BETX (by 8021)	TPH-G	TPH-D TPHD-extended	8015 modified	418.1	413.2	AK-GRO AK101	AK-DRO AK102 / 103	8240 / 8260 GCMS Volatiles (CLP)	8270 GCMS Semivolatiles (CLP)	8081 Pesticides / PCBs	PCB only (by 8081) STD / LL	8021 Halogenated VOCs	8021 Aromatic VOCs	8310 HPLC PAHs	8041 Phenols	8151 OC Herbicides	Metals indicate below*	Total / Dissolved Lead	RCRA Metals (8)	PP Metals (13)	TAL Metals (23)	TCLP 8240 (ZHE)	TCLP 8270 Semivolatiles	TCLP 8081 Pesticides	TCLP 8151 Herbicides	TCLP Metals	TCP					Total # of Containers
GL-SS-01	01/10		Soil	1				X	X						X	X	X										X						X						2
GL-SS-02	↓		↓	2				X	X						X	X	X										X						X						2
GL-SS-03				3				X	X						X	X	X										X						X						2
GL-SS-04				4				X	X						X	X	X										X						X						2
GL-SS-05				5				X	X						X	X	X										X						X						2
GL-SS-06				6				X	X						X	X	X										X						X						2
GL-SS-07				7				X	X						X	X	X										X						X						2
GL-SS-08			↓	8				X	X						X	X	X										X						X						2
GL-SED-01	↓		Sed	9				X	X						X	X	X										X		X				X	X					6
GL-SED-02	01/11			10				X	X						X	X	X										X		X				X	X					6
GL-SED-03	↓			11				X	X						X	X	X										X		X				X	X					6
GL-SED-04	↓		↓	12				X	X						X	X	X										X		X				X	X					6

SAMPLE RECEIPT
TOTAL # OF CONTAINERS: ☐ YES ☐ NO
CHAIN OF CUSTODY SEALS: ☐ YES ☐ NO
SAMPLES INTACT: ☐ YES ☐ NO
CUSTODY SEALS INTACT: ☐ YES ☐ NO
COOLER TEMPERATURE: ☐ YES ☐ NO
CHAIN OF CUSTODY: ☐ YES ☐ NO
COMMENTS:

TAT:
☐ 24 HOURS
☐ 48 HOURS
☐ 72 HOURS
☐ 7 DAYS
☐ SP
☒ STANDARD

RELINQUISHED BY:	RELINQUISHED BY:	RELINQUISHED BY:
SIGNATURE: E. Black	SIGNATURE: Mike Ryan	SIGNATURE:
PRINT NAME: Elisabeth Black	PRINT NAME: MIKE RYAN	PRINT NAME:
DATE: 01-12-00 TIME: 11:30	DATE: 1-12-00 TIME: 12:05	DATE: TIME:
COMPANY: Hart Crowser	COMPANY: GOLDSTAR	COMPANY:
RECEIVED BY:	**RECEIVED BY:**	**RECEIVED BY:**
SIGNATURE: Mike Ryan	SIGNATURE:	SIGNATURE:
PRINT NAME: MIKE RYAN	PRINT NAME:	PRINT NAME:
DATE: 1-12-00 TIME: 1145	DATE: TIME:	DATE: TIME:
COMPANY: GOLDSTAR	COMPANY:	COMPANY:
LAB USE ONLY	SUBCONTRACT LAB	

SPECIAL INSTRUCTIONS/COMMENTS:

OK/PH

*METALS NEEDED:

NON-CONFORMANCES?
Y N _____
(if Y see other side)

MultiChem Analytical Services
SAMPLE LOG-IN CHECKLIST

DATE: 01/12/00
TIME: 1225
INITIALS: CR

ACCESSION NO. 0011025
CLIENT: Hart Crowser
PROJECT: Gurst Landfill

Shipping:

Type:
✓ Cooler
_____ Box
_____ Other

COC Seals:
✓ Ship. Cont.
_____ On Bottles
_____ None

Intact?
(Y) N
Y N

Packing Material: None
_____ Styrofoam
_____ Bubble Bags
_____ Foam Vial Packs
_____ Other _____

Refrigerant:
✓ Gel Ice Pack
_____ Loose Ice
_____ Other
_____ None

Frozen?
(Y) N
Y N
Y N

Received Via:
_____ Hand Delivery
_____ Federal Express
_____ Airborne
_____ Other: _____
✓ Courier
_____ UPS
_____ Taxi
_____ Goldstreak

Sample Information:

Samp. #	Bottle #	Type			
12	64	(Soil)	Soil VOAs	0 headspace Y N N	_____
_____	_____	Water	Water VOAs	0 headspace Y N N	_____
_____	_____	Product		Preserved? Y N	_____
_____	_____	Other		Trip blanks? Y N	_____

Condition of Samples:
Containers:
Intact? (Bottle/Lid) (Y) N
Correct Type? (Y) N

CA # _____
_____

Waters Preserved? (if needed) Y N N _____

ID's Match C.O.C. (Y) N N _____

Temperature: 30 C _____ CA NO.
(See corrective action on reverse side for explanation if temperature is outside of the MAS recommended range.)

LAB USE ONLY: ☐ NO NOTICE ☐ SEND OUTS NEEDED BY
☐ COC/TAT DOES NOT MATCH NOTICE ☐ NEED TESTS VERIFIED BY CLIENT

COMMENTS: no sampling times on COC

MultiChem

NWTPHDE

Raw Data Deliverable

Accession: 001025

MAS I.D. # 001025

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

CASE NARRATIVE: TOTAL PETROLEUM HYDROCARBONS ANALYSIS - DIESEL

There were no anomalies associated with the preparation and/or analysis of the samples in this accession.

FORM 2
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Level:(low/med) LOW

	Client SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	B0114SBLK	100								0
02	B0114SBLKBS	104								0
03	GL-SS-01	98								0
04	GL-SS-02	99								0
05	GL-SS-03	100								0
06	GL-SS-04	100								0
07	GL-SS-05	100								0
08	GL-SS-06	100								0
09	GL-SS-07	98								0
10	GL-SS-07DUP	100								0
11	GL-SS-07MS	103								0
12	GL-SS-07MSD	101								0
13	GL-SS-08	102								0
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

S1 = o-terphenyl QC LIMITS (70-132)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

FORM 2
SEDIMENT SEMIVOLATILE SURROGATE RECOVERY

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Level: (low/med) LOW

	Client SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	GL-SED-01	96								0
02	GL-SED-02	85								0
03	GL-SED-04	100								0
04	GL-SED-03	104								0
05										
06										
07										
08										
09										
10										
11										
12										
13										
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24										
25										
26										
27										
28										
29										
30										

S1 = o-terphenyl QC LIMITS (70-132)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

FORM 3
SOIL SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix Spike - Client Sample No.: B0114SBLK Level:(low/med) LOW

COMPOUND	SPIKE ADDED (mg/Kg)	BLANK CONCENTRATION (mg/Kg)	BS CONCENTRATION (mg/Kg)	BS % REC #	QC. LIMITS REC.
DIESEL C12-C24	200	0.000	216	108	72-118

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 1 outside limits

COMMENTS:

FORM 3
SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix Spike - Client Sample No.: GL-SS-07 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (mg/Kg)	SAMPLE CONCENTRATION (mg/Kg)	MS CONCENTRATION (mg/Kg)	MS % REC #	QC. LIMITS REC.
DIESEL C12-C24	241	0.000	234	97	59-126

COMPOUND	SPIKE ADDED (mg/Kg)	MSD CONCENTRATION (mg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
DIESEL C12-C24	241	235	98	0	22	59-126

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS: _____

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.: B0114SBLK

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: B0114-TPHD-BLK

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A06

Level: (low/med) LOW Date Collected: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/17/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	10	U
	MOTOR OIL C24-C34	40	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE No. 00008

GL-SS-01

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-1

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A08

Level: (low/med) LOW Date Collected: 01/10/00

% Moisture: 25 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/17/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	14	
	MOTOR OIL C24-C34	130	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-02

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-2

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A09

Level: (low/med) LOW Date Collected: 01/10/00

% Moisture: 15 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/17/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	14	
	MOTOR OIL C24-C34	110	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-03

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-3

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A10

Level: (low/med) LOW Date Collected: 01/10/00

% Moisture: 15 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/17/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	64	
	MOTOR OIL C24-C34	190	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-04

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-4

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A11

Level: (low/med) LOW Date Collected: 01/10/00

% Moisture: 11 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10 (mL) Date Analyzed: 01/17/00

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	26	
	MOTOR OIL C24-C34	140	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-05

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-5

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A12

Level: (low/med) LOW Date Collected: 01/10/00

% Moisture: 8 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/17/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	11	U
	MOTOR OIL C24-C34	44	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-06

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-6

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A13

Level: (low/med) LOW Date Collected: 01/10/00

% Moisture: 18 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/17/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	12	U
	MOTOR OIL C24-C34	49	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-07

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-7

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A14

Level: (low/med) LOW Date Collected: 01/10/00

% Moisture: 17 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/17/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	12	U
	MOTOR OIL C24-C34	48	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-08

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-8

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A22

Level: (low/med) LOW Date Collected: 01/10/00

% Moisture: 17 decanted: (Y/N) N Date Extracted:01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/18/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	12	U
	MOTOR OIL C24-C34	48	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SED-01

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-9

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A23

Level: (low/med) LOW Date Collected: 01/10/00

% Moisture: 23 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/18/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	13	U
	MOTOR OIL C24-C34	52	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SED-02

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-10

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A24

Level: (low/med) LOW Date Collected: 01/11/00

% Moisture: 48 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/18/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	----------DIESEL C12-C24	44	
	----------MOTOR OIL C24-C34	400	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SED-03

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-11

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A27

Level: (low/med) LOW Date Collected: 01/11/00

% Moisture: 18 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/18/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	12	U
	MOTOR OIL C24-C34	49	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SED-04

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-12

Sample wt/vol: 25.0 (g/mL) G Lab File ID: R1178A26

Level: (low/med) LOW Date Collected: 01/11/00

% Moisture: 18 decanted: (Y/N) N Date Extracted: 01/14/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/18/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	DIESEL C12-C24	12	U
	MOTOR OIL C24-C34	49	U

MultiChem

EPA 8081A/8082

Raw Data Deliverable

Accession: 001025

MultiChem
ANALYTICAL SERVICES

.AS I.D. # 001025

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

CASE NARRATIVE: ORGANOCHLORINE PESTICIDES & PCBs ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

The decachlorobiphenyl (DCBP) surrogate percent recoveries were below criteria for several of the samples, the tetrachloro-m-xylene (TCMX) percent recoveries were in control for all samples and quality control (QC).

The relative percent difference (RPD) for the polychlorinated biphenyls (PCB) matrix spikes (MS's) exceeded criteria, but both individual percent recoveries are in criteria.

Several of the samples contained both organochlorine pesticides (OCP) and PCB hits. The peaks used to calculate the PCB concentrations were picked to avoid interference with OCP analytes. Some of the OCP responses are affected by PCB co-elution. No further corrective action was performed.

