

LEGGETTE, BRASHEARS & GRAHAM, INC.

PROFESSIONAL GROUND-WATER AND ENVIRONMENTAL ENGINEERING SERVICES

10014 NORTH DALE MABRY HIGHWAY
SUITE 205
TAMPA, FL 33618
813-968-5882
FAX 813-968-9244

October 5, 2000

Mr. Steven G. Morgan, Section Supervisor
Solid Waste Compliance / Enforcement
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Re: Soil and Surface Water Sampling Report
City of Sarasota Public Works Material Stockpile
Sarasota, Florida
OGC # 99-1298, Sarasota County

Dear Mr. Morgan:

Pursuant to the subject consent order, Leggette, Brashears & Graham, Inc. (LBG) has completed soil and surface water sampling at the above referenced site. LBG, on behalf of the City of Sarasota, presents the following letter report summarizing the sampling procedures and analytical results for these activities. The sampling activities were conducted in accordance with LBG's Soil and Surface Water Sampling Plan (dated July 7, 2000) and with the requirements of the Material Stockpile Recycling Plan Soil and Surface Water Sampling Plan (Exhibit B) of the executed Consent Order OGC #99-1298. LBG's Soil and Surface Water Sampling Plan was approved by the Florida Department of Environmental Protection (FDEP) in a letter dated August 2, 2000.

Soil Assessment Activities

On August 16, 2000, LBG conducted soil quality assessment activities at the subject site to evaluate potential soil contamination concerns for the former materials stockpile. LBG personnel collected composite soil samples for laboratory analysis from a total of 13 locations within the footprint of the former materials stockpile. The approximate locations of the soil samples are indicated on **Figure 1**. Each composite sample consisted of equal soil volumes collected at one-half foot intervals, utilizing a stainless-steel hand auger, from the upper two feet of the soil column. Soil samples for analysis of volatile constituents were not composited but were collected as discrete samples at a depth of approximately one-foot below land surface (bls).

All soil-sampling activities were conducted using procedures as outlined in LBG's FDEP approved Comprehensive Quality Assurance Plan (CompQAP) No. 860095G. Volatile soil samples were collected using the Encore sampler, directly from the hand auger bucket, in

ST. PAUL, MINNESOTA

WEST CHESTER, PENNSYLVANIA

RAMSEY, NEW JERSEY

ST. LOUIS, MISSOURI

FREEPORT, ILLINOIS

SIOUX FALLS, SOUTH DAKOTA

TRUMBULL, CONNECTICUT

CHELMSFORD, MASSACHUSETTS

WHITE PLAINS, NEW YORK

AUSTIN, TEXAS

MADISON, WISCONSIN

HOUSTON, TEXAS

accordance with the procedures outlined in Update III of EPA SW-846 and the FDEP QAS Guidance #98-03 (Revised July, 1998).

The soil samples were placed on wet ice in insulated containers and shipped to US Biosystems, a State certified laboratory located in Boca Raton, Florida, for laboratory analysis in accordance with their FDEP approved CompQAP No. 980126. Soil samples from each location were analyzed for:

- Metals: RCRA metal (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), aluminum, copper, nickel and zinc by EPA Method 7471 (mercury) and EPA Method 3050/6010 (all others);
- Total petroleum hydrocarbons (TPH) by the FL PRO Method;
- Volatile organic compounds by EPA Method 8260, and
- Semi-volatile organic compounds by EPA Method 8270.

The soil analytical results are summarized in **Table 1**. Analytical results for all soil samples were below the applicable soil cleanup target levels presented in Chapter 62-777 FAC (direct exposure commercial / industrial). A copy of the original laboratory analytical report for the soil samples, including the chain-of-custody, is attached as **Appendix A**.

Surface Water Assessment Activities

On August 23, 2000, LBG conducted surface-water quality assessment activities at the subject site to evaluate potential water quality impacts to the on-site storm-water retention pond associated with the former materials stockpile. A single grab sample was collected from the midpoint of the northern edge of the retention pond where potential contaminants would be most likely to enter the water body. All surface water sampling activities were conducted in accordance with LBG's FDEP approved CompQAP. The approximate location of the surface-water sampling point is indicated on **Figure 1**. The grab samples were collected from just below the water surface by directly dipping the sample containers into the pond while standing on the bank of the pond. Grab samples for analysis of volatile organic compounds were collected using a dedicated disposable Teflon bailer and then transferred directly into 40-milliliter (ml) septum vials. The samples were placed on wet ice in insulated containers and shipped to US Biosystems for analysis. The surface water samples were analyzed for:

- Metals: RCRA metal (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), aluminum, copper, nickel and zinc by EPA Method 245.1 (mercury) and EPA Method 3010/6010 (all others);
- Total hardness by Standard Method (SM) 2340B;
- Unionized ammonia by FDEP SOP;
- BOD by EPA Method 405.1;
- Total petroleum hydrocarbons (TPH) by the FL PRO Method;
- Volatile organic compounds by EPA Method 8260, and

- Semi-volatile organic compounds by EPA Method 8270.