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

FORM 2
SOIL PEST SURROGATE RECOVERY

0001

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

GC Column(1): RTX-CLP ID: 0.32 (mm)

	Client SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	A0113-BLK	65	67	60	61			0
02	A0113-BLKBS	60	64	55	56			0
03	A0113-BLKBS	50	53	50	51			0
04	GL-SS-01	62	64	55	51			0
05	GL-SS-02	68	70	45*	40*			2
06	GL-SS-03	59	60	46*	39*			2
07	GL-SS-04	57	59	46*	41*			2
08	GL-SS-05	52	55	48	43*			1
09	GL-SS-06	58	60	53	49			0
10	GL-SS-07	54	57	53	49			0
11	GL-SS-08	54	56	53	51			0
12	GL-SS-08MS	67	68	61	58			0
13	GL-SS-08MSD	59	61	55	53			0
14	GL-SS-08MS	70	71	64	61			0
15	GL-SS-08MSD	50	53	48	45*			1
16	GL-SED-01	78	81	70	68			0
17	GL-SED-02	85	84	51	45*			1
18	GL-SED-03	67	68	61	52			0
19	GL-SED-04	98	99	88	79			0
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

		QC LIMITS
S1 (TCX)	= Tetrachloro-m-xylene	(34-109)
S2 (DCB)	= Decachlorobiphenyl	(48-139)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

JK 2/22/00
KS 02/23/00

FORM 3
SEDIMENT PEST BLANK SPIKE RECOVERY

0002

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix Spike - Client Sample No.: A0113-BLK

COMPOUND	SPIKE ADDED (ug/Kg)	BLANK CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
gamma-BHC (Lindane)	16.7	0.000	12.6	75	44-100
Heptachlor	16.7	0.000	12.9	77	54-101
Aldrin	16.7	0.000	13.5	81	50-110
Dieldrin	33.3	0.000	32.2	97	60-112
Endrin	33.3	0.000	29.7	89	60-128
4,4'-DDT	33.3	0.000	33.3	100	50-123

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 6 outside limits

COMMENTS:

FORM III Pest

JL 2/23/00
PG 2/23/00

FORM 3
SOIL PEST BLANK SPIKE RECOVERY

0003

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix Spike - Client Sample No.: A0113-BLK

COMPOUND	SPIKE ADDED (ug/Kg)	BLANK CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
Aroclor 1016	333	0.000	216	65	50-150
Aroclor 1260	333	0.000	247	74	61-127

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS: _____

FORM III Pest

JL 2/22/00
PKS 2/23/00

FORM 3
SOIL PEST MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix Spike - Client Sample No.: GL-SS-08

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
gamma-BHC (Lindane)	20.2	0.000	15.5	77	34-113
Heptachlor	20.2	0.000	17.2	85	51-116
Aldrin	20.2	0.000	19.0	94	39-109
Dieldrin	40.4	0.000	42.3	105	39-119
Endrin	40.4	0.000	39.4	98	60-130
4,4'-DDT	40.4	0.000	44.3	110	47-125

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	20.2	14.3	71	8	25	34-113
Heptachlor	20.2	15.4	76	11	24	51-116
Aldrin	20.2	16.7	83	13	21	39-109
Dieldrin	40.4	38.7	96	9	26	39-119
Endrin	40.4	36.0	89	9	40	60-130
4,4'-DDT	40.4	40.1	99	10	27	47-125

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS:

2/23/00
2/23/00

FORM 3
SOIL PEST MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix Spike - Client Sample No.: GL-SS-08

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Aroclor 1016	404	0.000	367	91	50-150
Aroclor 1260	404	0.000	391	97	37-155

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor 1016	404	274	68	29*	26	50-150
Aroclor 1260	404	295	73	28*	26	37-155

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 2 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

COMMENTS:

JL 2/22/00
RES 02/23/00

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO. 635

A0113-BLK

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: A0113-BLK

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S06

% Moisture: 0 decanted: (Y/N) N Date Collected: _____

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/19/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.3	U
72-55-9	4,4'-DDE	3.3	U
72-20-8	Endrin	3.3	U
33213-65-9	Endosulfan II	3.3	U
72-54-8	4,4'-DDD	3.3	U
1031-07-8	Endosulfan sulfate	3.3	U
50-29-3	4,4'-DDT	3.3	U
72-43-5	Methoxychlor	17	U
53494-70-5	Endrin ketone	3.3	U
7421-93-4	Endrin aldehyde	3.3	U
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	1.7	U
12674-11-2	Aroclor 1016	33	U
11104-28-2	Aroclor 1221	33	U
11141-16-5	Aroclor 1232	33	U
53469-21-9	Aroclor 1242	33	U
12672-29-6	Aroclor 1248	33	U
11097-69-1	Aroclor 1254	33	U
11096-82-5	Aroclor 1260	33	U
8001-35-2	Toxaphene	33	U

JK 2/22/00
PKS 02/23/00

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SED-01

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-9

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S24

% Moisture: 23 decanted: (Y/N) N Date Collected: 01/10/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00 OK

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/20/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta-BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma-BHC (Lindane)	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.3	U
72-55-9	4,4'-DDE	4.3	U
72-20-8	Endrin	4.3	U
33213-65-9	Endosulfan II	4.3	U
72-54-8	4,4'-DDD	4.3	U
1031-07-8	Endosulfan sulfate	4.3	U
50-29-3	4,4'-DDT	4.3	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
7421-93-4	Endrin aldehyde	4.3	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
12674-11-2	Aroclor 1016	43	U
11104-28-2	Aroclor 1221	43	U
11141-16-5	Aroclor 1232	43	U
53469-21-9	Aroclor 1242	43	U
12672-29-6	Aroclor 1248	43	U
11097-69-1	Aroclor 1254	43	U
11096-82-5	Aroclor 1260	43	U
8001-35-2	Toxaphene	43	U

2/22/00
02/23/00

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SED-02

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-10

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S25

% Moisture: 48 decanted: (Y/N) N Date Collected: 01/11/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00 OK

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/20/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.2	U
319-85-7	beta-BHC	3.2	U
319-86-8	delta-BHC	3.2	U
58-89-9	gamma-BHC (Lindane)	3.2	U
76-44-8	Heptachlor	3.2	U
309-00-2	Aldrin	3.2	U
1024-57-3	Heptachlor epoxide	3.2	U
959-98-8	Endosulfan I	3.2	U
60-57-1	Dieldrin	6.4	U
72-55-9	4,4'-DDE	6.4	U
72-20-8	Endrin	6.4	U
33213-65-9	Endosulfan II	6.4	U
72-54-8	4,4'-DDD	6.4	U
1031-07-8	Endosulfan sulfate	6.4	U
50-29-3	4,4'-DDT	12	~~P~~ J
72-43-5	Methoxychlor	32	U
53494-70-5	Endrin ketone	6.4	U
7421-93-4	Endrin aldehyde	6.4	U
5103-71-9	alpha-Chlordane	3.2	U
5103-74-2	gamma-Chlordane	3.2	U
12674-11-2	Aroclor 1016	64	U
11104-28-2	Aroclor 1221	64	U
11141-16-5	Aroclor 1232	64	U
53469-21-9	Aroclor 1242	64	U
12672-29-6	Aroclor 1248	64	U
11097-69-1	Aroclor 1254	64	U
11096-82-5	Aroclor 1260	64	U
8001-35-2	Toxaphene	64	U

3/13/00

FORM I Pest

JLL 2/22/00
PGS 02/23/00

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SED-03

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S26

% Moisture: 18 decanted: (Y/N) N Date Collected: 01/11/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00 - OK

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/20/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.1	U
72-55-9	4,4'-DDE	4.1	U
72-20-8	Endrin	4.1	U
33213-65-9	Endosulfan II	4.1	U
72-54-8	4,4'-DDD	4.1	U
1031-07-8	Endosulfan sulfate	4.1	U
50-29-3	4,4'-DDT	4.1	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.1	U
7421-93-4	Endrin aldehyde	4.1	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
12674-11-2	Aroclor 1016	41	U
11104-28-2	Aroclor 1221	41	U
11141-16-5	Aroclor 1232	41	U
53469-21-9	Aroclor 1242	41	U
12672-29-6	Aroclor 1248	41	U
11097-69-1	Aroclor 1254	41	U
11096-82-5	Aroclor 1260	41	U
8001-35-2	Toxaphene	41	U

JL 2/22/00
PKS 02/23/00

0085

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SED-04

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S27

% Moisture: 18 decanted: (Y/N) N Date Collected: 01/11/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00 OK

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/20/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.1	U
72-55-9	4,4'-DDE	4.1	U
72-20-8	Endrin	4.1	U
33213-65-9	Endosulfan II	4.1	U
72-54-8	4,4'-DDD	4.1	U
1031-07-8	Endosulfan sulfate	4.1	U
50-29-3	4,4'-DDT	4.1	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.1	U
7421-93-4	Endrin aldehyde	4.1	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
12674-11-2	Aroclor 1016	41	U
11104-28-2	Aroclor 1221	41	U
11141-16-5	Aroclor 1232	41	U
53469-21-9	Aroclor 1242	41	U
12672-29-6	Aroclor 1248	41	U
11097-69-1	Aroclor 1254	41	U
11096-82-5	Aroclor 1260	41	U
8001-35-2	Toxaphene	41	U

JL 2/22/00
PES 02/23/00

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE No.: 0007

GL-SS-01

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S09

% Moisture: 25 decanted: (Y/N) N Date Collected: 01/10/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00 OK

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/19/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta-BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma-BHC (Lindane)	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.4	U
72-55-9	4,4'-DDE	4.4	U
72-20-8	Endrin	4.4	U
33213-65-9	Endosulfan II	4.4	U
72-54-8	4,4'-DDD	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
50-29-3	4,4'-DDT	4.4	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.4	U
7421-93-4	Endrin aldehyde	4.4	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
12674-11-2	Aroclor 1016	44	U
11104-28-2	Aroclor 1221	44	U
11141-16-5	Aroclor 1232	44	U
53469-21-9	Aroclor 1242	44	U
12672-29-6	Aroclor 1248	44	U
11097-69-1	Aroclor 1254	44	U
11096-82-5	Aroclor 1260	44	U
8001-35-2	Toxaphene	44	U

JKL 2/24/00
PES 02/23/00

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO: 001

GL-SS-02

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-2

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S10

% Moisture: 15 decanted: (Y/N) N Date Collected: 01/10/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/19/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	3.9	U
72-55-9	4,4'-DDE	3.9	U
72-20-8	Endrin	3.9	U
33213-65-9	Endosulfan II	3.9	U
72-54-8	4,4'-DDD	3.9	U
1031-07-8	Endosulfan sulfate	3.9	U
50-29-3	4,4'-DDT	15	~~P~~ J
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	3.9	U
7421-93-4	Endrin aldehyde	3.9	U
5103-71-9	alpha-Chlordane	11	~~P~~ J
5103-74-2	gamma-Chlordane	8.2	
12674-11-2	Aroclor 1016	39	U
11104-28-2	Aroclor 1221	39	U
11141-16-5	Aroclor 1232	39	U
53469-21-9	Aroclor 1242	39	U
12672-29-6	Aroclor 1248	39	U
11097-69-1	Aroclor 1254	39	U
11096-82-5	Aroclor 1260	42	
8001-35-2	Toxaphene	39	U

3/8/00 JHL

FORM I Pest

JL 2/12/00
PES 02/23/00

0021

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.: GL-SS-03

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-3

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S11

% Moisture: 15 decanted: (Y/N) N Date Collected: 01/10/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00 -OK

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/19/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	6.5	~~P~~ J
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	17	
72-55-9	4,4'-DDE	16	~~P~~ J
72-20-8	Endrin	3.9	U
33213-65-9	Endosulfan II	3.9	U
72-54-8	4,4'-DDD	3.9	U
1031-07-8	Endosulfan sulfate	3.9	U
50-29-3	4,4'-DDT	30	~~P~~ J
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	5.1	
7421-93-4	Endrin aldehyde	3.9	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	9.1	~~P~~ J
12674-11-2	Aroclor 1016	39	U
11104-28-2	Aroclor 1221	39	U
11141-16-5	Aroclor 1232	39	U
53469-21-9	Aroclor 1242	39	U
12672-29-6	Aroclor 1248	230	
11097-69-1	Aroclor 1254	39	U
11096-82-5	Aroclor 1260	140	
8001-35-2	Toxaphene	39	U

3/13/00 JHL

FORM I Pest

JLL 2/22/00
02/23/00

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO. 0028

GL-SS-04

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-4

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S12

% Moisture: 11 decanted: (Y/N) N Date Collected: 01/10/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00 OIL

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/19/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.9	U
319-85-7	beta-BHC	1.9	U
319-86-8	delta-BHC	1.9	U
58-89-9	gamma-BHC (Lindane)	1.9	U
76-44-8	Heptachlor	1.9	U
309-00-2	Aldrin	1.9	U
1024-57-3	Heptachlor epoxide	1.9	U
959-98-8	Endosulfan I	1.9	U
60-57-1	Dieldrin	29	~~P~~ J
72-55-9	4,4'-DDE	26	~~P~~ J
72-20-8	Endrin	3.8	U
33213-65-9	Endosulfan II	3.8	U
72-54-8	4,4'-DDD	37	~~P~~ J
1031-07-8	Endosulfan sulfate	3.8	U
50-29-3	4,4'-DDT	40	~~P~~ J
72-43-5	Methoxychlor	19	U
53494-70-5	Endrin ketone	3.8	U
7421-93-4	Endrin aldehyde	3.8	U
5103-71-9	alpha-Chlordane	1.9	U
5103-74-2	gamma-Chlordane	15	~~P~~ J
12674-11-2	Aroclor 1016	38	U
11104-28-2	Aroclor 1221	38	U
11141-16-5	Aroclor 1232	38	U
53469-21-9	Aroclor 1242	38	U
12672-29-6	Aroclor 1248	440	
11097-69-1	Aroclor 1254	38	U
11096-82-5	Aroclor 1260	120	
8001-35-2	Toxaphene	38	U

3/13/00 JHL

FORM I Pest

JL 2/22/00
PES 02/23/00

0036

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-05

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-5

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S13

% Moisture: 8 decanted: (Y/N) N Date Collected: 01/10/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/19/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.8	U
319-85-7	beta-BHC	1.8	U
319-86-8	delta-BHC	1.8	U
58-89-9	gamma-BHC (Lindane)	1.8	U
76-44-8	Heptachlor	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	8.7	P
959-98-8	Endosulfan I	10	P
60-57-1	Dieldrin	38	P
72-55-9	4,4'-DDE	30	P
72-20-8	Endrin	7.7	P
33213-65-9	Endosulfan II	9.5	P
72-54-8	4,4'-DDD	3.6	U
1031-07-8	Endosulfan sulfate	3.6	U
50-29-3	4,4'-DDT	58	
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.6	U
7421-93-4	Endrin aldehyde	3.6	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	20	~~P~~ J
12674-11-2	Aroclor 1016	36	U
11104-28-2	Aroclor 1221	36	U
11141-16-5	Aroclor 1232	36	U
53469-21-9	Aroclor 1242	36	U
12672-29-6	Aroclor 1248	36	U
11097-69-1	Aroclor 1254	140	
11096-82-5	Aroclor 1260	36	U
8001-35-2	Toxaphene	36	U

3/13/00 JH

FORM I Pest

2/22/00
PES 02/23/00

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-06

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-6

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S14

% Moisture: 18 decanted: (Y/N) N Date Collected: 01/10/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/19/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.0	U
72-55-9	4,4'-DDE	4.0	U
72-20-8	Endrin	4.0	U
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	4.0	U
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	4.0	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.0	U
7421-93-4	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
12674-11-2	Aroclor 1016	40	U
11104-28-2	Aroclor 1221	40	U
11141-16-5	Aroclor 1232	40	U
53469-21-9	Aroclor 1242	40	U
12672-29-6	Aroclor 1248	40	U
11097-69-1	Aroclor 1254	40	U
11096-82-5	Aroclor 1260	40	U
8001-35-2	Toxaphene	40	U

JL 2/22/00
PES 02/23/00

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-07

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-7

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S15

% Moisture: 17 decanted: (Y/N) N Date Collected: 01/10/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00 - OK

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/19/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.0	U
72-55-9	4,4'-DDE	4.0	U
72-20-8	Endrin	4.0	U
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	4.0	U
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	4.0	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.0	U
7421-93-4	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
12674-11-2	Aroclor 1016	40	U
11104-28-2	Aroclor 1221	40	U
11141-16-5	Aroclor 1232	40	U
53469-21-9	Aroclor 1242	40	U
12672-29-6	Aroclor 1248	40	U
11097-69-1	Aroclor 1254	40	U
11096-82-5	Aroclor 1260	40	U
8001-35-2	Toxaphene	40	U

JK 2/22/00

FORM 1
PEST ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-08

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-8

Sample wt/vol: 30.0 (g/mL) G Lab File ID: R2191S19

% Moisture: 18 decanted: (Y/N) N Date Collected: 01/10/00

Extraction: (SepF/Cont/Sonc) Date Extracted: 01/13/00 OK

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/19/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.0	U
72-55-9	4,4'-DDE	4.0	U
72-20-8	Endrin	4.0	U
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	4.0	U
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	4.0	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.0	U
7421-93-4	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
12674-11-2	Aroclor 1016	40	U
11104-28-2	Aroclor 1221	40	U
11141-16-5	Aroclor 1232	40	U
53469-21-9	Aroclor 1242	40	U
12672-29-6	Aroclor 1248	40	U
11097-69-1	Aroclor 1254	40	U
11096-82-5	Aroclor 1260	40	U
8001-35-2	Toxaphene	40	U

JL 2/22/00
PSS 02/23/00

MultiChem

INORGANICS ANALYSES

Raw Data Deliverable

ACCESSION: 001025

INORGANIC SW-846

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: MULTICHEM

SDG No.: 001025

Client ID	Lab Sample ID
GL-SED-01	001025-9
GL-SED-01	001025-9D
GL-SED-01	001025-9S
GL-SED-02	001025-10
GL-SED-03	001025-11
GL-SED-04	001025-12

Were ICP interelement corrections applied ? Yes/No NO

Were ICP background corrections applied ? Yes/No NO
If yes - were raw data generated before application of background corrections ? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: William Lundberg Name: WILLIAM LUNDBERG

Date: 2/21/00 Title: Inorganic Supervisor

MAS I.D. # 001025

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

CASE NARRATIVE: GENERAL CHEMISTRY ANALYSIS

There were no anomalies associated with the preparation and/or analysis of the samples in this accession.

INORGANICS SW-846

0001

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GL-SED-01

Lab Name: MULTICHEM

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-9

% Solids:

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
	Carbon	9240			TC
	Ammonia				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GL-SED-02

Lab Name: MULTICHEM

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-10

% Solids:

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
	Carbon	36200			TC
	Ammonia				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

INORGANICS SW-846

0003

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GL-SED-03

Lab Name: MULTICHEM

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-11

% Solids:

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
	Carbon	5190			TC
	Ammonia				NR

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

INORGANICS SW-846

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GL-SED-04

Lab Name: MULTICHEM

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-12

% Solids:

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
	Carbon	3410			TC
	Ammonia				NR

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM

SDG No.: 001025

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Carbon	~~18990.0~~	U	~~7051.0~~	U	~~10110.0~~	U			100. ~~22.400~~	U	TC
Ammonia	100000.		100000.		100000.						
					BL 2/21/00						

INORGANICS SW-846

0008

5A
SPIKE SAMPLE RECOVERY

CLIENT ID

GL-SED-01

Lab Name: MULTICHEM

SDG No.: 001025

Matrix (soil/water): SOIL

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Carbon	71-134	13449.0000		9236.0000		4930.00	85.5		TC
Ammonia									NR

Comments:

Form V (Part 1) - IN

INORGANICS SW-846

6
DUPLICATES

0009
CLIENT ID

GL-SED-01

Lab Name: MULTICHEM

SDG No.: 001025

Matrix (soil/water): SOIL

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Carbon		9236.0000		9480.0000		2.6		TC
Ammonia								NR

INORGANICS SW-846

7

LABORATORY CONTROL SAMPLE

0010

Lab Name: MULTICHEM

SDG No.: 001025

Solid LCS Source: ERA

Aqueous LCS Source:

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Carbon				6250.0	6577.0		4688.0	7813.0	105.2
Ammonia									

FORM VII - IN

MultiChem

METALS ANALYSES

Raw Data Deliverable

Accession: 001025

INORGANIC SW-846

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Client ID	Lab Sample ID
GLSED01	001025-9
GLSED02	001025-10
GLSED03	001025-11
GLSED04	001025-12
GLSS01	001025-1
GLSS02	001025-2
GLSS03	001025-3
GLSS04	001025-4
GLSS04D	001025-4D
GLSS04S	001025-4S
GLSS05	001025-5
GLSS06	001025-6
GLSS07	001025-7
GLSS08	001025-8
TCLPBLK	TCLPBLK

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: William Lundberg Name: WILLIAM LUNDBERG

Date: 3/8/00 Title: Inorganic Supervisor

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 001025

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

CASE NARRATIVE: METALS ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

On the ICP run of January 21, 2000, zinc failed the serial dilution test. A post digestion spike was performed and it was in control. The samples affected are 001025-1 (GL-SS-01) through 001025-12 (GL-SED-04). Also on the same run, the continuing calibration verification (CCV) for silver was out of control high. All samples were below the reporting limit. The samples affected are 001025-1 (GL-SS-01) through 001025-12 (GL-SED-04).

On the ICP run of February 7, 2000, for the TCLP extracts, the extraction blank had copper and zinc present above the reporting limit. These metals are common lab contaminants and their presence at the levels in the blank should have no impact on data quality. Also on the same run, arsenic was detected in the ICSA at a level just above the reporting limit. All the samples were non-detect (ND) for arsenic. All other quality control (QC) was in control. The samples affected are 001025-1 (GL-SS-01) through 001025-12 (GL-SED-04).

On the GF run on Februaruy 14, 2000, for selenium on soils, the spike percent recovery on the QC sample was out of control low. All other QC was in control. The data was flagged with an "N" on the final report. The samples affected are 001025-1 (GL-SS-01) through 001025-12 (GL-SED-04). No further corrective action was performed.

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

INORGANICS SW-846

01

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSED01

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-9

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	30.0	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	11.0			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	303	U		P
	Cyanide				NR

3/2/00 JHL

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - IN

INORGANICS SW-846

02

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSED02

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-10

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	80.2	W		P
7439-89-6	Iron				NR
7439-92-1	Lead	37.0			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	366	W		P
	Cyanide				NR

3/2/00
JHL

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSED03

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-11

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	14.3	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	30.0	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	12.8			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	402	U		P
	Cyanide				NR

3/2/00
JHL

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSED04

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-12

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	26.8	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	30.0	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	11.8			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	426	U		P
	Cyanide				NR

3/2/00 JM

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

05

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS01

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-1

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	30.0	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	150	U		P
	Cyanide				NR

3/2/00 JM

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - IN

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS02

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-2

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	9.5			P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	16.6	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	437			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	812			P
	Cyanide				NR

3/2/00 JKL

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

07

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS03

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-3

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	10.9			P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	170			P
7439-89-6	Iron				NR
7439-92-1	Lead	64.4			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	44.6			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	1670			P
	Cyanide				NR

3/2/00 JM

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - IN

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS04

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-4

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.9			P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	69.1	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	43.2			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	24.4			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	765			P
	Cyanide				NR

3/2/00 JHL

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS05

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-5

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	40.7			P
7439-89-6	Iron				NR
7439-92-1	Lead	49.1			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	16.4			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	540			P
	Cyanide				NR

3/2/00
JHL

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

FORM I - IN

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS06

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-6

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	30.0	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	176	U		P
	Cyanide				NR

3/2/00 JHL

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS07

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-7

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	30.0	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	170	U		P
	Cyanide				NR

3/2/00 JHL

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

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INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS08

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: 001025-8

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	30.0	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	148			P
	Cyanide				NR

3/2/00 JHL

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

TCLPBLK

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

Lab Sample ID: TCLPBLK

% Solids: _____

Date Received: 01/19/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	100	U		P
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	44.6			P
7439-89-6	Iron				NR
7439-92-1	Lead	30.0	U		P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.40	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	100	U		P
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	200	U		P
7440-62-2	Vanadium				NR
7440-66-6	Zinc	97.1			P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:
DATE LEACHED IS DATE RECEIVED.

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	200.0	U	200.0	U	200.0	U	200.0	U			P
Antimony	50.0	U	50.0	U	50.0	U	50.0	U	50.000	U	P
Arsenic	100.0	U	100.0	U	100.0	U	100.0	U	100.000	U	P
Barium											
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Calcium	100.0	U	100.0	U	100.0	U	100.0	U			P
Chromium	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Cobalt											
Copper	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Iron	50.0	U	50.0	U	50.0	U	50.0	U			P
Lead	30.0	U	30.0	U	30.0	U	30.0	U	30.000	U	P
Magnesium	50.0	U	50.0	U	50.0	U	50.0	U			P
Manganese											
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.200	U	CV
Nickel	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Potassium											
Selenium	100.0	U	100.0	U	100.0	U	100.0	U	100.000	U	P
Silver	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Sodium											
Thallium	200.0	U	200.0	U	200.0	U	200.0	U	200.000	U	P
Vanadium											
Zinc	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Cyanide											

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury			0.2	U							CV
Nickel											
Potassium											
Selenium											
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

INORGANICS SW-846

5A
SPIKE SAMPLE RECOVERY

CLIENT ID

GLSS04S

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

% Solids for Sample: 0.0

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	874.9367		50.0000	U	1000.00	87.5		P
Arsenic	80-114	922.9700		100.0000	U	1000.00	92.3		P
Barium									NR
Beryllium	75-125	822.9167		5.0000	U	1000.00	82.3		P
Cadmium	71-115	847.1667		5.9367		1000.00	84.1		P
Calcium									NR
Chromium	70-115	861.4200		10.0000	U	1000.00	86.1		P
Cobalt									NR
Copper	75-125	899.3333		69.0967		1000.00	83.0		P
Iron									NR
Lead	70-115	894.1033		43.2467		1000.00	85.1		P
Magnesium									NR
Manganese									NR
Mercury	57-146	1.3600		0.4000	U	2.00	68.0		CV
Nickel	75-125	850.3900		24.4433		1000.00	82.6		P
Potassium									NR
Selenium	80-124	949.2100		100.0000	U	1000.00	94.9		P
Silver	60-122	903.9500		10.0000	U	1000.00	90.4		P
Sodium									NR
Thallium	75-125	793.5233		200.0000	U	1000.00	79.4		P
Vanadium									NR
Zinc	80-120	1576.8767		764.9100		1000.00	81.2		P
Cyanide									NR

Comments:

INORGANICS SW-846

6
DUPLICATES

CLIENT ID

GLSS04D

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): LEACHATE

% Solids for Sample: 0.0

% Solids for Duplicate: 0.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony		50.0000	U	50.0000	U			P
Arsenic		100.0000	U	100.0000	U			P
Barium								NR
Beryllium		5.0000	U	5.0000	U			P
Cadmium	5.0	5.9367		6.1533		3.6		P
Calcium								NR
Chromium		10.0000	U	10.0000	U			P
Cobalt								NR
Copper		69.0967		66.7833		3.4		P
Iron								NR
Lead	30.0	43.2467		38.3367		12.0		P
Magnesium								NR
Manganese								NR
Mercury		0.4000	U	0.4000	U			CV
Nickel	10.0	24.4433		20.8533		15.9		P
Potassium								NR
Selenium		100.0000	U	100.0000	U			P
Silver		10.0000	U	10.0000	U			P
Sodium								NR
Thallium		200.0000	U	200.0000	U			P
Vanadium								NR
Zinc		764.9100		749.8567		2.0		P
Cyanide								NR