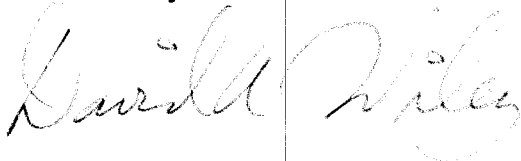
Additionally, grab samples were collected for field analysis of pH, conductivity, temperature, turbidity and dissolved oxygen. The field sample for turbidity was collected prior to all other samples to minimize potential disturbance to the sediment bottom. The field and laboratory analytical results for the surface water sample are summarized in **Table 2**. Surface water analytical results indicate that none of the analytical parameters exceed the criteria for Class III Surface Waters (Predominantly Fresh Waters) established in Chapter 62-302.530 FAC. Surface water sample analytical results for silver and mercury were below laboratory method detection limits (MDL). The MDL's utilized for silver and mercury exceed the Chapter 62-302.530 criteria for Class III Surface Waters but meet the June 1994 Ground Water Guidance Concentrations Practical Quantitation Levels (PQL) for those parameters. John Morris of the FDEP's Southwest District office indicated that this is acceptable to the Department. A copy of the original surface water laboratory analytical report, including chain-of-custody, is attached as **Appendix B**.

Based on the analytical data presented in this report, soil and surface water quality for the former City of Sarasota Public Works Material Stockpile are in compliance with the FDEP's soil and surface water quality standards and minimum criteria. Provided that all other terms of the referenced Consent Order have been complied with, LBG recommends that the FDEP issue the City of Sarasota a letter of compliance regarding the terms of Consent Order OGC #99-1298. Should you have any questions or comments on any of the above, please do not hesitate to call either of the undersigned at (813) 968-5882.

Very truly yours,

Affirmed by:

LEGGETTE, BRASHEARS & GRAHAM, INC.



David A. Wiley, P.G.
Senior Associate



Ron Ewinski.
Project Hydrogeologist

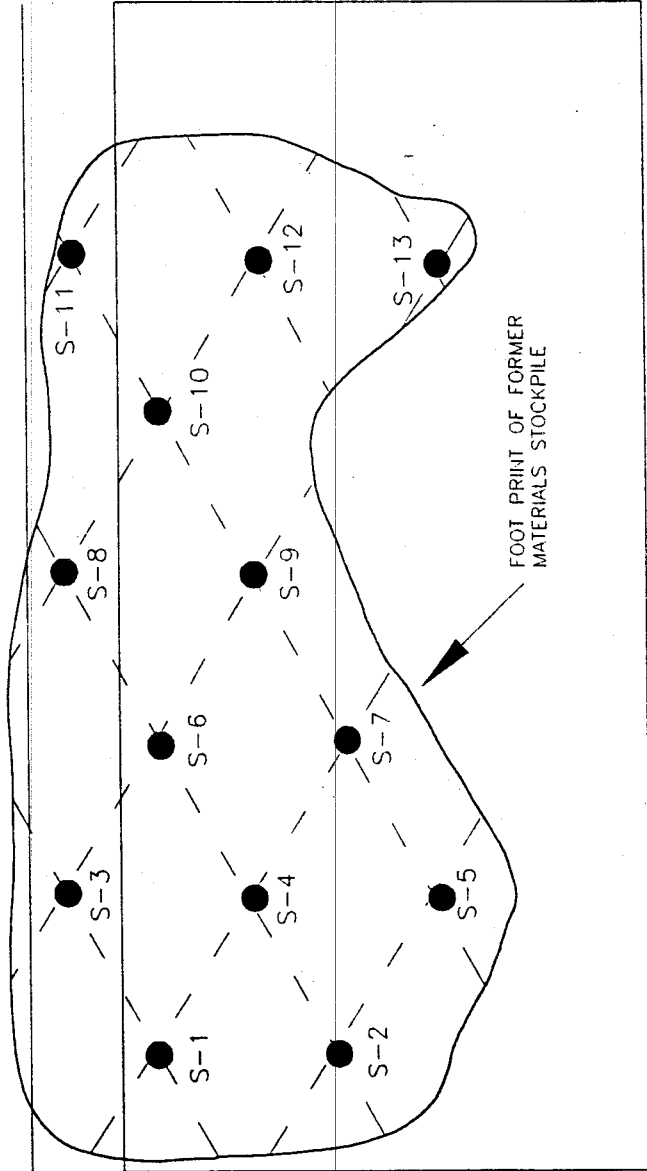
Attachments

cc: Edward P. de la Parte

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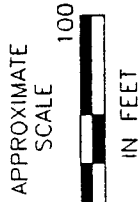
15TH STREET