INORGANICS SW-846

7

LABORATORY CONTROL SAMPLE

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Solid LCS Source: _____

Aqueous LCS Source: CPI

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony	1000.00	929.99	93.0						
Arsenic	1000.00	975.42	97.5						
Barium									
Beryllium	1000.00	917.15	91.7						
Cadmium	1000.00	951.83	95.2						
Calcium									
Chromium	1000.00	965.72	96.6						
Cobalt									
Copper	1000.00	929.89	93.0						
Iron									
Lead	1000.00	963.52	96.4						
Magnesium									
Manganese									
Mercury	2.00	1.89	94.5						
Nickel	1000.00	943.73	94.4						
Potassium									
Selenium	1000.00	977.44	97.7						
Silver	1000.00	1005.73	100.6						
Sodium									
Thallium	1000.00	962.51	96.3						
Vanadium									
Zinc	1000.00	945.30	94.5						
Cyanide									

MultiChem

METALS ANALYSES

Raw Data Deliverable

Accession: 001025

INORGANIC SW-846

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Client ID	Lab Sample ID
GLSED01	001025-9
GLSED02	001025-10
GLSED03	001025-11
GLSED04	001025-12
GLSS01	001025-1
GLSS01D	001025-1D
GLSS01S	001025-1S
GLSS02	001025-2
GLSS03	001025-3
GLSS04	001025-4
GLSS04D	001025-4D
GLSS04S	001025-4S
GLSS05	001025-5
GLSS06	001025-6
GLSS07	001025-7
GLSS08	001025-8

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

If yes - were raw data generated before application of background corrections ? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: William Lundberg Name: WILLIAM LUNDBERG

Date: 2/21/00 Title: Inorganic Supervisor

MultiChem
ANALYTICAL SERVICES

'AS I.D. # 001025

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

CASE NARRATIVE: METALS ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

On the ICP run of January 21, 2000, zinc failed the serial dilution test. A post digestion spike was performed and it was in control. The samples affected are 001025-1 (GL-SS-01) through 001025-12 (GL-SED-04). Also on the same run, the continuing calibration verification (CCV) for silver was out of control high. All samples were below the reporting limit. The samples affected are 001025-1 (GL-SS-01) through 001025-12 (GL-SED-04).

On the ICP run of February 7, 2000, for the TCLP extracts, the extraction blank had copper and zinc present above the reporting limit. These metals are common lab contaminants and their presence at the levels in the blank should have no impact on data quality. Also on the same run, arsenic was detected in the ICSA at a level just above the reporting limit. All the samples were non-detect (ND) for arsenic. All other quality control (QC) was in control. The samples affected are 001025-1 (GL-SS-01) through 001025-12 (GL-SED-04).

On the GF run on Februaruy 14, 2000, for selenium on soils, the spike percent recovery on the QC sample was out of control low. All other QC was in control. The data was flagged with an "N" on the final report. The samples affected are 001025-1 (GL-SS-01) through 001025-12 (GL-SED-04). No further corrective action was performed.

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

0001

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSED01

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-9

% Solids: 76.7

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	3.4	U		P
7440-38-2	Arsenic	2.0			F
7440-39-3	Barium				NR
7440-41-7	Beryllium	0.34	U		P
7440-43-9	Cadmium	0.34	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	35.7			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	11.3			P
7439-89-6	Iron				NR
7439-92-1	Lead	4.2			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.047	U		CV
7440-02-0	Nickel	54.0			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.6	U	J ~~N~~	F
7440-22-4	Silver	0.67	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.33	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	45.4			P
	Cyanide				NR

3/2/00 JKL

Color Before: BROWN

Clarity Before: BROWN

Texture: MEDIUM

Color After: BROWN

Clarity After: BROWN

Artifacts:

Comments:

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INORGANICS SW-846

0003

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSED03

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-11

% Solids: 81.7

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	3.2	U		P
7440-38-2	Arsenic	27.7			F
7440-39-3	Barium				NR
7440-41-7	Beryllium	0.32	U		P
7440-43-9	Cadmium	0.32	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	17.3			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	12.7			P
7439-89-6	Iron				NR
7439-92-1	Lead	16.6			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.045	U		CV
7440-02-0	Nickel	23.1			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	0.62	U	WN	F
7440-22-4	Silver	0.63	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.31	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	76.4			P
	Cyanide				NR

3/2/00 JM

Color Before: BROWN

Clarity Before: BROWN

Texture: MEDIUM

Color After: BROWN

Clarity After: BROWN

Artifacts:

Comments:

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INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSED04

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-12

% Solids: 81.6

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	3.2	U		P
7440-38-2	Arsenic	2.1			F
7440-39-3	Barium				NR
7440-41-7	Beryllium	0.32	U		P
7440-43-9	Cadmium	0.32	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	30.3			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	19.7			P
7439-89-6	Iron				NR
7439-92-1	Lead	12.4			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.046	U		CV
7440-02-0	Nickel	32.1			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	0.67	U	WN	F
7440-22-4	Silver	0.64	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.34	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	97.3			P
	Cyanide				NR

3/2/00 JHL

Color Before: BROWN

Clarity Before: BROWN

Texture: MEDIUM

Color After: BROWN

Clarity After: BROWN

Artifacts:

Comments:

INORGANICS SW-846

0005

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS01

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-1

% Solids: 75.1

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	3.6	U		P
7440-38-2	Arsenic	2.3			F
7440-39-3	Barium				NR
7440-41-7	Beryllium	0.36	U		P
7440-43-9	Cadmium	0.36	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	23.0			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	12.5			P
7439-89-6	Iron				NR
7439-92-1	Lead	10.0			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.045	U		CV
7440-02-0	Nickel	32.1			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.8	U	J ~~WN~~	F
7440-22-4	Silver	0.73	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.36	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	31.5			P
	Cyanide				NR

3/2/00 JHL

Color Before: BROWN

Clarity Before: BROWN

Texture: MEDIUM

Color After: BROWN

Clarity After: BROWN

Artifacts:

Comments:

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INORGANICS SW-846

0006

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS02

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-2

% Solids: 85.0

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	3.0	U		P
7440-38-2	Arsenic	5.2			F
7440-39-3	Barium				NR
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	1.0			P
7440-70-2	Calcium				NR
7440-47-3	Chromium	28.0			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	34.1			P
7439-89-6	Iron				NR
7439-92-1	Lead	235			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.10			CV
7440-02-0	Nickel	35.7			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.6	U	J WN	F
7440-22-4	Silver	0.59	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.32	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	178			P
	Cyanide				NR

3/2/00 JHL

Color Before: BROWN

Clarity Before: BROWN

Texture: MEDIUM

Color After: BROWN

Clarity After: BROWN

Artifacts:

Comments:

FORM I - IN

INORGANICS SW-846

0007

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS03

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-3

% Solids: 85.4

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	5.9			P
7440-38-2	Arsenic	1.7			F
7440-39-3	Barium				NR
7440-41-7	Beryllium	0.32	U		P
7440-43-9	Cadmium	0.83			P
7440-70-2	Calcium				NR
7440-47-3	Chromium	30.3			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	64.8			P
7439-89-6	Iron				NR
7439-92-1	Lead	57.9			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.25			CV
7440-02-0	Nickel	44.0			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.6	U	~~W~~N	F
7440-22-4	Silver	0.64	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.32	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	235			P
	Cyanide				NR

3/2/00 JHL

Sr 2/16/00

Color Before: BROWN

Clarity Before: BROWN

Texture: MEDIUM

Color After: BROWN

Clarity After: BROWN

Artifacts: _____

Comments:

FORM I - IN

INORGANICS SW-846

0008

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS04

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-4

% Solids: 88.8

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	3.1	U		P
7440-38-2	Arsenic	1.2			F
7440-39-3	Barium				NR
7440-41-7	Beryllium	0.31	U		P
7440-43-9	Cadmium	0.31	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	25.2			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	30.7			P
7439-89-6	Iron				NR
7439-92-1	Lead	32.8			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.094			CV
7440-02-0	Nickel	28.5			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.4	U	J WN	F
7440-22-4	Silver	0.61	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.28	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	105			P
	Cyanide				NR

3/2/00 JHL

Color Before: BROWN

Clarity Before: BROWN

Texture: MEDIUM

Color After: BROWN

Clarity After: BROWN

Artifacts:

Comments:

FORM I - IN

INORGANICS SW-846

0009

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS05

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-5

% Solids: 91.6

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	4.7			P
7440-38-2	Arsenic	0.91			F
7440-39-3	Barium				NR
7440-41-7	Beryllium	0.30	U		P
7440-43-9	Cadmium	0.30	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	22.4			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	22.3			P
7439-89-6	Iron				NR
7439-92-1	Lead	17.8			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.046			CV
7440-02-0	Nickel	34.3			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.5	U	J ~~WN~~	F
7440-22-4	Silver	0.59	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.29	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	77.4			P
	Cyanide				NR

3/2/00 JHL

Color Before: BROWN

Clarity Before: BROWN

Texture: MEDIUM

Color After: BROWN

Clarity After: BROWN

Artifacts:

Comments:

FORM I - IN

INORGANICS SW-846

0010

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS06

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-6

% Solids: 82.3

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	3.2	U		P
7440-38-2	Arsenic	1.6			F
7440-39-3	Barium				NR
7440-41-7	Beryllium	0.32	U		P
7440-43-9	Cadmium	0.32	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	19.0			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0			P
7439-89-6	Iron				NR
7439-92-1	Lead	12.7			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.046	U		CV
7440-02-0	Nickel	24.4			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.6	U	J WN	F
7440-22-4	Silver	0.65	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.32	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	27.7			P
	Cyanide				NR

3/2/00 JHL

Color Before: BROWN

Clarity Before: BROWN

Texture: MEDIUM

Color After: BROWN

Clarity After: BROWN

Artifacts:

Comments:

FORM I - IN

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS07

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-7

% Solids: 82.9

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	3.3	U		P
7440-38-2	Arsenic	1.6		~~M~~	F
7440-39-3	Barium				NR
7440-41-7	Beryllium	0.33	U		P
7440-43-9	Cadmium	0.33	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	27.9			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	13.0			P
7439-89-6	Iron				NR
7439-92-1	Lead	16.3			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.047	U		CV
7440-02-0	Nickel	35.4			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.6	U	J ~~N~~	F
7440-22-4	Silver	0.66	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.31	U	~~M~~	F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	44.5			P
	Cyanide				NR

3/2/00 JHL

Color Before: BROWN

Clarity Before: BROWN

8-21-00

Texture: MEDIUM

Color After: BROWN

Clarity After: BROWN

Artifacts:

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSS08

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

Lab Sample ID: 001025-8

% Solids: 82.5

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	3.2	U		P
7440-38-2	Arsenic	1.4		M	F
7440-39-3	Barium				NR
7440-41-7	Beryllium	0.32	U		P
7440-43-9	Cadmium	0.32	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	19.8			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	11.7			P
7439-89-6	Iron				NR
7439-92-1	Lead	10.6			P
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.049	U		CV
7440-02-0	Nickel	32.1			P
7440-09-7	Potassium				NR
7782-49-2	Selenium	1.5	U	J N	F
7440-22-4	Silver	0.64	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.31	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	40.3			P
	Cyanide				NR

3/2/00 JHL

Color Before: BROWN

Clarity Before: BROWN

2/16/00

Texture: MEDIUM

Color After: BROWN

Clarity After: BROWN

Artifacts:

Comments:

INORGANICS SW-846

5A
SPIKE SAMPLE RECOVERY

CLIENT ID

GLSS01S

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

% Solids for Sample: 75.1

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	0-100	27.4376		3.6421	U	72.33	37.9		P
Arsenic	42-123	6.9410		2.2905		5.09	91.4		F
Barium									NR
Beryllium	75-115	63.4094		0.3642	U	72.33	87.7		P
Cadmium	70-115	60.8399		0.3642	U	72.33	84.1		P
Calcium									NR
Chromium	61-114	88.2247		22.9643		72.33	90.2		P
Cobalt									NR
Copper	66-114	78.3654		12.4837		72.33	91.1		P
Iron									NR
Lead	54-122	70.6290		10.0027		72.33	83.8		P
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel	53-119	90.8203		32.1206		72.33	81.2		P
Potassium									NR
Selenium	20-120	0.3392	U	1.7917	U	1.70	0.0	N	F
Silver	72-115	58.9372		0.7284	U	72.33	81.5		P
Sodium									NR
Thallium	22-126	1.6338		0.3583	U	1.70	96.1		F
Vanadium									NR
Zinc	42-132	96.3066		31.5060		72.33	89.6		P
Cyanide									NR

Comments:

INORGANICS SW-846

5A
SPIKE SAMPLE RECOVERY

CLIENT ID

GLSS04S

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

% Solids for Sample: 88.8

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury	54-158	0.4724		0.0942		0.39	97.0		CV
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

INORGANICS SW-846

5B
POST DIGEST SPIKE SAMPLE RECOVERY

0033
CLIENT ID

GLSS01A

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): _____

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc		1550.64		432.52		1000.0	111.8		P
Cyanide									NR

Comments:

INORGANICS SW-846

6
DUPLICATES

0034

CLIENT ID

GLSS01D

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

% Solids for Sample: 75.1 % Solids for Duplicate: 75.1

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony		3.6421	U	3.5414	U			P
Arsenic	1.7585	2.2905		3.2163		33.6		F
Barium								NR
Beryllium		0.3642	U	0.3541	U			P
Cadmium		0.3642	U	0.3541	U			P
Calcium								NR
Chromium		22.9643		26.1044		12.8		P
Cobalt								NR
Copper		12.4837		12.5294		0.4		P
Iron								NR
Lead	2.1248	10.0027		8.7354		13.5		P
Magnesium								NR
Manganese								NR
Mercury								NR
Nickel		32.1206		31.9158		0.6		P
Potassium								NR
Selenium		1.7917	U	3.5171	U			F
Silver		0.7284	U	0.7083	U			P
Sodium								NR
Thallium		0.3583	U	0.3517	U			F
Vanadium								NR
Zinc		31.5060		33.3437		5.7		P
Cyanide								NR

INORGANICS SW-846

6
DUPLICATES

0035

CLIENT ID

GLSS04D

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Matrix (soil/water): SOIL

% Solids for Sample: 88.8

% Solids for Duplicate: 88.8

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury	0.0427	0.0942		0.0684		31.7		CV
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide								NR

INORGANICS SW-846

7

LABORATORY CONTROL SAMPLE

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Solid LCS Source: CPI

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony				50.0	45.0		39.0	60.0	90.0
Arsenic									
Barium									
Beryllium				50.0	43.8		39.0	60.0	87.6
Cadmium				50.0	44.4		40.0	60.0	88.8
Calcium									
Chromium				50.0	46.1		40.0	60.0	92.2
Cobalt									
Copper				50.0	45.7		40.0	60.0	91.4
Iron									
Lead				50.0	45.2		40.0	60.0	90.4
Magnesium									
Manganese									
Mercury									
Nickel				50.0	44.1		40.0	60.0	88.2
Potassium									
Selenium									
Silver				50.0	46.9		40.0	60.0	93.8
Sodium									
Thallium									
Vanadium									
Zinc				50.0	44.3		40.0	60.0	88.6
Cyanide									

INORGANICS SW-846

7

LABORATORY CONTROL SAMPLE

0037

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Solid LCS Source: QCD

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic				1.2	1.4	B	1.0	1.5	116.7
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury				1.0	1.0	B	0.8	1.2	100.0
Nickel									
Potassium									
Selenium				1.2	1.2	B	0.9	1.6	100.0
Silver									
Sodium									
Thallium				1.2	1.2	B	0.9	1.6	100.0
Vanadium									
Zinc									
Cyanide									

8- 2/17/00

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	200.0	U	200.0	U	200.0	U	200.0	U			P
Antimony	50.0	U	50.0	U	50.0	U	50.0	U	2.500	U	P
Arsenic	5.0	U	5.0	U	5.0	U	5.0	U	0.250	U	F
Barium											
Beryllium	5.0	U	5.0	U	5.0	U	5.0	U	0.250	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	0.250	U	P
Calcium	100.0	U	100.0	U	100.0	U	100.0	U			P
Chromium	10.0	U	10.0	U	10.0	U	10.0	U	0.500	U	P
Cobalt											
Copper	10.0	U	10.0	U	10.0	U	10.0	U	0.500	U	P
Iron	50.0	U	50.0	U	50.0	U	50.0	U			P
Lead	30.0	U	30.0	U	30.0	U	30.0	U	1.500	U	P
Magnesium	50.0	U	50.0	U	50.0	U	50.0	U			P
Manganese											
Mercury	0.2	U	0.2	U	0.2	U			0.040	U	CV
Nickel	10.0	U	10.0	U	10.0	U	10.0	U	0.500	U	P
Potassium											
Selenium	5.0	U	5.0	U	5.0	U	5.0	U	0.250	U	F
Silver	10.0	U	10.0	U	10.0	U	10.0	U	0.500	U	P
Sodium											
Thallium	5.0	U	5.0	U					0.250	U	F
Vanadium											
Zinc	10.0	U	10.0	U	10.0	U	10.0	U	0.500	U	P
Cyanide											

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			200.0	U							P
Antimony			50.0	U							P
Arsenic			5.0	U	5.0	U					F
Barium											
Beryllium			5.0	U							P
Cadmium			5.0	U							P
Calcium			100.0	U							P
Chromium			10.0	U							P
Cobalt											
Copper			10.0	U							P
Iron			50.0	U							P
Lead			30.0	U							P
Magnesium			50.0	U							P
Manganese											
Mercury											
Nickel			10.0	U							P
Potassium											
Selenium			5.0	U	5.0	U	5.0	U			F
Silver			10.0	U							P
Sodium											
Thallium	5.0	U	5.0	U	5.0	U	5.0	U			F
Vanadium											
Zinc			10.0	U							P
Cyanide											

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium			5.0	U	5.0	U	5.0	U			F
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium			5.0	U	5.0	U	5.0	U			F
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium			5.0	U	5.0	U					F
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

INORGANICS SW-846

3
BLANKS

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001025

Preparation Blank Matrix (soil/water): ____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											
Antimony											
Arsenic											
Barium											
Beryllium											
Cadmium											
Calcium											
Chromium											
Cobalt											
Copper											
Iron											
Lead											
Magnesium											
Manganese											
Mercury											
Nickel											
Potassium											
Selenium	5.0	U	5.0	U	5.0	U	5.0	U			F
Silver											
Sodium											
Thallium											
Vanadium											
Zinc											
Cyanide											

MultiChem

GC/MS VOLATILES
CLP OLM03.2

Raw Data Deliverable

SDG: 001025

MAS I.D. # 001025

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

CASE NARRATIVE: VOLATILE ORGANICS ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

Based on the relative retention times of the compounds dibromochloromethane and bromoform, MultiChem associates them with the internal standard chlorobenzene-d5 instead of the contract stated internal standard of 1,4-difluorobenzene. In addition, the compound 4-methyl-2-pentanone is associated with the internal standard 1,4-difluorobenzene instead of the contract stated internal standard of chlorobenzene-d5.

The target compound methylene chloride was detected in the method blank analyzed on January 14, 2000, at a concentration which was less than the contract required reporting limit of 10mg/Kg. The concentration of methylene chloride was "J" flagged on the appropriate method blank Form I. All detected concentrations of methylene chloride in the associated samples have been "B" flagged on the appropriate Form I's.

The relative percent differences (RPD's) of the matrix spiking compounds 1,1-dichloroethene, toluene and chlorobenzene fell outside of the contract defined quality control (QC) requirements, however, all percent recoveries were within contract limits. Since the contract stated percent recovery and RPD criteria are advisory as stated in the CLP contract, the anomalies were flagged with an "*" on the appropriate Form III.

The target compounds 2-butanone and acetone fell outside of contract stated percent difference (%D) range of ± 25% in the continuing calibration verification sample analyzed on January 14, 2000. Since neither of these compounds are continuing calibration compounds (CCC's), no further corrective action was performed.

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

2B
SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

00001

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Level:(low/med) LOW

	EPA SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	VBLK0114B	96	98	106		0
02	VBLK0114BBS	100	98	102		0
03	GL-SS-01MS	102	94	102		0
04	GL-SS-01MSD	116	80	102		0
05	GL-SS-01	114	82	102		0
06	GL-SS-02	104	92	102		0
07	GL-SS-03	104	92	104		0
08	GL-SS-04	104	94	102		0
09	GL-SS-05	100	98	104		0
10	GL-SS-06	106	88	106		0
11	GL-SS-07	106	90	104		0
12	GL-SS-08	110	86	104		0
13	GL-SED-01	102	96	106		0
14	GL-SED-02	102	94	104		0
15	GL-SED-03	102	98	104		0
16	GL-SED-04	100	98	104		0
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(84-138)
SMC2 (BFB)	= Bromofluorobenzene	(59-113)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

AM 1/19/00
SK 1/19/00

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix Spike - EPA Sample No.: GL-SS-01 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	67	0.0	51	76	59-172
Trichloroethene	67	0.0	48	72	62-137
Benzene	67	0.0	50	75	66-142
Toluene	67	0.0	49	73	59-139
Chlorobenzene	67	0.0	45	67	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	67	64	96	23*	22	59-172
Trichloroethene	67	58	86	18	24	62-137
Benzene	67	62	92	20	21	66-142
Toluene	67	70	104	35*	21	59-139
Chlorobenzene	67	60	90	29*	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 3 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS:

AM 1/19/00
TC 1/19/00

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

00003

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix Spike - EPA Sample No.: VBLK0114B Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
1,1-Dichloroethene	50	0.0	49	98	59-172
Trichloroethene	50	0.0	49	98	62-137
Benzene	50	0.0	49	98	66-142
Toluene	50	0.0	50	100	59-139
Chlorobenzene	50	0.0	51	102	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 5 outside limits

COMMENTS:

AM 1/19/00
SK 1/19/00

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK0114B

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: VBLK0114B

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1401

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

00074

EPA SAMPLE NO.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

GL-SED-01

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-9

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1413

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 23 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	~~2~~ ~~BJ~~	13 U
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (Total)	13	U

3/2/00 JLR

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SED-02

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-10

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1414

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 48 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	19	U
74-83-9	Bromomethane	19	U
75-01-4	Vinyl Chloride	19	U
75-00-3	Chloroethane	19	U
75-09-2	Methylene Chloride	~~4~~	~~BJ~~ 19U
67-64-1	Acetone	19	U
75-15-0	Carbon Disulfide	19	U
75-35-4	1,1-Dichloroethene	19	U
75-34-3	1,1-Dichloroethane	19	U
540-59-0	1,2-Dichloroethene (total)	19	U
67-66-3	Chloroform	19	U
107-06-2	1,2-Dichloroethane	19	U
78-93-3	2-Butanone	19	U
71-55-6	1,1,1-Trichloroethane	19	U
56-23-5	Carbon Tetrachloride	19	U
75-27-4	Bromodichloromethane	19	U
78-87-5	1,2-Dichloropropane	19	U
10061-01-5	cis-1,3-Dichloropropene	19	U
79-01-6	Trichloroethene	19	U
124-48-1	Dibromochloromethane	19	U
79-00-5	1,1,2-Trichloroethane	19	U
71-43-2	Benzene	19	U
10061-02-6	trans-1,3-Dichloropropene	19	U
75-25-2	Bromoform	19	U
108-10-1	4-Methyl-2-Pentanone	19	U
591-78-6	2-Hexanone	19	U
127-18-4	Tetrachloroethene	19	U
79-34-5	1,1,2,2-Tetrachloroethane	19	U
108-88-3	Toluene	19	U
108-90-7	Chlorobenzene	19	U
100-41-4	Ethylbenzene	19	U
100-42-5	Styrene	19	U
1330-20-7	Xylene (Total)	19	U

3/2/00 JHL

00091

EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

GL-SED-03

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-11

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1415

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 18 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
74-87-3	Chloromethane	12	U	
74-83-9	Bromomethane	12	U	
75-01-4	Vinyl Chloride	12	U	
75-00-3	Chloroethane	12	U	
75-09-2	Methylene Chloride	~~2~~ ~~BJ~~		12U
67-64-1	Acetone	12	U	
75-15-0	Carbon Disulfide	12	U	
75-35-4	1,1-Dichloroethene	12	U	
75-34-3	1,1-Dichloroethane	12	U	
540-59-0	1,2-Dichloroethene (total)	12	U	
67-66-3	Chloroform	12	U	
107-06-2	1,2-Dichloroethane	12	U	3/2/00 JAL
78-93-3	2-Butanone	12	U	
71-55-6	1,1,1-Trichloroethane	12	U	
56-23-5	Carbon Tetrachloride	12	U	
75-27-4	Bromodichloromethane	12	U	
78-87-5	1,2-Dichloropropane	12	U	
10061-01-5	cis-1,3-Dichloropropene	12	U	
79-01-6	Trichloroethene	12	U	
124-48-1	Dibromochloromethane	12	U	
79-00-5	1,1,2-Trichloroethane	12	U	
71-43-2	Benzene	12	U	
10061-02-6	trans-1,3-Dichloropropene	12	U	
75-25-2	Bromoform	12	U	
108-10-1	4-Methyl-2-Pentanone	12	U	
591-78-6	2-Hexanone	12	U	
127-18-4	Tetrachloroethene	12	U	
79-34-5	1,1,2,2-Tetrachloroethane	12	U	
108-88-3	Toluene	12	U	
108-90-7	Chlorobenzene	12	U	
100-41-4	Ethylbenzene	12	U	
100-42-5	Styrene	12	U	
1330-20-7	Xylene (Total)	12	U	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SED-04