GILLESPIE AVENUE



OSPREY AVENUE

13TH STREET



STORM-WATER RETENTION POND

LEGEND

- COMPOSITE SOIL SAMPLE LOCATION
- ⊙ SURFACE WATER GRAB SAMPLE LOCATION

SOIL AND SURFACE-WATER SAMPLING PLAN
PUBLIC WORKS MATERIAL STOCKPILE
SARASOTA, FLORIDA

SAMPLE LOCATIONS

DATE REVISED



PREPARED BY:
LEGGETT, BRASHEARS & GRAHAM, INC.
Professional Geotechnical, Water and Environmental Engineering Services
Cypress Point Office Park
10014 North Dale Mabry Highway - Suite 205
Tampa, FL 33618
(813) 968-5882

DRAWN: TDH

CHECKED: DAW

DATE: 7/2000

FIGURE: 1

**MATERIALS STOCKPILE RECYCLING PLAN
CITY OF SARASOTA PUBLIC WORKS STOCKPILE
SARASOTA, FLORIDA**

TABLE 2. SUMMARY OF SURFACE-WATER QUALITY RESULTS

Targeted Compound	Cleanup Target Limit mg/l ^(II)	Sample Analytical Results	Units	Analytical Method	Method Detection Limit	Sample Date
Metals						
Aluminum	NR	0.13	mg/l	3010/6010	0.05	23-Aug-00
Arsenic	0.05	0.012	mg/l	3010/6010	0.01	23-Aug-00
Barium	NR	0.011	mg/l	3010/6010	0.01	23-Aug-00
Chromium	#	BDL	mg/l	3010/6010	0.005	23-Aug-00
Copper	#	BDL	mg/l	3010/6010	0.01	23-Aug-00
Lead	#	BDL	mg/l	3010/6010	0.005	23-Aug-00
Nickel	#	BDL	mg/l	3010/6010	0.005	23-Aug-00
Silver	0.070000	BDL	mg/l	3010/6010	0.01	23-Aug-00
Zinc	#	0.024	mg/l	3010/6010	0.01	23-Aug-00
Mercury	0.012000	BDL	mg/l	245	0.0002	23-Aug-00
General Chemistry						
Unionized Ammonia	0.02	BDL	mg/l	FDEP SOP	0.02	23-Aug-00
TPH	NR	BDL	mg/l	1664	4.5	23-Aug-00
Other Inorganics						
Calcium Hardness	NR	55	mg/l	SM2340B	0.25	23-Aug-00
Magnesium Hardness	NR	110	mg/l	SM2340B	0.2	23-Aug-00
Total Hardness	NR	160	mg/l	SM2340B	0.45	23-Aug-00
BOD	-	23	mg/l	405.1	4.0	23-Aug-00
Field Measured Parameters						
pH	± 1 A.N.B.	9.29	pH units	(1)		23-Aug-00
Conductivity	1275.00	795	us	(1)		23-Aug-00
Temperature	NR	35.5	°C	(1)	0.1	23-Aug-00
Turbidity	< 29 A.N.B.	144	NTU	(2)	0.01	23-Aug-00
Dissolved Oxygen	> 5.0	16.10	mg/l	(3)	0.01	23-Aug-00

(II) Florida Administrative Code (FAC) Chapter 62-302.530, Class III Fresh Surface Water Criteria.