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-12

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1416

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 18 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	~~2~~	~~BJ~~ 12 U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

3/2/00 JHL

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-01

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1405

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 25 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	~~4~~	~~BJ~~
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (Total)	13	U

13U

3/2/00 JHL

00016

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-02

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-2

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1406

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 15 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	~~6~~	~~BJ~~ 12U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

3/2/00 JHL

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-03

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-3

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1407

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 15 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	~~3~~	~~BJ~~ 12U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

3/2/00 JHL

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-04

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-4

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1408

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 11 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	~~8~~	~~BJ~~ 11U
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (Total)	11	U

3/2/00 JHL

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
00040
GL-SS-05

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-5

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1409

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 8 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	~~4~~	~~BJ~~
67-64-1	Acetone	11	U
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (Total)	11	U

11U

3/2/00 JHL

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-06

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-6

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1410

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 18 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	~~3~~ ~~BJ~~	12U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

3/2/00 JHL

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-07

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-7

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1411

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 17 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	~~1~~	~~BJ~~
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

12u

3/2/00 JHL

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-08

Lab Name: MULTICHEM Contract:

Lab Code: MAS-RENTON Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-8

Sample wt/vol: 5.0 (g/mL) G Lab File ID: B1412

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: not dec. 17 Date Analyzed: 01/14/00

GC Column: DB-VRX ID: 0.45 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	~~2~~	~~BJ~~ 12U
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (Total)	12	U

3/2/00 JHL

MultiChem

GASOLINE ANALYSIS
WTPHG
Soil
Data Deliverable

SDG: 001025

MAS I.D. # 001025

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

CASE NARRATIVE: TOTAL PETROLEUM HYDROCARBONS ANALYSIS - GASOLINE

There were no anomalies associated with the preparation and/or analysis of the samples in this accession.

FORM 2
SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

00001

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Level:(low/med) MED

	Client SAMPLE NO.	SMC1 #	SMC2 #	SMC3 #	OTHER	TOT OUT
01	A0117SRB	88				0
02	A0117SRBBS	86				0
03	GL-SS-01	99				0
04	GL-SS-01MS	98				0
05	GL-SS-01MSD	93				0
06	GL-SS-02	80				0
07	GL-SS-03	81				0
08	GL-SS-03DUP	74				0
09	GL-SS-04	78				0
10	GL-SS-05	75				0
11	GL-SS-06	84				0
12	GL-SS-07	79				0
13	GL-SS-07DUP	80				0
14	GL-SS-08	48				0
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

QC LIMITS

SMC1 = a,a,a-Trifluorotoluene (48-110)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM II VOA

1/18/00 RMB
PES 01/20/00

FORM 3
SOIL VOLATILE BLANK SPIKE RECOVERY

00003

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix Spike - Client Sample No.: A0117SRB Level:(low/med) MED

COMPOUND	SPIKE ADDED (mg/Kg)	BLANK CONCENTRATION (mg/Kg)	BS CONCENTRATION (mg/Kg)	BS % REC #	QC. LIMITS REC.
Gasoline (Toluene-C12)	50.0	0.000	53.6	107	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 1 outside limits

COMMENTS:

FORM III VOA

RMG 1/19/00
PES 01/20/00

FORM 3
SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix Spike - Client Sample No.: GL-SS-01 Level:(low/med) MED

COMPOUND	SPIKE ADDED (mg/Kg)	SAMPLE CONCENTRATION (mg/Kg)	MS CONCENTRATION (mg/Kg)	MS % REC #	QC. LIMITS REC.
Gasoline (Toluene-C12)	66.7	0.000	81.1	122	59-137

COMPOUND	SPIKE ADDED (mg/Kg)	MSD CONCENTRATION (mg/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Gasoline (Toluene-C12)	66.7	76.4	114	6	24	59-137

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS:

RLS 01/20/00
RMG 1/19/00

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO. 00066

A0117SRB

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: A0117SRB

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P05

Level: (low/med) MED Date Collected:

% Moisture: not dec. _____ Date Analyzed: 01/17/00

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	----------Gasoline (Toluene-C12)	5.0	U

FORM I VOA

RMB 1/18/00
PES 01/20/00

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SED-01

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-9

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P22

Level: (low/med) MED Date Collected: 01/10/00

% Moisture: not dec. 23 Date Analyzed: 01/18/00 - DK

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	Gasoline (Toluene-C12)	6.5	U

FORM I VOA

RMS 1/19/00
PGS 01/20/00

C0035

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SED-02

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-10

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P23

Level: (low/med) MED Date Collected: 01/11/00

% Moisture: not dec. 48 Date Analyzed: 01/18/00

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	----------Gasoline (Toluene-C12)	9.6	U

FORM I VOA

RMG 1/19/00
RS 01/20/00

00038

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SED-03

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-11

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P24

Level: (low/med) MED Date Collected: 01/11/00

% Moisture: not dec. 18 Date Analyzed: 01/18/00 -OF-

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	----------Gasoline (Toluene-C12)	6.1	U

FORM I VOA

RMG 1/19/00
PGS 01/20/00

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE No.

GL-SED-04

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SEDIMENT Lab Sample ID: 001025-12

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P25

Level: (low/med) MED Date Collected: 01/11/00

% Moisture: not dec. 18 Date Analyzed: 01/18/00 OK

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	----------Gasoline (Toluene-C12)	6.1	U

FORM I VOA

RMG 1/19/00
PKS 2/2/00

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-01

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-1

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P07

Level: (low/med) MED Date Collected: 01/10/00

% Moisture: not dec. 25 Date Analyzed: 01/17/00 OK

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	----------Gasoline (Toluene-C12)	6.7	U

FORM I VOA

RMG 1/19/00
AS 01/20/00

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.: GL-SS-02

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-2

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P10

Level: (low/med) MED Date Collected: 01/10/00

% Moisture: not dec. 15 Date Analyzed: 01/17/00 OK

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
----------	Gasoline (Toluene-C12)	5.9	U

FORM I VOA

RMG 1/19/00
PES 01/20/00

00014

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-03

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-3

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P11

Level: (low/med) MED Date Collected: 01/10/00

% Moisture: not dec. 15 Date Analyzed: 01/17/00 ok

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
----------	Gasoline (Toluene-C12)	5.9	U

FORM I VOA

RMG 1/19/00
PGS 01/20/00

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-04

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-4

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P13

Level: (low/med) MED Date Collected: 01/10/00

% Moisture: not dec. 11 Date Analyzed: 01/17/00 OK

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
----------	Gasoline (Toluene-C12)	5.6	U

FORM I VOA

RMG 1/19/00
RJS 01/20/00

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-05

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-5

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P14

Level: (low/med) MED Date Collected: 01/10/00

% Moisture: not dec. 8 Date Analyzed: 01/17/00 OK

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	----------Gasoline (Toluene-C12)	5.4	U

RMG 1/19/00
PES 1/20/00

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO. 001025

GL-SS-06

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-6

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P18

Level: (low/med) MED Date Collected: 01/10/00

% Moisture: not dec. 18 Date Analyzed: 01/17/00 OK

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	Gasoline (Toluene-C12)	6.1	U

FORM I VOA

RMG 1/19/00
RES 01/20/00

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-07

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-7

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P19

Level: (low/med) MED Date Collected: 01/10/00

% Moisture: not dec. 17 Date Analyzed: 01/17/00 OK

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	----------Gasoline (Toluene-C12)	6.0	U

FORM I VOA

RMG 11/19/00
BES 01/20/00

00029

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

Client SAMPLE NO.

GL-SS-08

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-8

Sample wt/vol: 10.0 (g/mL) G Lab File ID: R1170P21

Level: (low/med) MED Date Collected: 01/10/00

% Moisture: not dec. 17 Date Analyzed: 01/18/00 - OK

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10(mL) Soil Aliquot Volume: 100(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG	Q
	----------Gasoline (Toluene-C12)	6.0	U

FORM I VOA

RMG 1/19/00
PJS 01/20/00

MultiChem

GC/MS SEMIVOLATILES
CLP OLM3.0

Raw Data Deliverable

Accession: 001025

MAS I.D. # 001025

MultiChem
ANALYTICAL SERVICES

CASE NARRATIVE

CLIENT : HART CROWSER, INC.
PROJECT # : J-7057-12
PROJECT NAME : GORST LANDFILL

CASE NARRATIVE: SEMIVOLATILE ORGANICS ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

Bis(2-ethylhexyl)phthalate was detected in the method blank at a concentration below the reporting limit. This value was flagged "J" for reporting purposes and should be considered estimated. Any sample results demonstrating the presence of this compound have been flagged "B" to denote its presence in the associated method blank.

In the initial calibration the percent relative standard deviation (%RSD) for 1,2-dichlorobenzene, 4-chlorophenylphenylether, fluorene and acenaphthene exceeded 20%. Since the OLM3.0 statement of work (SOW) permits up to four continuing calibration compounds (CCC) to exceed the relative percent difference (RPD) limits, technical acceptance criteria were met.

In the continuing calibration verifications (CCV) analyzed on January 25, 2000, and February 4, 2000, the relative response factor (RRF) for one or more of the following CCCs exceeded 25%: hexachloroethane, indeno (1,2,3-cd) pyrene, benzo (g,h,i) perylene and/or 4-methylphenol. Since no more than four CCCs exceeded 25% on any day and since the percent deviation for each RRF fell between 25% and 40%, technical acceptance criteria were met.

The percent recovery of surrogate spiking compounds nitrobenzene-d5 and 2-fluorophenol fell below OLM 3.0 SOW control limits in the analysis of sample 001025-11 (GL-SED-03). The OLM 3.0 SOW method allows one surrogate (acid and/or base neutral) per semivolatile fraction to fall below control limits before corrective action is required. Additionally, the percent recovery of advisory surrogate spiking compound 1,2-dichlorobenzene-d4 fell below control limits. The surrogate spiking compound is advisory.

In the analysis of the matrix spike/matrix spike duplicate (MS/MSD), sample 001025-5 (GL-SS-05) exceeded OLM 3.0 SOW control limits. Since both percent recoveries for this analyte were within control, no further corrective action was performed.

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

00001

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	A0121SBLK	62	68	64	75	53	53	72	60	0
02	A0121SBLKBS	54	60	56	65	49	52	57	54	0
03	GL-SS-05	56	70	66	71	51	71	67	52	0
04	GL-SS-05MS	52	64	62	63	45	51	53	46	0
05	GL-SS-05MSD	54	60	60	63	48	57	55	50	0
06	GL-SS-01	56	72	66	76	52	75	69	46	0
07	GL-SS-02	64	78	78	83	56	80	75	56	0
08	GL-SS-03	52	64	62	64	43	60	57	44	0
09	GL-SS-04	54	62	60	65	45	59	59	46	0
10	GL-SED-01	42	48	46	52	39	51	51	42	0
11	GL-SED-04	56	58	58	64	45	56	63	56	0
12	GL-SED-03	20*	52	52	48	21*	59	36	10*	3
13	GL-SS-07	46	60	60	61	43	61	59	42	0
14	GL-SS-08	52	62	64	63	45	67	60	44	0
15	GL-SS-06	60	70	68	71	52	80	68	50	0
16	GL-SED-02	56	70	70	72	51	84	67	46	0
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(23-120)	
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)	
S3 (TPH)	= Terphenyl-d14	(18-137)	
S4 (PHL)	= Phenol-d5	(24-113)	
S5 (2FP)	= 2-Fluorophenol	(25-121)	
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)	
S7 (2CP)	= 2-Chlorophenol-d4	(20-130)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(20-130)	(advisory)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix Spike - EPA Sample No.: A0121SBLK Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Phenol	2500	0.0	1400	56	26- 90
2-Chlorophenol	2500	0.0	1300	52	25-102
1,4-Dichlorobenzene	1700	0.0	910	54	28-104
N-Nitroso-di-n-prop.(1)	1700	0.0	1300	76	41-126
1,2,4-Trichlorobenzene	1700	0.0	1000	59	38-107
4-Chloro-3-Methylphenol	2500	0.0	1400	56	26-103
Acenaphthene	1700	0.0	1100	65	31-137
4-Nitrophenol	2500	0.0	1500	60	11-114
2,4-Dinitrotoluene	1700	0.0	1100	65	28- 89
Pentachlorophenol	2500	0.0	1400	56	17-109
Pyrene	1700	0.0	1000	59	35-142

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 11 outside limits

COMMENTS: _____

PL 2-18-04

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix Spike - EPA Sample No.: GL-SS-05 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Phenol	2700	0.0	1400	52	26- 90
2-Chlorophenol	2700	0.0	1400	52	25-102
1,4-Dichlorobenzene	1800	0.0	790	44	28-104
N-Nitroso-di-n-prop.(1)	1800	0.0	1300	72	41-126
1,2,4-Trichlorobenzene	1800	0.0	1000	56	38-107
4-Chloro-3-Methylphenol	2700	0.0	1800	67	26-103
Acenaphthene	1800	0.0	1300	72	31-137
4-Nitrophenol	2700	0.0	1900	70	11-114
2,4-Dinitrotoluene	1800	0.0	1200	67	28- 89
Pentachlorophenol	2700	0.0	630	23	17-109
Pyrene	1800	0.0	1200	67	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	2700	1400	52	0	35	26- 90
2-Chlorophenol	2700	1400	52	0	50	25-102
1,4-Dichlorobenzene	1800	860	48	9	27	28-104
N-Nitroso-di-n-prop.(1)	1800	1400	78	8	38	41-126
1,2,4-Trichlorobenzene	1800	1000	56	0	23	38-107
4-Chloro-3-Methylphenol	2700	1600	59	13	33	26-103
Acenaphthene	1800	1200	67	7	19	31-137
4-Nitrophenol	2700	1800	67	4	50	11-114
2,4-Dinitrotoluene	1800	1200	67	0	47	28- 89
Pentachlorophenol	2700	1100	41	56*	47	17-109
Pyrene	1800	1200	67	0	36	35-142

(1) N-Nitroso-di-n-propylamine
Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 1 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

COMMENTS:

PL 2.18.00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 00552

A0121SBLK

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: A0121SBLK

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6738

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-di-n-propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	830	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	830	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
99-09-2	3-Nitroaniline	830	U
83-32-9	Acenaphthene	330	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

A0121SBLK

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: A0121SBLK

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6738

Level: (low/med) LOW Date Received: _____

% Moisture: 0 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	830	U
100-02-7	4-Nitrophenol	830	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	830	U
534-52-1	4,6-Dinitro-2-methylphenol	830	U
86-30-6	N-nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	830	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	53	J
117-84-0	Di-n-octylphthalate	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenz(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

(1) - Cannot be separated from Diphenylamine

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-01

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6743

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 25 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	440	U
111-44-4	bis(2-Chloroethyl)Ether	440	U
95-57-8	2-Chlorophenol	440	U
541-73-1	1,3-Dichlorobenzene	440	U
106-46-7	1,4-Dichlorobenzene	440	U
95-50-1	1,2-Dichlorobenzene	440	U
95-48-7	2-Methylphenol	440	U
108-60-1	2,2'-oxybis(1-Chloropropane)	440	U
106-44-5	4-Methylphenol	440	U
621-64-7	N-Nitroso-di-n-propylamine	440	U
67-72-1	Hexachloroethane	440	U
98-95-3	Nitrobenzene	440	U
78-59-1	Isophorone	440	U
88-75-5	2-Nitrophenol	440	U
105-67-9	2,4-Dimethylphenol	440	U
111-91-1	bis(2-Chloroethoxy)methane	440	U
120-83-2	2,4-Dichlorophenol	440	U
120-82-1	1,2,4-Trichlorobenzene	440	U
91-20-3	Naphthalene	440	U
106-47-8	4-Chloroaniline	440	U
87-68-3	Hexachlorobutadiene	440	U
59-50-7	4-Chloro-3-Methylphenol	440	U
91-57-6	2-Methylnaphthalene	440	U
77-47-4	Hexachlorocyclopentadiene	440	U
88-06-2	2,4,6-Trichlorophenol	440	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	440	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	440	U
208-96-8	Acenaphthylene	440	U
606-20-2	2,6-Dinitrotoluene	440	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	440	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-01

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6743

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 25 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	440	U
121-14-2	2,4-Dinitrotoluene	440	U
84-66-2	Diethylphthalate	440	U
7005-72-3	4-Chlorophenyl-phenylether	440	U
86-73-7	Fluorene	440	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-nitrosodiphenylamine (1)	440	U
101-55-3	4-Bromophenyl-phenylether	440	U
118-74-1	Hexachlorobenzene	440	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	440	U
120-12-7	Anthracene	440	U
86-74-8	Carbazole	440	U
84-74-2	Di-n-butylphthalate	440	U
206-44-0	Fluoranthene	440	U
129-00-0	Pyrene	440	U
85-68-7	Butylbenzylphthalate	16	J
91-94-1	3,3'-Dichlorobenzidine	440	U
56-55-3	Benzo(a)anthracene	440	U
218-01-9	Chrysene	440	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~390~~	~~BJ~~ 4404
117-84-0	Di-n-octylphthalate	440	U
205-99-2	Benzo(b)fluoranthene	440	U
207-08-9	Benzo(k)fluoranthene	440	U
50-32-8	Benzo(a)pyrene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	440	U 3/2/00 JAL
53-70-3	Dibenz(a,h)anthracene	440	U
191-24-2	Benzo(g,h,i)perylene	440	U

(1) - Cannot be separated from Diphenylamine

PL 2-18-00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-02

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-2

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6744

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 15 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	32	J
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-Methylphenol	390	U
91-57-6	2-Methylnaphthalene	13	J
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	980	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	980	U
131-11-3	Dimethylphthalate	89	J
208-96-8	Acenaphthylene	14	J
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	980	U
83-32-9	Acenaphthene	27	J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-02

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-2

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6744

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 15 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol	980	U
132-64-9	Dibenzofuran	13	J
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	32	J
100-01-6	4-Nitroaniline	980	U
534-52-1	4,6-Dinitro-2-methylphenol	980	U
86-30-6	N-nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	980	U
85-01-8	Phenanthrene	280	J
120-12-7	Anthracene	67	J
86-74-8	Carbazole	34	J
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	280	J
129-00-0	Pyrene	290	J
85-68-7	Butylbenzylphthalate	150	J
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)anthracene	150	J
218-01-9	Chrysene	180	J
117-81-7	bis(2-Ethylhexyl)phthalate	~~420~~	~~B~~ 390 U
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo(b)fluoranthene	120	J
207-08-9	Benzo(k)fluoranthene	100	J
50-32-8	Benzo(a)pyrene	140	J
193-39-5	Indeno(1,2,3-cd)pyrene	88	J
53-70-3	Dibenz(a,h)anthracene	30	J
191-24-2	Benzo(g,h,i)perylene	96	J

(1) - Cannot be separated from Diphenylamine

3/2/00 JHL

PL 2.23.00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-03

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-3

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6745

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 15 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-Methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	970	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	970	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	970	U
83-32-9	Acenaphthene	390	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-03

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-3

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6745

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 15 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
51-28-5	2,4-Dinitrophenol	970	U	
100-02-7	4-Nitrophenol	970	U	
132-64-9	Dibenzofuran	390	U	
121-14-2	2,4-Dinitrotoluene	390	U	
84-66-2	Diethylphthalate	390	U	
7005-72-3	4-Chlorophenyl-phenylether	390	U	
86-73-7	Fluorene	390	U	
100-01-6	4-Nitroaniline	970	U	
534-52-1	4,6-Dinitro-2-methylphenol	970	U	
86-30-6	N-nitrosodiphenylamine (1)	390	U	
101-55-3	4-Bromophenyl-phenylether	390	U	
118-74-1	Hexachlorobenzene	390	U	
87-86-5	Pentachlorophenol	970	U	
85-01-8	Phenanthrene	390	U	
120-12-7	Anthracene	390	U	
86-74-8	Carbazole	390	U	
84-74-2	Di-n-butylphthalate	390	U	
206-44-0	Fluoranthene	390	U	
129-00-0	Pyrene	9	J	
85-68-7	Butylbenzylphthalate	48	J	
91-94-1	3,3'-Dichlorobenzidine	390	U	
56-55-3	Benzo(a)anthracene	390	U	
218-01-9	Chrysene	390	U	
117-81-7	bis(2-Ethylhexyl)phthalate	~~130~~ ~~BJ~~		390 U
117-84-0	Di-n-octylphthalate	390	U	
205-99-2	Benzo(b)fluoranthene	9	J	
207-08-9	Benzo(k)fluoranthene	5	J	3/2/00 JHL
50-32-8	Benzo(a)pyrene	16	J	
193-39-5	Indeno(1,2,3-cd)pyrene	390	U	
53-70-3	Dibenz(a,h)anthracene	390	U	
191-24-2	Benzo(g,h,i)perylene	11	J	

(1) - Cannot be separated from Diphenylamine

PL 2-18-00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-04

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-4

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6746

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 11 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	370	U
111-44-4	bis(2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-di-n-propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
111-91-1	bis(2-Chloroethoxy)methane	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-Methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	930	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	930	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	370	U
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	930	U
83-32-9	Acenaphthene	370	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-04

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-4

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6746

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 11 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	930	U
100-02-7	4-Nitrophenol	930	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-01-6	4-Nitroaniline	930	U
534-52-1	4,6-Dinitro-2-methylphenol	930	U
86-30-6	N-nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	930	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
86-74-8	Carbazole	370	U
84-74-2	Di-n-butylphthalate	28	J
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	9	J
85-68-7	Butylbenzylphthalate	31	J
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~160~~ ~~BJ~~	370 U
117-84-0	Di-n-octylphthalate	370	U
205-99-2	Benzo(b)fluoranthene	6	J
207-08-9	Benzo(k)fluoranthene	3	J
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenz(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

3/2/00 JHL

(1) - Cannot be separated from Diphenylamine

PL 2-23-00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-05

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-5

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6740

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 8 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360	U
111-44-4	bis(2-Chloroethyl)Ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
95-48-7	2-Methylphenol	360	U
108-60-1	2,2'-oxybis(1-Chloropropane)	360	U
106-44-5	4-Methylphenol	360	U
621-64-7	N-Nitroso-di-n-propylamine	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethylphenol	360	U
111-91-1	bis(2-Chloroethoxy)methane	360	U
120-83-2	2,4-Dichlorophenol	360	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	360	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-Methylphenol	360	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	910	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	910	U
131-11-3	Dimethylphthalate	360	U
208-96-8	Acenaphthylene	360	U
606-20-2	2,6-Dinitrotoluene	360	U
99-09-2	3-Nitroaniline	910	U
83-32-9	Acenaphthene	360	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-05

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-5

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6740

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 8 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 01/25/00

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	910	U
100-02-7	4-Nitrophenol	910	U
132-64-9	Dibenzofuran	360	U
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
7005-72-3	4-Chlorophenyl-phenylether	360	U
86-73-7	Fluorene	360	U
100-01-6	4-Nitroaniline	910	U
534-52-1	4,6-Dinitro-2-methylphenol	910	U
86-30-6	N-nitrosodiphenylamine (1)	360	U
101-55-3	4-Bromophenyl-phenylether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	910	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	24	J
91-94-1	3,3'-Dichlorobenzidine	360	U
56-55-3	Benzo(a)anthracene	360	U
218-01-9	Chrysene	360	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~100~~	~~BJ~~ 360 U
117-84-0	Di-n-octylphthalate	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
50-32-8	Benzo(a)pyrene	15	J 3/2/00 JHL
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
53-70-3	Dibenz(a,h)anthracene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U

(1) - Cannot be separated from Diphenylamine

PL 2.18.00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE No.