Hardness dependent per Chapter 62-302, FAC

BDL = Below Detection Limit

(1) Oakton PC 300 Series pH / Conductivity / °C / °F Meter

(2) HACH Model 2100P Turbidimeter

(3) Oakton 35640 - series DO 100 Dissolved Oxygen Meter

NR = Not Regulated Under 62-302.530

A.N.B. = Above Natural Background

6/20/05
mgp
Excel
LEO00000002

**MATERIALS STOCKPILE RECYCLING PLAN
CITY OF SARASOTA PUBLIC WORKS STOCKPILE
CITY OF SARASOTA**

TABLE 1. SUMMARY OF SOIL ANALYTICAL RESULTS FOR August 16, 2000

Targeted Compound	Cleanup Target Level (mg/kg) ^a	S-1 (mg/kg)	S-2 (mg/kg)	S-3 (mg/kg)	S-4 (mg/kg)	S-5 (mg/kg)	S-6 (mg/kg)	S-7 (mg/kg)	S-8 (mg/kg)	S-9 (mg/kg)	S-10 (mg/kg)	S-11 (mg/kg)	S-12 (mg/kg)	S-13 (mg/kg)
Volatile Organics (EPA Method 8260)														
Acetone	5,500	<0.064	<0.057	<0.063	<0.067	0.14	0.21	<0.055	<0.060	<0.060	<0.056	<0.054	0.15	0.13
MEK (2-Butanone)	21,000	<0.064	<0.057	<0.063	<0.067	<0.055	0.067	<0.055	<0.060	<0.060	<0.056	<0.054	<0.062	<0.055
Toluene	2,600	<0.0064	<0.0057	<0.0063	0.15	<0.0055	<0.0056	<0.0055	<0.0060	<0.0060	<0.0056	<0.0054	<0.0062	0.0060
Trichloroethene	8.5	0.019	<0.0057	<0.0063	<0.0067	<0.0055	<0.0056	<0.0055	<0.0060	<0.0060	<0.0056	<0.0054	<0.0062	<0.0055
Florida Petroleum Range Organics (FLPRO)														
TPH	2,500	19	<5.7	15	29	14	16	24	28	20	20	7.6	17	23
Semi-Volatile Organics (EPA Method 8170)														
Phenanthrene	30,000	<0.12	<0.11	<0.11	<0.12	<0.11	<0.11	<0.11	<0.11	<0.11	0.14	<0.11	<0.11	0.12
Fluoranthene	48,000	<0.12	<0.11	<0.11	<0.12	<0.11	<0.11	0.16	0.41	<0.11	0.44	<0.11	0.27	1.00
Pyrene	37,000	0.12	<0.11	<0.11	<0.12	<0.11	0.16	0.22	0.47	<0.11	0.70	<0.11	0.39	1.9
Butylbenzylphthalate	320,000	<0.12	<0.11	<0.11	0.21	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Benzo (a) anthracene	5	<0.12	<0.11	<0.11	<0.12	<0.11	<0.11	0.12	0.26	<0.11	0.30	<0.11	0.20	0.51
Chrysene	450	<0.12	<0.11	<0.11	<0.12	<0.11	<0.11	0.16	0.33	<0.11	0.30	<0.11	0.24	0.36
Bis (2-Ethylhexyl) Phthala	280	<0.38	<0.38	<0.38	<0.40	<0.36	<0.37	<0.36	0.39	<0.36	<0.37	<0.37	<0.37	<0.36
Benzo (b) fluoranthene	4.8	0.13	<0.11	<0.11	<0.12	<0.11	<0.11	0.23	0.43	<0.11	0.46	<0.11	0.28	0.33
Benzo (k) fluoranthene	52	<0.12	<0.11	<0.11	<0.12	<0.11	<0.11	<0.11	0.13	<0.11	0.20	<0.11	0.15	0.16
Benzo (a) pyrene	0.5	<0.12	<0.11	<0.11	<0.12	<0.11	<0.11	0.16	0.29	<0.11	0.29	<0.11	0.24	<0.11
Indeno (1,2,3 -cd) pyrene	5.3	<0.12	<0.11	<0.11	<0.12	<0.11	<0.11	<0.11	0.21	<0.11	0.12	<0.11	<0.11	<0.11

**MATERIALS STOCKPILE RECYCLING PLAN
CITY OF SARASOTA PUBLIC WORKS STOCKPILE
CITY OF SARASOTA**

TABLE 1. SUMMARY OF SOIL ANALYTICAL RESULTS FOR August 16, 2000

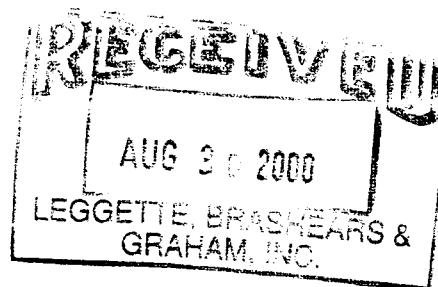
Targeted Compound	Cleanup Target Level (mg/kg) ^(a)	Metals (EPA Method 8250/6010)													
		S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	S-11	S-12	S-13	
Aluminum	72,000 ^(b)	700	15	3,300	850	1,500	1,300	5,300	1,500	700	2,900	2,800	2,100	1,500	No SPUP
Arsenic	3.7	0.66	<0.57	0.75	0.66	0.93	0.93	3.2	1.6	<0.55	1.9	1.8	1.3	1.1	No
Barium	87,000	17	<1.1	24	12	20	24	24	13	9.8	18	11	19	14	No
Cadmium	1,300	<1.2	<1.1	<1.1	<1.2	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	No
Chromium	420	4.5	1.1	7.7	10	14	14	14	10	4.2	8.3	6.9	15	8.7	No
Copper	76,000	9.8	<1.1	11	12	5.6	5.5	18	18	77	11	9.7	17	14	No Need SPUP
Lead	920	20	<1.1	110	55	390	15	15	230	48	50	22	160	75	No Need SPUP
Nickel	28,000	2	<1.1	4.6	2.7	3.7	3.1	3.1	3.4	1.8	2.9	3.1	4.6	3.4	No
Selenium	10,000	<1.2	<1.1	<1.1	<1.2	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	No
Silver	9,100	1.3	<1.1	<1.1	<1.2	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	No
Zinc	560,000	130	10	61	110	200	34	60	60	59	42	31	69	68	No
Mercury	26	0.31	<0.11	0.13	0.32	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	0.11	<0.11	No

(a) Florida Administrative Code (FAC) Chapter 62-777 (Table II), Direct Exposure Commercial / Industrial.

(b) Florida Administrative Code (FAC) Chapter 62-777 (Table II), Direct Exposure Residential (No Commercial / Industrial Target Level).

APPENDIX A
Soil Sample Analysis

USBIOSYSTEMS



Client #: TAM-95-090303
 Address: Leggette, Brashears & Graham
 10014 N. Dale Mabry Highway
 Suite 205
 Tampa, FL 33618
 Attn: Ron Ewinski

Page: Page 1 of 6
 Date: 08/29/2000
 Log #: L45995-1

Sample Description:

City of Sarasota
 Proj.#: SAR-MSA

Label: S-1
 Date Sampled: 08/16/2000
 Time Sampled: 12:45
 Date Received: 08/17/2000
 Collected By: Client

Parameter	Results	Units	Method	Reportable Limit	Extr. Date	Analysis Date	Analyst
Percent Solids							
Percent Solid	86	%	SM2540B	0.10	08/18	08/18	SW
Metals							
Aluminum	700	mg/kg (dw)	3050/6010	5.8	08/21	08/22	PVP
Arsenic	0.66	mg/kg (dw)	3050/6010	0.58	08/21	08/22	PVP
Barium	17	mg/kg (dw)	3050/6010	1.2	08/21	08/22	PVP
Cadmium	BDL	mg/kg (dw)	3050/6010	1.2	08/21	08/22	PVP
Chromium	4.5	mg/kg (dw)	3050/6010	1.2	08/21	08/22	PVP
Copper	9.8	mg/kg (dw)	3050/6010	1.2	08/21	08/22	PVP
Lead	20	mg/kg (dw)	3050/6010	1.2	08/21	08/22	PVP
Nickel	2.0	mg/kg (dw)	3050/6010	5.8	08/21	08/22	PVP
Selenium	BDL	mg/kg (dw)	3050/6010	1.2	08/21	08/22	PVP
Silver	1.3	mg/kg (dw)	3050/6010	1.2	08/21	08/22	PVP
Zinc	130	mg/kg (dw)	3050/6010	5.8	08/21	08/22	PVP
Mercury	0.31	mg/kg (dw)	7471	0.12	08/22	08/22	ZL
Florida Petroleum Range Organics							
TPH(C8-C40)	19	mg/kg (dw)	FLPRO	5.8	08/22	08/22	AJ
Dilution Factor	1.0		FLPRO		08/22	08/22	AJ
Surrogate Recoveries:							
o-Terphenyl	78.0	%	FLPRO	62-109	08/22	08/22	AJ
Nonatriacontane	38.0	%	FLPRO	60-118	08/22	08/22	AJ
1-Chloro-octadecane	75.0	%	FLPRO	18-140	08/22	08/22	AJ
Volatile Organic Compounds							
Acetone	BDL	mg/kg (dw)	5035/8260	0.064	08/18	08/23	JD
Acrolein	BDL	mg/kg (dw)	5035/8260	0.032	08/18	08/23	JD
Acrylonitrile	BDL	mg/kg (dw)	5035/8260	0.032	08/18	08/23	JD
Benzene	BDL	mg/kg (dw)	5035/8260	0.0026	08/18	08/23	JD
Bromobenzene	BDL	mg/kg (dw)	5035/8260	0.0064	08/18	08/23	JD