GL-SS-06

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-6R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6811

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 18 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-Methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	400	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-06

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-6R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6811

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 18 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	9	J
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~68~~	~~JB~~
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	400	U
207-08-9	Benzo(k)fluoranthene	400	U
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

400 U

3/2/00 JHL

(1) - Cannot be separated from Diphenylamine

R 2-15-00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-07

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-7R

Sample wt/vol: 30.0/(g/mL) G Lab File ID: J6809

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 17 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-Methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	400	U

00292
EPA SAMPLE NO.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

GL-SS-07

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-7R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6809

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 17 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~70~~ JB	400 U
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	400	U
207-08-9	Benzo(k)fluoranthene	400	U
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

3/2/00 JHL

(1) - Cannot be separated from Diphenylamine

Pr 2-15-00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 00331

GL-SS-08

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-8R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6810

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 18 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-Methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	400	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SS-08

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-8R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6810

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 18 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
51-28-5	2,4-Dinitrophenol	1000	U	
100-02-7	4-Nitrophenol	1000	U	
132-64-9	Dibenzofuran	400	U	
121-14-2	2,4-Dinitrotoluene	400	U	
84-66-2	Diethylphthalate	400	U	
7005-72-3	4-Chlorophenyl-phenylether	400	U	
86-73-7	Fluorene	400	U	
100-01-6	4-Nitroaniline	1000	U	
534-52-1	4,6-Dinitro-2-methylphenol	1000	U	
86-30-6	N-nitrosodiphenylamine (1)	400	U	
101-55-3	4-Bromophenyl-phenylether	400	U	
118-74-1	Hexachlorobenzene	400	U	
87-86-5	Pentachlorophenol	1000	U	
85-01-8	Phenanthrene	400	U	
120-12-7	Anthracene	400	U	
86-74-8	Carbazole	400	U	
84-74-2	Di-n-butylphthalate	400	U	
206-44-0	Fluoranthene	400	U	
129-00-0	Pyrene	400	U	
85-68-7	Butylbenzylphthalate	9	J	
91-94-1	3,3'-Dichlorobenzidine	400	U	
56-55-3	Benzo(a)anthracene	400	U	
218-01-9	Chrysene	400	U	
117-81-7	bis(2-Ethylhexyl)phthalate	~~70~~ ~~JB~~		400 U
117-84-0	Di-n-octylphthalate	400	U	
205-99-2	Benzo(b)fluoranthene	400	U	
207-08-9	Benzo(k)fluoranthene	400	U	
50-32-8	Benzo(a)pyrene	400	U	3/2/00 JHL
193-39-5	Indeno(1,2,3-cd)pyrene	400	U	
53-70-3	Dibenz(a,h)anthracene	400	U	
191-24-2	Benzo(g,h,i)perylene	400	U	

(1) - Cannot be separated from Diphenylamine

PL 2-15-00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 00371

GL-SED-01

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-9R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6806

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 23 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	430	U
111-44-4	bis(2-Chloroethyl)Ether	430	U
95-57-8	2-Chlorophenol	430	U
541-73-1	1,3-Dichlorobenzene	430	U
106-46-7	1,4-Dichlorobenzene	430	U
95-50-1	1,2-Dichlorobenzene	430	U
95-48-7	2-Methylphenol	430	U
108-60-1	2,2'-oxybis(1-Chloropropane)	430	U
106-44-5	4-Methylphenol	430	U
621-64-7	N-Nitroso-di-n-propylamine	430	U
67-72-1	Hexachloroethane	430	U
98-95-3	Nitrobenzene	430	U
78-59-1	Isophorone	430	U
88-75-5	2-Nitrophenol	430	U
105-67-9	2,4-Dimethylphenol	430	U
111-91-1	bis(2-Chloroethoxy)methane	430	U
120-83-2	2,4-Dichlorophenol	430	U
120-82-1	1,2,4-Trichlorobenzene	430	U
91-20-3	Naphthalene	430	U
106-47-8	4-Chloroaniline	430	U
87-68-3	Hexachlorobutadiene	430	U
59-50-7	4-Chloro-3-Methylphenol	430	U
91-57-6	2-Methylnaphthalene	430	U
77-47-4	Hexachlorocyclopentadiene	430	U
88-06-2	2,4,6-Trichlorophenol	430	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	430	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	430	U
208-96-8	Acenaphthylene	430	U
606-20-2	2,6-Dinitrotoluene	430	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	430	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SED-01

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-9R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6806

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 23 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	430	U
121-14-2	2,4-Dinitrotoluene	430	U
84-66-2	Diethylphthalate	430	U
7005-72-3	4-Chlorophenyl-phenylether	430	U
86-73-7	Fluorene	430	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-nitrosodiphenylamine (1)	430	U
101-55-3	4-Bromophenyl-phenylether	430	U
118-74-1	Hexachlorobenzene	430	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	430	U
120-12-7	Anthracene	430	U
86-74-8	Carbazole	430	U
84-74-2	Di-n-butylphthalate	430	U
206-44-0	Fluoranthene	430	U
129-00-0	Pyrene	430	U
85-68-7	Butylbenzylphthalate	430	U
91-94-1	3,3'-Dichlorobenzidine	430	U
56-55-3	Benzo(a)anthracene	430	U
218-01-9	Chrysene	430	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~56~~ JB	430U
117-84-0	Di-n-octylphthalate	430	U
205-99-2	Benzo(b)fluoranthene	430	U
207-08-9	Benzo(k)fluoranthene	430	U
50-32-8	Benzo(a)pyrene	430	U
193-39-5	Indeno(1,2,3-cd)pyrene	430	U
53-70-3	Dibenz(a,h)anthracene	430	U
191-24-2	Benzo(g,h,i)perylene	430	U

3/2/00 JHL

(1) - Cannot be separated from Diphenylamine

PL 2-14-00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
GL-SED-02

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-10R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6812

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 48 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	640	U
111-44-4	bis(2-Chloroethyl)Ether	640	U
95-57-8	2-Chlorophenol	640	U
541-73-1	1,3-Dichlorobenzene	640	U
106-46-7	1,4-Dichlorobenzene	640	U
95-50-1	1,2-Dichlorobenzene	640	U
95-48-7	2-Methylphenol	640	U
108-60-1	2,2'-oxybis(1-Chloropropane)	640	U
106-44-5	4-Methylphenol	17	J
621-64-7	N-Nitroso-di-n-propylamine	640	U
67-72-1	Hexachloroethane	640	U
98-95-3	Nitrobenzene	640	U
78-59-1	Isophorone	640	U
88-75-5	2-Nitrophenol	640	U
105-67-9	2,4-Dimethylphenol	640	U
111-91-1	bis(2-Chloroethoxy)methane	640	U
120-83-2	2,4-Dichlorophenol	640	U
120-82-1	1,2,4-Trichlorobenzene	640	U
91-20-3	Naphthalene	640	U
106-47-8	4-Chloroaniline	640	U
87-68-3	Hexachlorobutadiene	640	U
59-50-7	4-Chloro-3-Methylphenol	640	U
91-57-6	2-Methylnaphthalene	640	U
77-47-4	Hexachlorocyclopentadiene	640	U
88-06-2	2,4,6-Trichlorophenol	640	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	640	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylphthalate	640	U
208-96-8	Acenaphthylene	640	U
606-20-2	2,6-Dinitrotoluene	640	U
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	640	U

C04L4

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SED-02

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-10R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6812

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 48 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	640	U
121-14-2	2,4-Dinitrotoluene	640	U
84-66-2	Diethylphthalate	640	U
7005-72-3	4-Chlorophenyl-phenylether	640	U
86-73-7	Fluorene	640	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-methylphenol	1600	U
86-30-6	N-nitrosodiphenylamine (1)	640	U
101-55-3	4-Bromophenyl-phenylether	640	U
118-74-1	Hexachlorobenzene	640	U
87-86-5	Pentachlorophenol	36	J
85-01-8	Phenanthrene	60	J
120-12-7	Anthracene	640	U
86-74-8	Carbazole	640	U
84-74-2	Di-n-butylphthalate	30	J
206-44-0	Fluoranthene	97	J
129-00-0	Pyrene	97	J
85-68-7	Butylbenzylphthalate	95	J
91-94-1	3,3'-Dichlorobenzidine	640	U
56-55-3	Benzo(a)anthracene	45	J
218-01-9	Chrysene	73	J
117-81-7	bis(2-Ethylhexyl)phthalate	~~360~~	~~JB~~
117-84-0	Di-n-octylphthalate	27	J
205-99-2	Benzo(b)fluoranthene	58	J
207-08-9	Benzo(k)fluoranthene	42	J
50-32-8	Benzo(a)pyrene	45	J
193-39-5	Indeno(1,2,3-cd)pyrene	45	J
53-70-3	Dibenz(a,h)anthracene	640	U
191-24-2	Benzo(g,h,i)perylene	640	U

640 U
3/2/00 JHL

(1) - Cannot be separated from Diphenylamine

PL 2-23.cm

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SED-03

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-11R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6808

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 18 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 02/04/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-Methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	400	U

00460

EPA SAMPLE NO.

GL-SED-03

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-11R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6808

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 18 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~30 JB~~	400 U
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	400	U
207-08-9	Benzo(k)fluoranthene	400	U
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

3/2/00 JHL

(1) - Cannot be separated from Diphenylamine

PL 2-15-00

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SED-04

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-12R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6807

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 18 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-Methylphenol	400	U
91-57-6	2-Methylnaphthalene	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	400	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GL-SED-04

Lab Name: MULTICHEM ANALYTICAL SERV Contract:

Lab Code: MAS Case No.: SAS No.: SDG No.: 001025

Matrix: (soil/water) SOIL Lab Sample ID: 001025-12R

Sample wt/vol: 30.0 (g/mL) G Lab File ID: J6807

Level: (low/med) LOW Date Received: 01/12/00

% Moisture: 18 decanted: (Y/N) N Date Extracted: 01/21/00

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/00

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	400	U
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)anthracene	400	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	~~85~~	JB ✓
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo(b)fluoranthene	400	U
207-08-9	Benzo(k)fluoranthene	400	U
50-32-8	Benzo(a)pyrene	400	U
193-39-5	Indeno(1,2,3-cd)pyrene	400	U
53-70-3	Dibenz(a,h)anthracene	400	U
191-24-2	Benzo(g,h,i)perylene	400	U

400U
3/2/00
JHL

(1) - Cannot be separated from Diphenylamine

PL 2.15.00

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 001026

March 17, 2000

Hart Crowser, Inc.
1910 Fairview Avenue East
Seattle WA 98102-3699

Attention : Elisabeth Black

Project Number : J-7057-12

Project Name : Gorst Landfill Site Investigation

Dear Ms. Black:

On January 12, 2000, MultiChem Analytical Services received three samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data were sent on February 18, 2000.

The General chemistry form I's were modified to reflect hardness and Bicarbonate and carbonate alkalinity. The metals Form I's were modified to include calcium results.

Sincerely,

Susan Snyder

Susan M. Snyder
Project Manager

SMS/hal/trm

Enclosure

560 Naches Avenue SW, Suite 101, Renton, Washington 98055-2200 • 425-228-8335 • FAX 425-228-8336 • 1-800-609-0580 • info@multichem.com

INORGANICS SW-846

00001

1

CLIENT ID

INORGANIC ANALYSIS DATA SHEET

GLSW01

Lab Name: MULTICHEM

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-1

% Solids:

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
	Fluoride				NR
	Chloride	1690			IC
	Nitrite				NR
	Nitrate				NR
	Phosphate				NR
	Sulfate	2260			IC
	~~Alkalinity~~	~~10000~~			~~T~~ SS
	Carbon				NR
	NO3-NO2	114			C
	TDS				NR
	TSS	10000	U		GR
	Alkalinity-Total	10000			T
	Bicarbonate Alkalinity	10000			T
	Carbonate alkalinity	5000	U		T
	Hardness	8880			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSW02

Lab Name: MULTICHEM

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-2

% Solids:

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
	Fluoride				NR
	Chloride	1690			IC
	Nitrite				NR
	Nitrate				NR
	Phosphate				NR
	Sulfate	2890			IC
	~~Alkalinity~~	~~12000~~			~~T~~ SB
	Carbon				NR
	NO3-NO2	99.5			C
	TDS				NR
	TSS	10000	U		GR
	Alkalinity-Total	12000			T
	Bicarbonate-Alkalinity	12000			T
	Carbonate-Alkalinity	5000	U		T
	Hardness	11800			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Hardness

(Calculated from Calcium and Magnesium Concentrations)

Sample Description	Calcium, mg/L	Magnesium, mg/L	Hardness, mg/L
PBW	0.0256	0.0032	0.07710
PBWS	0.9544	1.0840	6.84705
001023-3 TOT	103.40	10.7	302.29358
001023-3DUP TOT	103.30	10.94	302.99102
001023-3SPK TOT	112.10	20.7	365.32102
001026-1 TOT	1.78	1.08	8.88386
001026-2 TOT	2.83	1.16	11.82604
D/L	0.100	0.0500	0.456
BLANK SPIKE ADDED	1.00	1.00	6.62
MATRIX SPIKE ADDED	10.00	10.00	66.2
POST DIGESTION SPIKE			
% RPD			0
BS % REC			104
MS % REC			95
PDS % REC			

Formula:

Hardness = 2.497 X Calcium + 4.118 X Magnesium

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSW01

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-1T

% Solids:

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	1780			NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	222			P
7439-92-1	Lead	3.0	U		F
7439-95-4	Magnesium	1080			P
7439-96-5	Manganese	10.0	U		P
7439-97-6	Mercury	0.20			CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	489			P
7782-49-2	Selenium	5.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	1820			P
7440-28-0	Thallium	5.0	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSW01

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-1

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	3.0	U	W	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	5.0	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

1

INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSW02

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-2T

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	2830.			NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	219			P
7439-92-1	Lead	3.0	U		F
7439-95-4	Magnesium	1160			P
7439-96-5	Manganese	10.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium	482			P
7782-49-2	Selenium	5.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium	1790			P
7440-28-0	Thallium	5.0	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

INORGANICS SW-846

1
INORGANIC ANALYSIS DATA SHEET

CLIENT ID

GLSW02

Lab Name: MULTICHEM ANALYTICAL SERVICES

SDG No.: 001026

Matrix (soil/water): WATER

Lab Sample ID: 001026-2

% Solids: _____

Date Received: 01/12/00

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.0	U		F
7440-39-3	Barium				NR
7440-41-7	Beryllium	5.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium				NR
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt				NR
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron				NR
7439-92-1	Lead	3.0	U	W 2/1/00	F
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	10.0	U		P
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		F
7440-22-4	Silver	10.0	U		P
7440-23-5	Sodium				NR
7440-28-0	Thallium	5.0	U		F
7440-62-2	Vanadium				NR
7440-66-6	Zinc	10.0	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: