CONTAMINATION ASSESSMENT PLAN ADDENDUM NO. 2 HOWCO ENVIRONMENTAL SERVICES, INC. PINELLAS COUNTY, FLORIDA OCTOBER, 1993

INC.

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FAX (813) 874-7842

600 South Barracks Street
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Pensacola, Florida 32501
(904) 438-8133
FAX (904) 438-8199

October 15, 1993

Mr. Randall H. Strauss
Environmental Specialist II
Division of Waste Management
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

RE: Contamination Assessment Plan (CAP) Addendum No. 2
Quality Assurance Project Plan (QAPP) Addendum No. 2
HOWCO Environmental Services, Inc, Pinellas County
OGC Case No. 91-1176/FGS Project No. G93-479.18

Dear Mr. Strauss:

The following information is provided as requested in your letter dated August 30, 1993. Our responses correspond numerically to your comments.

Comment 1:

The proposed analyticals do not address all constituents of concern based on historical information of the various waste streams handled at this facility. Due to the handling of citrus sludges, as well as aluminum finishing and plating wastewaters, additional analyses should include pesticides, nickel, pH, turbidity, and field dissolved oxygen. Please submit a more comprehensive sampling plan including these parameters.

Response 1:

Although the above named constituents of concern are not typical of the wastes handled at the facility, the proposed sampling plan will be amended. The revised plan will include laboratory analysis by EPA Method 8080 (Pesticides and PCBs) of one soil sample from each "suspect" area located downgradient of the potential sources discussed in response 11. Specifically, the soil sample indicating the highest Total Recoverable Petroleum Hydrocarbon (TRPH) Concentration from each area will be tested for pesticides and PCBs. In addition to analyses for the 8 RCRA metals, all soil and groundwater samples will be tested for total nickel by EPA

Method 200.7. Filtered and unfiltered groundwater samples will be analyzed. Also, all groundwater samples will be field analyzed for pH by EPA Method 150.1, turbidity by EPA Method 180.1 and dissolved oxygen by EPA Method 360.1. Please note that the QAPP has been revised to include these additional parameters.

Comment 2:

More specific details and description of the site activities should include answers to the following questions:

a. **Does the sludge processing consist solely of filtration, or are other steps involved?**
b. **Are only the exterior portions of vehicles cleaned in the wash rack area, or are tanker interiors also cleaned-out?**
c. **What materials are used for cleaning in the wash rack area--soaps, detergents, etc.?**
d. **What materials are staged/stored at the "Construction Staging/Storage" area?**
e. **What are the number, size, and contents of tanks in "Tank Farm East"?**

Response 2:

The following responses address items (a) through (e) above.

a. Sludge processing is completed on secondary containment, all storm water is captured and treated in HOWCO's wastewater treatment process. The sludge processing consists of a plate and frame filter press and solidification process to reduce liquids to an acceptable level for appropriate disposal.

b. Both interior and exterior portions of these vehicles are cleaned in the wash rack area. This area has secondary containment in which all liquids and solids are captured and treated.

c. A biodegradable detergent is used to clean the vehicles. No solvents or chemicals are used.

d. Miscellaneous pipes, valves and fittings stored at the "Staging/Storage" area.

e. Tank Farm East consists of 21 tanks. Locations of these tanks, capacities, and contents are provided in Appendix A.

Comment 3:

The area around the stormwater oil/water separator and discharge should be assessed.

Response 3:

Soil boring B-1 and monitoring well MW-1 have both been relocated to an area immediately downgradient of the oil/water separator (Figure 1). Soil and groundwater collection and analysis in this area should be adequate to assess the potential environmental impacts.

Comment 4:

Figure 3 of the CAP Addendum does not appear to identify the "suspect" areas identified in Exhibit II of the Consent Order.

Response 4:

Figure 1 shows the revised locations of all soil borings and monitoring wells in relation to the "excessively contaminated" soil identified in the PCAR and "suspect" source areas. Please note that proposed monitoring wells MW-1, MW-3, MW-4, and MW-5 have been moved. Also, proposed boring locations B-2, B-5, and B-8 have been relocated from the CAP Addendum (Figure 3), Response 11 provides further discussion of potential source areas of contamination.

Comment 5:

Please provide analyses typically performed and resulting characterizations of wastewater and sludge materials handled at the facility.

Response 5:

Appendix B contains samples of typical laboratory analytical methods, parameters and resultant waste characterizations for petroleum contaminated soils and sludges recycled at HOWCO. Also, a list of parameters, test methods and effluent limitations for processed wastewater is provided at the end of Appendix B.

Comment 6:

Identification of surface water bodies should include any stormwater drainage ditches or ponds within 1/2-mile radius of the site.

Response 6:

Identification of surface water bodies will include all stormwater drainage ditches and ponds within 1/2-mile radius of the site. The information will be provided in the CAR.

Comment 7:

A site map should be provided in the CAP depicting the known areas of contamination already determined and their relationship to the proposed sampling locations.

Response 7:

Figure 1 shows the known areas of soil contamination and proposed sampling locations.

Comment 8:

Specifically identify the potential sources of soil contamination that determined the locations of the test pits and soil borings in the PCAR.

Response 8:

Soil borings and test pits were excavated in most of the areas within the facility that were accessible to vehicle and heavy equipment (i.e. non-contact areas). Some sampling locations were chosen on the basis of petroleum staining in the surficial soil. Response 11 provides further discussion of potential source areas of contamination.

Comment 9:

The verbal explanation of the mislabeling of Table 3-3 and the test pit and soil boring locations is confusing. Please provide corrected tables and site maps.

Response 9:

Table 3-3 has been corrected as requested. Figure 2-1 in the PCAR is correct with the exception that SB-12 and SB-13 should have been labelled as SB-1 and SB-2. A corrected Table 3-3 and Figure 2-1 are provided in Appendix C.

Comment 10:

The proposal for one PCB sample does not state from where or how this sample will be collected. One sample probably will not be sufficient. Please submit a more comprehensive PCB sampling plan including specific locations.

Response 10:

As indicated in Response No. 1, one soil sample collected downgradient of each "suspect" source, will be analyzed in accordance with EPA Method 8080 which includes PCBs.

Comment 11:

No source areas are identified in the PCAR, only areas of excessively contaminated soils. The objective of the CAP needs to be at first geared toward identifying specific sources of contamination and the groundwater quality at the source. At a miminum, one background well, one well for each affected area, and one downgradient well will be necessary. Simply placing wells around the perimeter of the facility and working inwards will not necessarily be accepted by the Department as being well placed or conclusive for assessing the site.

Response 11:

Potential "suspect" source areas are identified on Figure 1. Accordingly, at least one groundwater monitoring well and one soil boring has been proposed in the impacted area downgradient of the potential source. Specifically, the proposed well locations are based on the following observations:

- MW-1 is to be located in the impacted area immediately downgradient of a potential source at the sludge processing area;

- MW-2 is to be located in the impacted area immediately downgradient of a potential source at the stormwater catch basin;

- MW-3 is to be located in the impacted area immediately downgradient of a potential source at the wash rack;
- MW-4 is to be located in the impacted area immediately downgradient of a potential source at the west tank farm loading slab;
- MW-5 is to be located in the impacted area immediately downgradient of a potential source at the west tank farm.
- MW-6 is to be located in the impacted area immediately downgradient of a potential source at the east tank farm.

Additional monitoring wells may be installed in upgradient (background) and perimeter (downgradient) locations at these specific sources based on the initial groundwater sampling and analysis results.

Comment 12:

The question of the proper location for the proposed deep monitoring well is still an issue. The Department reserves the right to request additional wells if it is necessary after review of the CAR.

Response 12:

HOWCO acknowledges the Department's right to request additional wells, if necessary. As stated on Page 11 of the CAP Addendum (Response 22), the location and depth of additional wells will be determined after evaluating the preliminary soil and groundwater analysis results.

Comment 13:

Water levels and groundwater flow direction from the four monitoring wells existing on-site need to be provided in the CAP.

Response 13:

A water table elevation was conducted at the site on September 27, 1993. Two existing monitoring wells (EMW-1 and EMW-2) and one piezometer installed by FGS (P-1) were utilized in the survey (Figure 2). Two other existing monitoring wells could not be used due to obstructions in the wells. The table below summarizes the survey elevation and water level data.

Wellpoint	Top of Casing Elevation (AMSL)	Depth to Groundwater (ft)	Water Table Elevation (AMSL)
EMW-1	*35.00	8.56	26.44
EMW-2	35.54	9.03	26.51
P-1	34.61	7.68	26.93

AMSL = Above Mean Sea Level
* = MW-1 casing elevation referenced to average site elevation AMSL

As shown on Figure 2, the direction of groundwater flow in the surficial aquifer is toward the southeast.

Comment 14:

Any information relating to the reason why the Industrial Wastewater Discharge Permit requires monitoring for phenols should be provided.

Response 14:

No information is provided in the Industrial Wastewater Discharge Permit indicating why the City of St. Petersburg requires monitoring for phenols. However, it is presumed that it is required due to the City's NPDES permit.

I trust these responses adequately address your comments as they relate to the CAP Addendum. A revised QAPP is presented in Appendix D.

If you have any questions regarding the enclosed material, please feel free to give us a call at (813) 874-8204.

Sincerely,

FGS, INC.

Lawrence A. Gordon, P.G.
Project Manager

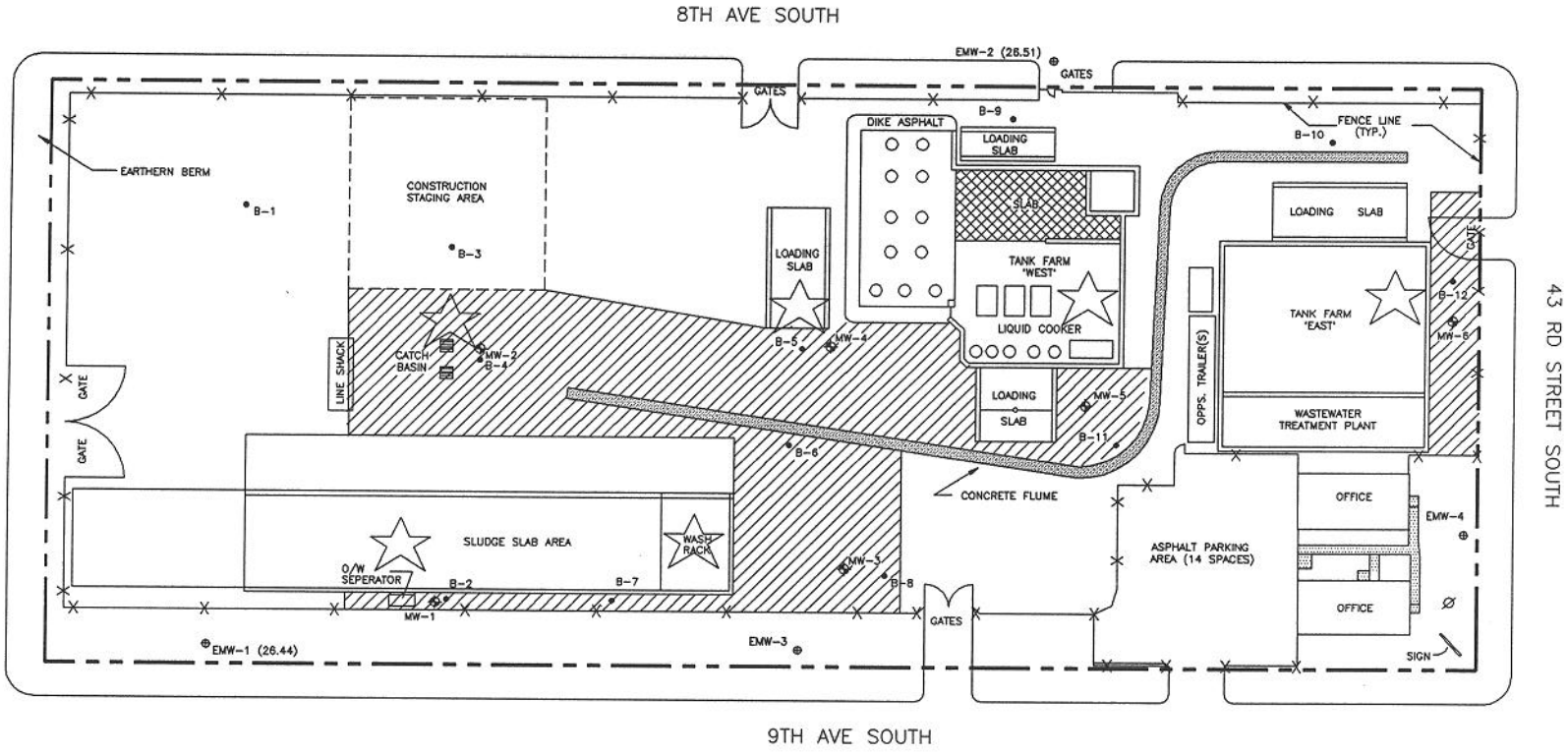
10/12/93

Michael L. Schackne, P.G.
Division Manager
Hydrogeologic Services

cc: Laurel Lockett - Carlton, Fields, et. al.
Tim Hagen - HOWCO

LAG/ljn/93-479.18

FIGURE 1
PROPOSED SOIL BORING AND MONITORING WELL LOCATION MAP
HOWCO ENVIRONMENTAL SERVICES, INC
ST. PETERSBURG, FLORIDA



LEGEND

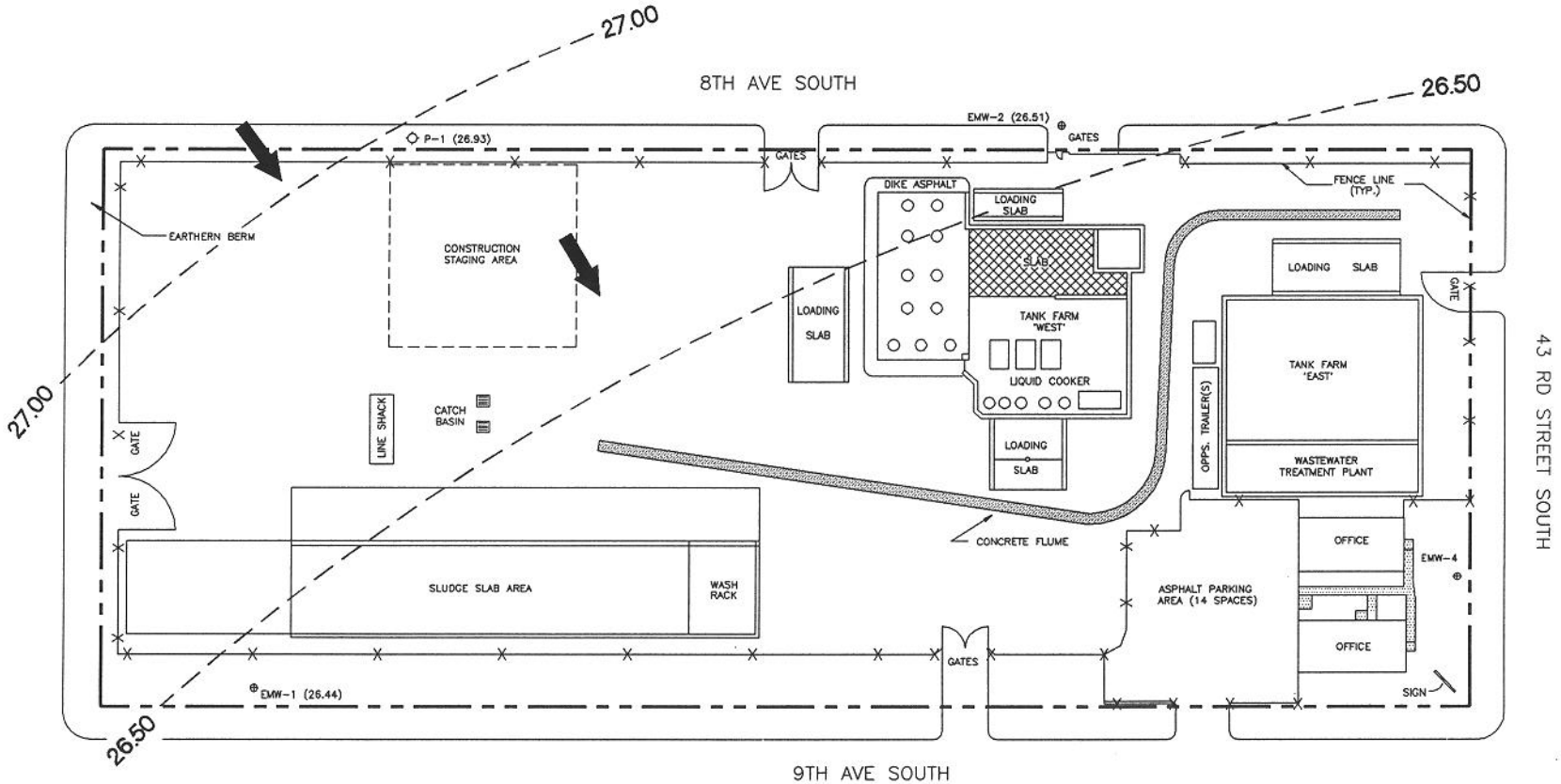
- PROPERTY BOUNDARY LINE
- MW-2 PROPOSED MONITORING WELL LOCATION
- B-2 PROPOSED SOIL BORING LOCATION
- POTENTIAL SOURCE AREAS
- EXISTING MONITORING WELL LOCATION
- BACKGROUND SOIL SAMPLE
- AREA OF EXCESSIVELY CONTAMINATED SOIL (ERM, 1992)

Scale: 1" = 80'

G93-479.18/G34791/DWG/10-14/H.K.

INC.

FIGURE 2
WATER TABLE ELEVATION MAP (9-27-93)
HOWCO ENVIRONMENTAL SERVICES, INC.
ST. PETERSBURG, FLORIDA



LEGEND

— — —	PROPERTY BOUNDARY LINE	(26.51)	GROUNDWATER ELEVATION (FEET ABOVE MSL)
⊕	EXISTING MONITORING WELL	⬅	GROUNDWATER FLOW DIRECTION
◇	PIEZOMETER LOCATION	26.5	GROUNDWATER ELEVATION CONTOUR

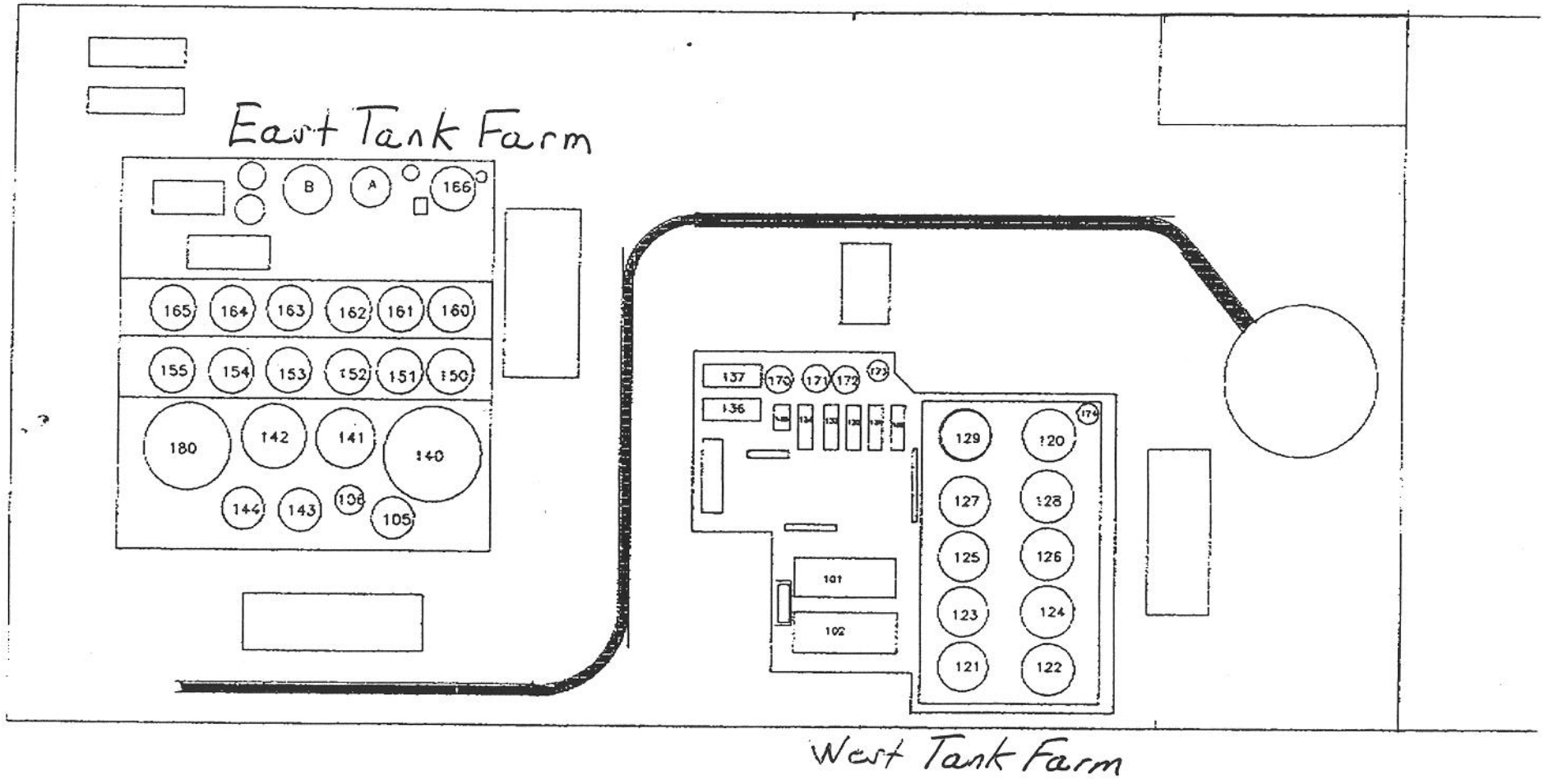
NOTE:
EMW-3 AND EMW-4 WERE NOT USED IN SURVEY DUE TO A WELL OBSTRUCTION.

Scale: 1" = 80'

G93-479.18/G34792/DWG/10-13/H.K.

INC.

TEL No.


East Tank Farm
B
A
166
165
164
163
162
161
160
155
154
153
152
151
150
180
142
141
140
144
143
106
105
137
136
170
171
172
173
174
129
120
127
128
125
126
123
124
121
122
101
102
West Tank Farm

TANK	HEIGHT INCHES	GALLONS PER INCH	MAXIMUM GALLONS	
100	HORIZONTAL		29,500	
101	HORIZONTAL		28,500	
105	267		14,000	
106	324		9100	
120	459	53.5	21,775	
121	408	70.5	27,989	
122	408	70.5	27,989	
123	408	70.5	27,989	
124	408	70.5	27,989	
125	457	44	18,040	
126	386	53.5	18,565	
127	391	53.5	18,565	
128	357		23,792	
129	458	53.5	21,775	
140	189	195.8	26,041	50/50 OIL+WAT
141	278	79.6	17,432	50/50 OIL+WAT
142	278	79.6	17,432	W/WATER
143	382	51.4	17,013	W/WATER
144	404	53.5	18,886	W/WATER
150	341	53.5	14792	TREATED WATE
151	341	53.5	14792	TREATED WATE
152	414	70.5	28,130	TREATED WATE
153	419	49	20,531	W/WATER
154	464	44	18,172	W/WATER
155	461	49	20,139	W/WATER
160	341	53.5	14,792	W/WATER
161	341	53.5	14,792	W/WATER
162	341	53.5	14,792	W/WATER
163	341	53.5	14,792	W/WATER
164	404	53.5	18,832	W/WATER
165	413	53.5	18,618	W/WATER
166	341	53.5	14792	TREATED WATE
170	216	54	11,000	
171	306	39.7	9,607	
172	312	31.3	9,703	
173	168	35	5,500	
174	153	20.7	2,898	
180	347	214	56,796	TREATED WATE

HOWCO NUMBER 93 - 0107

MATRIX Soil

FOR HOWCO ENVIRONMENTAL SERVICES
843 43RD STREET SOUTH
ST. PETERSBURG, FL 33711

DATE RECEIVED 01-07-93
DATE COMPLETED 01-07-93

CERTIFICATE OF ANALYSIS

ANALYTICAL METHOD	PARAMETER	CONCENTRATION	UNIT
601/8010	Chloromethane	N/D	ug/kg
601/8010	Vinyl Chloride	N/D	ug/kg
601/8010	Bromomethane	N/D	ug/kg
601/8010	Chloroethane	N/D	ug/kg
601/8010	Trichloroflouromethane	N/D	ug/kg
601/8010	1,1-Dichloroethene	N/D	ug/kg
601/8010	Methylene Chloride	N/D	ug/kg
601/8010	t-1,2-Dichloroethene	N/D	ug/kg
601/8010	1,1-Dichloroethene	N/D	ug/kg
601/8010	Chloroform	N/D	ug/kg
601/8010	1,1,1-Trichloroethane	N/D	ug/kg
601/8010	Carbon Tetrachloride	N/D	ug/kg
602/8020	Benzene	N/D	ug/kg
601/8010	1,2-Dichloroethane	N/D	ug/kg
601/8010	Trichloroethene	N/D	ug/kg
601/8010	1,2-Dichloropropane	N/D	ug/kg
601/8010	Bromodichloromethane	N/D	ug/kg
601/8010	2-Chloroethyl Vinyl Ether	N/D	ug/kg
601/8010	t-1,3-Dichloropropene	N/D	ug/kg
602/8020	Toluene	2530	ug/kg
601/8010	c-1,3-Dichloropropene	N/D	ug/kg
601/8010	1,1,2-Trichloroethene	N/D	ug/kg
601/8010	Tetrachloroethene	2231	ug/kg
601/8010	Dibromochloromethane	N/D	ug/kg
601/8010 & 602/8020	Chlorobenzene	991	ug/kg
602/8020	Ethyl Benzene	N/D	ug/kg
8020	Xylenen - m/p	N/D	ug/kg
8020	Xylenen - o	N/D	ug/kg
601/8010	Bromoform	N/D	ug/kg
601/8010	1,1,2,2-Tetrachloroethane	932	ug/kg
601/8010 & 602/8020	1,3-Dichlorobenzene	N/D	ug/kg
601/8010 & 602/8020	1,4-Dichlorobenzene	N/D	ug/kg
601/8010 & 602/8020	1,2-Dichlorobenzene	N/D	ug/kg

Remarks: N/D: (none detected, lower detectable limit = <100 ug/kg).
All analyses were performed in accordance with E.P.A., A.S.T.M., Standard Methods or other F.D.E.R. approved procedures.

Respectfully submitted,

Ken Bishop
Laboratory Manager

certof.ana

CHEMICAL LABORATORIES INCORPORATED

Received From:
Howco Env. Serv.
4317 8th Av. S.
St. Petersburg,Fl. 33711

Date Reported : Feb 1 1993
Project Number : N/A
PO Number : 0003993
FDHRSDW Number : 83139
FHRS ENVNumber : E83018
FDER COMQAPNum : 86-0008G
A2LA Number : 0312-01
NCDEHNR Number : 296
SCDHEC Number : 96019

For: THAL
Date Sampled:Jan25 1993 Date Received:Jan27 1993 Lab Number : 5368

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	5368 SOIL STOCK PILE
Total_Halogens	mg/kg	0.100	99.0	5.95	140.

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis.
Methods of analysis in accordance with FCL QA and EPA approved methodology.
This Report of Analysis may not be reproduced in part.

Jefferson S. Flowers, Ph.d.
President/Technical Director

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Jefferson L. Flowers, Ph.D.
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461 NEWBURYPORT
P.O. BOX 150-597
ALTAMONTE SPRINGS
FLORIDA 32715-0597
BUS: (407) 339-5984
FAX: (407) 260-6110

HOWCO NUMBER: 93-0107

MATRIX: Soil

DATE COMPLETED: 01/09/93

FOR: Howco Environmental Services

CERTIFICATE OF ANALYSIS

ANALYTICAL METHOD	PARAMETER	CONCENTRATION FOUND	UNIT
SW 846			
7061	Arsenic	<2.0	mg/kg
7080	Barium	115	mg/kg
7130	Cadmium	22.02	mg/kg
7190	Chromium-Total	30.88	mg/kg
7420	Lead	71.5	mg/kg
7470	Mercury	<0.05	mg/kg
7741	Selenium	<0.5	mg/kg
7760	Silver	<2.0	mg/kg

All analyses were performed in accordance with E.P.A., A.S.T.M., Standard Methods or other F.D.E.R. approved procedures.

Respectfully submitted,

Sonny Feagle

Sonny Feagle
Acting Laboratory Manager

CERT1.LAB,TCLP,LAB

2030

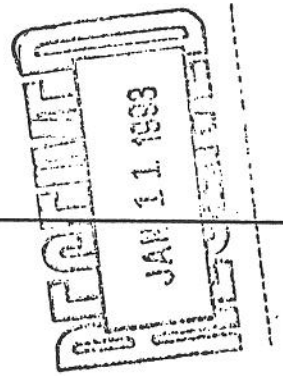
FLOWERS CHEMICAL LABORATORIES

ANALYTICAL RESULTS FORM HRS Number 83139

Parameter	Symbol	Unit	#1 5199										QA Method	QA MDL	Section %RSD	Section %Rec	Analys	Date
Tot_Pet_Hydrocarbons	*	mg/Kg	21047										EPA9073	1	0.000	114	IMC	01-07-92
PCB_1016	*	ug/kg	<0.05										EPA8080	0.05			KW	01-07-93
PCB_1221	*	ug/kg	<0.05										EPA8080	0.05			KW	01-07-93
PCB_1232	*	ug/kg	<0.05										EPA8080	0.05			KW	01-07-93
PCB_1242	*	ug/kg	<0.05										EPA8080	0.05	5.24	91.8	KW	01-07-93
PCB_1248	*	ug/kg	<0.05										EPA8080	0.05			KW	01-07-93
PCB_1254	*	ug/kg	<0.05										EPA8080	0.05	5.49	92.8	KW	01-07-93
PCB_1260	*	ug/kg	<0.05										EPA8080	0.05	4.52	113	KW	01-07-93
Intl_QA_Spike(DBC)	*	ug/kg	0.0380										EPA8080	0.1	5.89	96.0	KW	01-07-93

Date Received: 01-06-93 Typed: 01-07-93 Sent: 01-07-93

Project Number	N/A	
PO Number	843 43rd St. S.	
Date Sampled	1	01-04-93 *
Date Analyzed	0	
Compacted	0	
Format	NormRR	
Unit Cost	Exted	
Organic	22813	1 *
Service charge	2500	1 *
0.00		



FLOWERS

CHEMICAL LABORATORIES INCORPORATED

Received From:
Howco Env. Serv.
4317 8th Av. S.
St. Petersburg,Fl. 33711

Date Reported : Jan 8 1993
Project Number : N/A
PO Number : 843 43rd St. S.
FDHRSDW Number : 83139
FHRS ENVNumber : E83018
FDER COMQAPNum : 86-0008G
A2LA Number : 0312-01
NCDEHNR Number : 296
SCDHEC Number : 96019

For: Organic Service charge
Date Sampled:Jan 4 1993 Date Received:Jan 6 1993 Lab Number : 5199

REPORT OF ANALYSIS

Parameter	Unit	Method Detection Limit	%ACC	%PRC	5199 1
Tot_Pet_Hydrocarbons	mg/Kg	1.00	114.	.000	21000
PCB_1016	ug/kg	0.0500			<.0500
PCB_1221	ug/kg	0.0500			<.0500
PCB_1232	ug/kg	0.0500			<.0500
PCB_1242	ug/kg	0.0500	91.8	5.24	<.0500
PCB_1248	ug/kg	0.0500			<.0500
PCB_1254	ug/kg	0.0500	92.8	5.49	<.0500
PCB_1260	ug/kg	0.0500	113.	4.52	<.0500
Intl_QA_Spike(DBC)	ug/kg	0.010	96.0	5.89	.038

RECEIVED
JAN 11 1993

Data Release Authorization
Sample integrity and reliability certified by Lab personnel prior to analysis. Methods of analysis in accordance with FCL QA and EPA approved methodology. This Report of Analysis may not be reproduced in part.

Jefferson S. Flowers, Ph.d.
President/Technical Director

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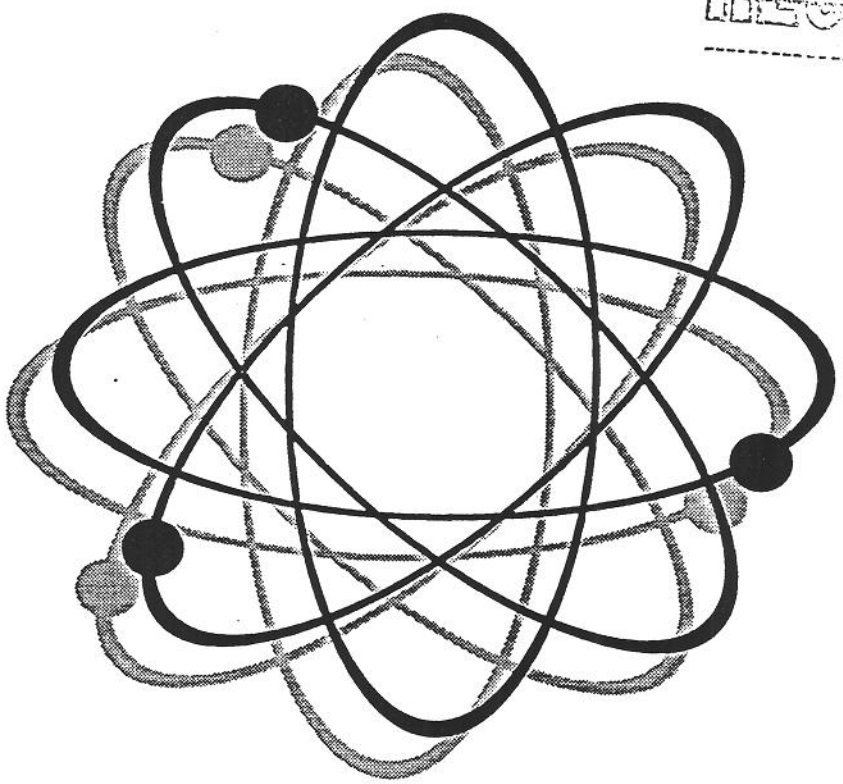
481 NEWBURYPORT
P.O. BOX 150-597
ALTAMONTE SPRINGS
FLORIDA 32715-0597
BUS: (407) 339-5984
FAX: (407) 260-6110

Quality Assurance Report

Prepared for: Howco Env. Serv.
Project Number: N/A
Lab Numbers: 5199 - 5199

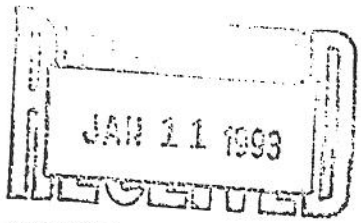
Report date: 7-Jan-93



ACCREDITED

FLOWERS CHEMICAL LABORATORIES

FLOWERS CHEMICAL LABORATORIES, INC.



QA Conformance Summary

Client: Howco Env. Serv.
Project Number: N/A
P.O. Number: 843 43rd St. S.
Date Sampled: 4-Jan-93
Lab Numbers: 5199 - 5199

Sample Handling

Sample handling and holding time criteria were met for all samples.

Surrogate Compound Recoveries:

The recovery limits were exceded for 1 sample as shown in section 1. This represents a 50.0% success rate.

Accuracy / Precision:

The recovery limits were met for all compounds in the matrix spike as shown in section 2.
The recovery limits were exceeded for 1 compound in the matrix spike duplicate as shown in section 2. This represents a 75.0% success rate.
The RSD was met for all compounds as shown in section 2.

Method Blanks:

No target compounds were found in the method blank in excess of the method limit as shown in section 3.

QCCS Check Sample:

The control limits were met for all compounds as shown in section 4.

FLOWERS CHEMICAL LABORATORIES, INC.

Section 1

Surrogate Compound Recovery

Client: Howco Env. Serv.
Project Number: N/A
P.O. Number: 843 43rd St. S.
Date Sampled: 4-Jan-93
Lab Numbers: 5199 - 5199

Intl_QA_Spike(DBC) for EPA8080 Surrogate Expected: 0.1
Unit of measure: ug/kg Acceptability Limits: 0.085 - 0.115

Laboratory Number	Site Description	Surrogate Recovered	Percent Recovered
5199	#1	0.038	38.0

FLOWERS CHEMICAL LABORATORIES, INC.

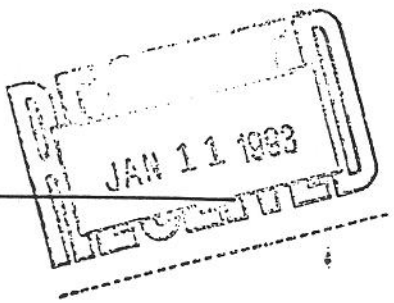
Section 2

Matrix Spike Recovery

Client: Howco Env. Serv.
Project Number: N/A
P.O. Number: 843 43rd St. S.
Date Sampled: 4-Jan-93
Lab Numbers: 5199 - 5199

Analyte	Unit	Analysis Method	Date	Spike Added	Sample Conc.	MS Conc.	MS Rec.	MSD Conc.	MSD Rec.	Acceptable Limits	RSD Rec.	Acceptable Limits
Tot_Pet_Hydrocarbons	mg/K	EPA9073	01-07-92	1.64	0.000	1.86	114%	1.86	114%	0.945 - 2.23	0.000	0 - 0.470
PCB_1242	ug/kg	EPA8080	01-07-93	0.5	<0.05	0.476	95.2%	0.442	88.4%	0.421 - 0.57	0.024	0 - 0.052
PCB_1254	ug/kg	EPA8080	01-07-93	0.5	<0.05	0.446	89.2%	0.482	96.4%	0.407 - 0.57	0.025	0 - 0.065
PCB_1260	ug/kg	EPA8080	01-07-93	0.5	<0.05	0.545	109%	0.581	116%	0.426 - 0.57	0.025	0 - 0.063

FLOWERS CHEMICAL LABORATORIES, INC.



Section 3

Method Blank Report

Client: Howco Env. Serv.
Project Number: N/A
P.O. Number: 843 43rd St. S.
Date Sampled: 4-Jan-93
Lab Numbers: 5199 - 5199

Analyte	Unit	Method	Date	Concentration
Tot_Pet_Hydrocarbons	mg/Kg	EPA9073	01-07-92	0.406
PCB_1016	ug/kg	EPA8080	01-07-93	<0.05
PCB_1221	ug/kg	EPA8080	01-07-93	<0.05
PCB_1232	ug/kg	EPA8080	01-07-93	<0.05
PCB_1242	ug/kg	EPA8080	01-07-93	<0.05
PCB_1248	ug/kg	EPA8080	01-07-93	<0.05
PCB_1254	ug/kg	EPA8080	01-07-93	<0.05
PCB_1260	ug/kg	EPA8080	01-07-93	<0.05

FLOWERS CHEMICAL LABORATORIES, INC.

Section 4

QCCS Sample Recovery

Client: Howco Env. Serv.
Project Number: N/A
P.O. Number: 843 43rd St. S.
Date Sampled: 4-Jan-93
Lab Numbers: 5199 - 5199

Analyte	Unit	Method	Date	QCCS Expected	QCCS Measured	Rec. %	Acceptable Limits
Tot_Pet_Hydrocarbons	mg/Kg	EPA9073	01-07-92	1.65	1.86	113%	1.10 - 2.11
PCB_1242	ug/kg	EPA8080	01-07-93	0.500	0.455	91.0%	0.368 - 0.620
PCB_1254	ug/kg	EPA8080	01-07-93	0.500	0.546	109%	0.331 - 0.635
PCB_1260	ug/kg	EPA8080	01-07-93	0.500	0.578	116%	0.332 - 0.631

HOWCO ENVIRONMENTAL SERVICES, LTD.
843 - 43rd Street South • St. Petersburg, FL 337711
(813) 323-0810

CHAIN OF CUSTODY CC -Nº 0161

PART 1

Generators Name: Howco Env. Services
Location of Waste (address): 843 43rd St S., St. Pete. Fl
Client Name:
Contact Person: Sonny Feagle
Phone Number: 813-323-0818

PART 2 — CONTAINER DESCRIPTION / ANALYSIS

Item No.	HOWCO SAMPLE NO.	Sample Description / Specific Location	Date	Time	Matrix	Grab or Composite	PCB's		Lab#		Generator's Profile Code Number	No. of Containers
1	1	Soil Stockpile	1-4	2:00	S	C			5199			1
2												
3												
4												
5												

Sampling Method and Equipment: Composite of Stockpile
Transported By: Fl. Overnight
Total Number of Containers: 1

PART 3

SAMPLER	WITNESS VERIFICATION	REPRESENTATIVE DATE CERTIFICATION
Signature: John Feagle	Signature:	Signature:
Print Name: John Feagle	Print Name:	Print Name:
Title: Lab Manager	Title:	Title:
Employer: Howco	Employer:	Employer:
Date: 1-4-92	Date:	Date:

PART 4

Comments	Transfer Number	Item No.	Relinquished By	Accepted By	Date	Time
Price per Ava. 80.00	1	1	John Feagle	David Burke	1-5-93	143
	2				1/6/93	10:25
	3					
	4					
	5					

HOWCO
ENVIRONMENTAL SERVICES LTD.
"...conserving limited natural resources through recycling while protecting the environment and public health and welfare." ™

HOWCO NUMBER: 93054

MATRIX: Sludge

DATE RECEIVED: 07/21/93 DATE COMPLETED: 07/26/93

FOR: A.A. Digestion/Total Metals GENERATOR: HOWCO Environmental Services (Sludge Pile)

CERTIFICATE OF ANALYSIS

ANALYTICAL METHOD	PARAMETER	CONCENTRATION FOUND	UNIT
	TOTAL METALS		
EPA 7061	Arsenic	0.174	mg/l
EPA 6010	Barium	58.4	mg/l
EPA 6010	Cadmium	0.66	mg/l
EPA 6010	Lead	112.0	mg/l
EPA 7471	Mercury	ND	mg/l
EPA 7741	Selenium	0.039	mg/l
EPA 6010	Silver	0.181	mg/l
EPA 6010	Chromium	2.14	mg/l

ND = None Detected

All analyses were performed in accordance with E.P.A., A.S.T.M., Standard Methods or other F.D.E.R. approved procedures.

Respectfully submitted,

Ken Bishop
Laboratory Manager

KB/lsg

cc: Dick King

Sent to Klean Gold

843 43rd Street So. • St. Petersburg, FL 33711 • (813) 323-0818 • 1-800-334-6926 • Fax 1-813-323-2249

HOWCO
ENVIRONMENTAL SERVICES LTD.
"...conserving limited natural resources through recycling while protecting the environment and public health and welfare." ™

HOWCO NUMBER: 93054

MATRIX: Waste/Sludge

DATE RECEIVED: 07/21/93 DATE COMPLETED: 07/22/93

FOR: A.A. Digestion/Total Metals GENERATOR: HOWCO Environmental Services (Sludge Pile)

CERTIFICATE OF ANALYSIS

ANALYTICAL METHOD	PARAMETER	CONCENTRATION FOUND	UNIT
	TOTAL METALS		
EPA 213.1	Cadmium	0.66	mg/1
EPA 239.1	Lead	112.0	mg/1
EPA 220.1	Copper	56.4	mg/1
EPA 249.1	Nickel	23.9	mg/1
EPA 289.1	Zinc	92	mg/1

All analyses were performed in accordance with E.P.A., A.S.T.M., Standard Methods or other F.D.E.R. approved procedures.

Respectfully submitted,

Ken Bishop
Laboratory Manager

KB/lsg

cc: Dick King

Sent to Dean Soil

843 43rd Street So. • St. Petersburg, FL 33711 • (813) 323-0818 • 1-800-334-6926 • Fax 1-813-323-2249

CONFIDENTIAL WASTE PROFILE

Generator: *Howco / Tim's Oil*
Address: *843 45th St South*
St. Petersburg 33711

Contact: *Tim Hagan*
Phone: *813-323-0818*
EPA ID#

Pre-Shipment Sample#
Broker: *EEFI*
Phone:
Contact: *Bill Ammerm...*
Process Generating Waste: *WW Process*

Name of Waste: *Non Hazardous Industrial Solids*

RCRA CHARACTERISTICS

RCRA Waste Code *Non Hazardous* Waste is Non Hazardous (Y) N
Virgin Product or Chemical Y (N) Spill Clean Up Y (N)
Used in Electroplating Y (N)
California List HOC'S (check o

LAND DISPOSAL RESTRICTION STATUS (check one)

X Meets Treatment Standards (attach analysis) __ Subject to treatment by performance standards __ Su
__ Must be treated by specified technology (specify)

COMPOSITION:

Contaminated Soils	% *100*
	%
	%
	%
	%

Anticipated Volume____ Drums ____ Lbs. ____ Gals. ____
Type and Size of Container: *Dump TK* Sample Inclu
Required Personnal Protective Equipment & Handling Procedure
Special Precautions: *RCRA DOT Non Hazard...*

Physical State: X Solid __ Powder __ Liquid __ Other __ Semi-Solid

Layers: __ Multi-layered __ Bi-layered X Single phased

Odor: X None __ Mild __ Strong

Color: ______

Total Suspended Solids (% wt.): __ <1 __ 1-5 __ 5-10 __ 10-20 X >20 actual ____

Flash Point F/c: __ <100 __ 100-140 __ 140-200 X >2... actu...

BTU/Pound: X <2000 __ 2000-6000 __ 6000-10,000 __ 10,000-16,000 __ >16,000 actual *-0-*

% Halogens: X <1 __ 1-5 __ 5-10 __ 10-20 __ >20 actual *-0-*

% Water: X <5 __ 5-10 __ 10-20 __ >20 actual *-0-*

Viscosity: __ low __ medium X high

Radioa...
Water...
Oxidiz...
OSHA C...
Explos...

Indicate if the waste contains any of the following:

Waste No	Constituent	TC Regulatory Level ppm	Calif. list	Actual
D004	Arsenic	__ >5	__ >500	*< 0.1*
D005	Barium	__ >100	N/A	*< 10.0*
D006	Cadmium	__ >1	__ >100	*< 0.1*
D007	Chromium total	__ >5	__ >500	*< 0.5*
D008	Lead	__ >5	__ >500	*< 0.5*
D009	Mercury	__ >0.2	__ >20	*< 0.1*
D010	Selenium	__ >5	__ >100	*< 0.1*
D011	Silver	__ >5	N/A	*< 0.5*
Other Metals				
	Copper	N/A	N/A	*NA*
	Nickel	N/A	__ >134	
	Thallium	N/A	__ >130	
	Zinc	N/A	N/A	
Other______				
Pesticides and Organics				
D012	Endrin	__ >0.02	N/A	
D013	Lindane	__ >0.4	N/A	
D014	Methoxychlor	__ >10.0	N/A	
D015	Toxaphene	__ > 0.5	N/A	
D016	2,4 D	__ >10.0	N/A	

Waste No	Constituent	TC Regulatory Level ppm	Actual
D017	Silvex	>1.0	*NA*
D018	Benzene	__ >0.5	
D019	Carbon Tetra-chloride	__ >0.5	
D020	Chlordane	__ >0.03	
D021	Chlorobenzene	__ >100.0	
D022	Chloroform	__ >6.0	
D023	O-Cresol	__ >200.0	
D024	M-Cresol	__ >200.0	
D025	P-Cresol	__ >200.0	
D026	Cresols	__ >200.0	
D027	1,4 Dichloro-benzene	__ >7.5	
D028	1,2 Dichloro-ethane	__ >0.5	
D029	1,1 Dichloro-ethylene	__ >0.7	
D030	2,4 Dinitro-toluene	__ >0.13	
D031	Heptachlor	__ >0.008	

Waste No.	Cons...
D032	Hexach...
D033	Hexach...
D034	Hexach...
D035	Methyl...
D036	Nitrob...
D037	Pentac...
D038	Pyridi...
D039	Tetrac...
D040	Trichl...
D041	2,4,5...
D042	2,4,6,...
D043	Vinyl...
Other Organ... Constituent...	
PCB	
Cyanide T...	
Cyanide A...	
Sulfides	
Other	

The above information is true and accurate to the best of my knowledge and is based on an analysis of a waste in accordance with EPA Guidelines Documents SW-846-1980 and EPA-600/2-80-018, or on my thorough ...

BY: *Tim's Oil Recovery Inc* COMPANY: *Tim Hagan*

EFFLUENT LIMITATIONS

Parameter	Daily maximum (mg/l)	Four day average (mg/l)	Footnotes
FLOW RATE	Not to exceed 28,800 gpd or 23 gpm at any time		
pH (Standard Units)	>5 & <10	>5 & <10	
Biochem. Oxyg. Demand	10,000.0	10,000.0	a.
Chem. Oxygen Demand	10,000.0	10,000.0	
Total phenolics	(5.0)2.0	(5.0)2.0	b.
Total Org. Carbon	2,000.0	2,000.0	
Arsenic (Total As)	1.0	1.0	
Cadmium (Total Cd)	1.2	1.2	
Chromium (Total Cr)	4.0	3.0	
Copper (Total Cu)	2.0	1.0	
Lead (Total Pb)	0.4	0.4	
Nickel (Total Ni)	2.0	2.0	
Silver (Total Ag)	1.0	1.0	
Zinc (Total Zn)	3.0	3.0	
Total limited metals	10.0	8.0	c.
Oil and Grease	100.0	100.0	
EPA method 601	2.0	2.0	d.
EPA method 602	2.0	2.0	e.
EPA method 625	(5.0)2.0	(5.0)2.0	f.
Total Toxic Organics	2.13	2.13	g.
Methyl-tert-butyl-ether (MTBE)-		-	h
Priority Pollutant Scan	(Organics 2.13, Inorganics 12.0)		i.

a. Biochemical Oxygen Demand is the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five (5) days at twenty (20) degrees centigrade, expressed in terms of milligrams per liter.

b. Total recoverable phenolics as determined by an approved EPA 420 or equivalent method. Refer to compliance schedule in Section 1, Part 5 (B)(2) of this permit.

c. Total limited metals shall be the sum of cadmium, chromium, copper, lead, nickel, silver and zinc.

d. EPA method 601 includes all purgeable halocarbon compounds.

e. EPA method 602 includes all purgeable aromatic compounds.

f. EPA method 625 includes Base Neutral and Acid extractable compounds. Refer to compliance schedule in Section 1, Part 5 (B)(2) of this permit.

TOTAL TOXIC ORGANICS LIST

1. Acenaphthene
2. Acrolein
3. Acrylonitrile
4. Benzene
5. Benzidine
6. Carbon tetrachloride (tetrachloromethane)
7. Chlorobenzene
8. 1,2,4-trichlorobenzene
9. Hexachlorobenzene
10. 1,2-dichloroethane
11. 1,1,1,-trichloroethane
12. Hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. Chloroethane
17. Bis (2-chloroethyl) ether
18. 2-chloroethyl vinyl ether
19. 2-chloronaphthalene
20. 2,4,6-trichlorophenol
21. 4-chloro-3-methylphenol
22. Chloroform
23. 2-chlorophenol
24. 1,2-dichlorobenzene
25. 1,3-dichlorobenzene
26. 1,4-dichlorobenzene
27. 3,3-dichlorobenzidine
28. 1,1-dichloroethylene
29. 1,2-trans-dichloroethylene
30. 2,4-dichlorophenol
31. 1,2-dichloropropane (1,3-dichloropropene)
32. 2,4-dimethylphenol
33. 2,4-dinitrotoluene
34. 2,6-dinitrotoluene
35. 1,2-diphenylhydrazine
36. Ethylbenzene
37. Fluoranthene
38. 4-chlorophenyl phenyl ether
39. 4-bromophenyl phenyl ether
40. Bis (2-chloroisopropyl) ether
41. Bis (2-chloroethoxy) methane
42. Methylene chloride (dichloromethane)
43. Methyl chloride (chloromethane)
44. Methyl bromide (bromomethane)
45. Bromoform (tribromomethane)
46. Dichlorobromomethane
47. Chlorodibromomethane
48. Hexachlorobutadiene
49. Hexachlorocyclopentadiene
50. Isophorone
51. Naphthalene
52. Nitrobenzene
53. 2-nitrophenol
54. 4-nitrophenol
55. 2,4-dinitrophenol
56. 4,6-dinitro-o-cresol
57. N-nitrosodimethylamine
58. N-nitrosodiphenylamine
59. N-nitrosodi-n-propylamine
60. Pentachlorophenol
61. Phenol
62. Bis (2-ethylhexyl) phthalate
63. Butyl benzyl phthalate
64. Di-n-butyl phthalate
65. Di-n-octyl phthalate
66. Diethyl phthalate
67. Dimethyl phthalate
68. 1,2-benzanthracene (benzo(a)anthracene)
69. Benzo(a)pyrene (3,4-benzopyrene)
70. 3,4-benzofluoranthene (benzo(b)fluoranthene)
71. 11,12-benzofluoranthene (benzo(k)fluoranthene)
72. Chrysene
73. Acenaphthylene
74. Anthracene
75. 1,12-benzoperylene (benzo(ghi)perylene)
76. Fluorene
77. Phenanthrene
78. 1,2,5,6-dibenzanthracene (dibenzo(a,h)anthracene)
79. Indeno (1,2,3-cd) pyrene (2,3-o-phenylene pyrene)
80. Pyrene
81. Tetrachloroethylene
82. Toluene
83. Trichloroethylene
84. Vinyl chloride (chloroethylene)
85. Aldrin

TOTAL TOXIC ORGANIC LIST (continued)

86. Dieldrin
87. Chlordane (technical mixture and metabolites)
88. 4,4-DDT
89. 4,4-DDE(p,p-DDX)
90. 4,4-DDD)p,p-TDE)
91. Alpha-endosulfan
92. Beta-endosulfan
93. Endosulfan sulfate
94. Endrin
95. Endrin aldehyde
96. Heptachlor
97. Heptachlor epoxide

Hexachlorocyclohexane

98. Alpha-BHC
99. Beta-BHC
100. Gamma-BHC
101. Delta-BHC

PCB-polychlorinated biphenyls

102. PCB-1242 (Arochlor 1242)
103. PCB-1254 (Arochlor 1254)
104. PCB-1221 (Arochlor 1221)
105. PCB-1232 (Arochlor 1232)
106. PCB-1248 (Arochlor 1248)
107. PCB-1260 (Arochlor 1260)
108. PCB-1016 (Arochlor 1016)
109. Toxaphene
110. TCDD (2,3,7,8-tetrachloro dibenzo-p-dioxin)

List of compounds to be added to toxic organic list
for a complete Priority Pollutant Scan

111. Antimony
112. Arsenic
113. Beryllium
114. Cadmium
115. Chromium (Hex)
116. Chromium (Tri)
117. Copper
118. Cyanide
119. Lead
120. Mercury
121. Nickel
122. Selenium
123. Silver
124. Thallium
125. Zinc

TABLE 3-3
SUMMARY OF OVA FIELD SCREENING RESULTS
PARTS PER MILLION

HOWCO
ST. PETERSBURG, FLORIDA

Sample	Date (1993)	Depth (ft)	OVA/FID Screening Results[1]			Comment
			Total Hydrocarbons (Unfiltered)	C_1 to C_2 Hydrocarbons (Filtered)	Non-Methane Hydrocarbon (>C_4)	
TP-12	10/91	3	0	0	0	NO ODOR
TP-13	10/91	3	0	0	30	SLIGHT ODOR
TP-14	10/91	2	30	0	30	SLIGHT ODOR
TP-14	10/91	4	80	55	25	SLIGHT ODOR
TP-15	10/91	2	60	40	20	SLIGHT ODOR
TP-15	10/91	4	200	72	128	STRONG ODOR
TP-16	10/91	1.5	0	0	0	NO ODOR
TP-16	10/91	5	2	0	0	NO ODOR
TP-17	10/91	2	0	0	0	NO ODOR
TP-17	10/91	6	0	0	0	NO ODOR
SB-1	10/91	1.5	650	400	250	STRONG ODOR
SB-1	10/91	3	2	0	2	NO ODOR
SB-2	10/91	2	2	0	0.2	NO ODOR
SB-2	10/91	4	0.2	0	0.2	NO ODOR
SB-3	10/91	2	0	0	0	NO ODOR
SB-3	10/91	3	0	0	0	NO ODOR
SB-4	10/91	1	0	0	0	NO ODOR
SB-4	10/91	3	0	0	0	NO ODOR
TP-18	10/91	2	110	35	75	SLIGHT ODOR
TP-18	10/91	4	45	25	20	SLIGHT ODOR
TP-20	10/91	1	1.2	0	1.2	NO ODOR
TP-20	10/91	3	1.8	0	1.8	NO ODOR
TP-21	10/91	1	0	0	0	NO ODOR
TP-21	10/91	3	0	0	0	NO ODOR
TP-22	10/91	1	0	0	0	NO ODOR

(1) "Total hydrocarbons reading is the measurement of total organic vapors. C_1 to C_3 hydrocarbons reading ("filtered") is the measurement of methane, ethane and propane drawn through a carbon filter. The non-methane hydrocarbon reading is the difference between the "Total" and "Filtered" readings.

BDL: Below Detection Limit

FBLS: Feet Below Land Surface

--: Not Analyzed

TABLE 3-3 (Continued)
SUMMARY OF OVA FIELD SCREENING RESULTS
IN PARTS PER MILLION

HOWCO
ST. PETERSBURG, FLORIDA

Sample	Date (1993)	Depth (ft)	OVA/FID Screening Results[1]			Comment
			Total Hydrocarbons (Unfiltered)	C_1 to C_2 Hydrocarbons (Filtered)	Non-Methane Hydrocarbon (>C_4)	
TP-22	10/91	3	0	0	0	NO ODOR
TP-23	10/91	1	0	0	0	NO ODOR
TP-24	10/91	3	0	0	0	NO ODOR
TP-25	10/91	1.5	510	50	460	STRONG ODOR
TP-25	10/91	5	600	150	450	STRONG ODOR
SB-5	10/91	3	950	70	8	STRONG ODOR
SB-5	10/91	7	>1000	80	>1000	STRONG ODOR
SB-6	10/91	7	>1000	80	>1000	STRONG ODOR
SB-7	10/91	3	0	0	0	NO ODOR
SB-8	10/91	3	0	0	0	NO ODOR
SB-9	10/91	4	380	160	220	STRONG ODOR
SB-9	10/91	6	180	60	120	SLIGHT ODOR
TP-26	10/91	3	7	4	3	NO ODOR
TP-27	10/91	3	20	3	17	NO ODOR
SB-10	10/91	3	380	160	220	NO ODOR
TP-28	10/91	2	150	55	95	SLIGHT ODOR

(1) "Total hydrocarbons reading is the measurement of total organic vapors. C_1 to C_3 hydrocarbons reading ("filtered") is the measurement of methane, ethane and propane drawn through a carbon filter. The non-methane hydrocarbon reading is the difference between the "Total" and "Filtered" readings.

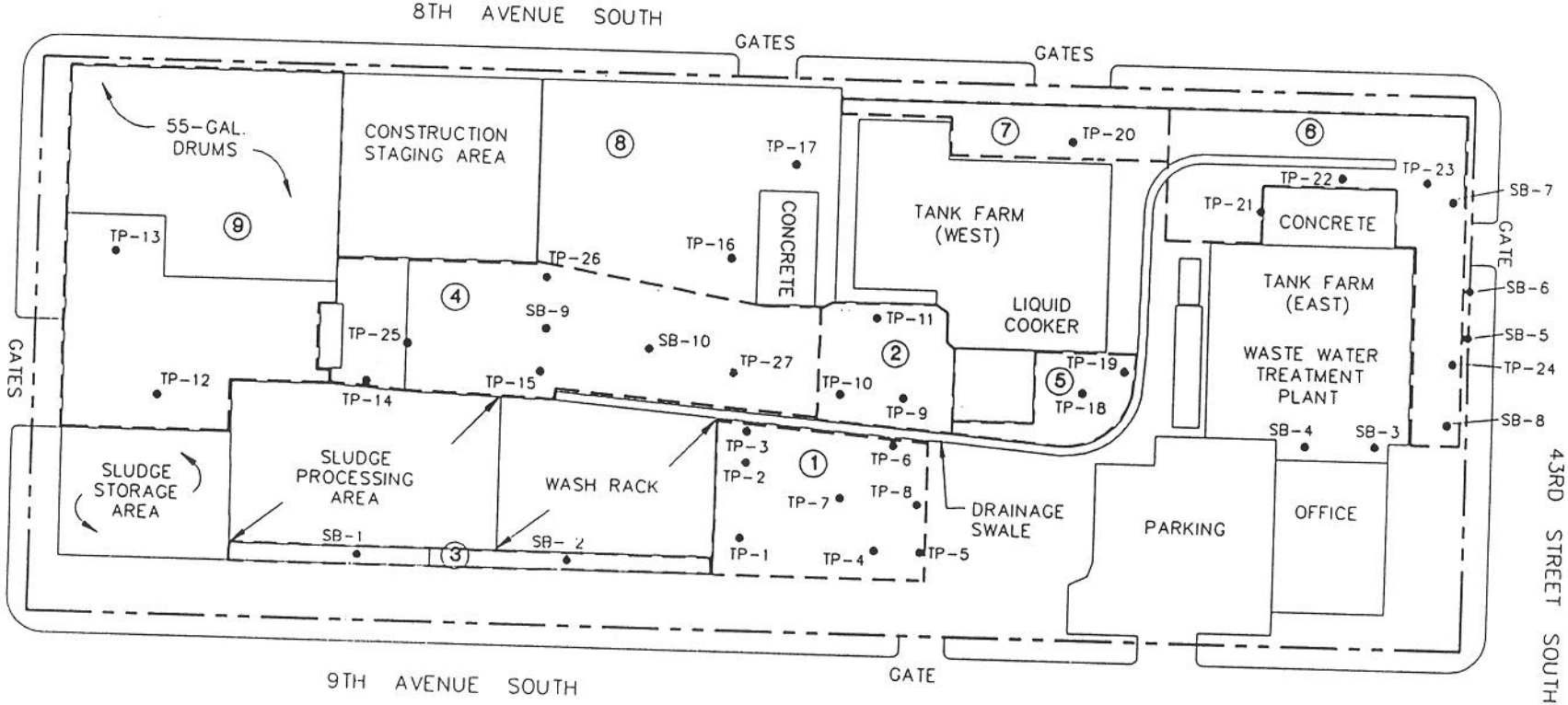
BDL: Below Detection Limit

FBLS: Feet Below Land Surface

--: Not Analyzed

14412.03/44103BTP/021392-2

Figure 2-1
Boring And Test Pit Locations
August 1991, October 1991 and November 1991
Howco Facility
St. Petersburg, Florida



LEGEND

TP TEST PIT
SB SOIL BORING (HAND AUGER)

N

0 50
FEET

The ERM

HOWCO Environmental Services, Inc.

OGC Case No. 91-1176

Prepared By:

FGS, Inc.
111 South Armenia Avenue
Tampa, Florida 33609
(813) 874-8204

Prepared For:

HOWCO Environmental Services, Inc.
843 43rd Street South
St. Petersburg, Florida 33711
(813) 323-0818

Tim Hagan — 10-25-93
Timothy Hagan, Primary Responsible Party — Date

Lawrence A. Gordon, P.G., Consultant Manager, FGS, Inc. — 10/15/93 — Date

Michael L. Schackne, P.G., Consultant QA Officer, FGS, Inc. — 10/28/93 — Date

Declan Cowley, Laboratory Director, PC & B Environmental Laboratories, Inc. — 10/18/93 — Date

June Cowley, Laboratory QA Officer, PC & B Environmental Laboratories, Inc. — 10/18/93 — Date

FDEP Oversight

FDEP Project Manager — Date

FDEP QA Manager — Date

FIGURE 3.1

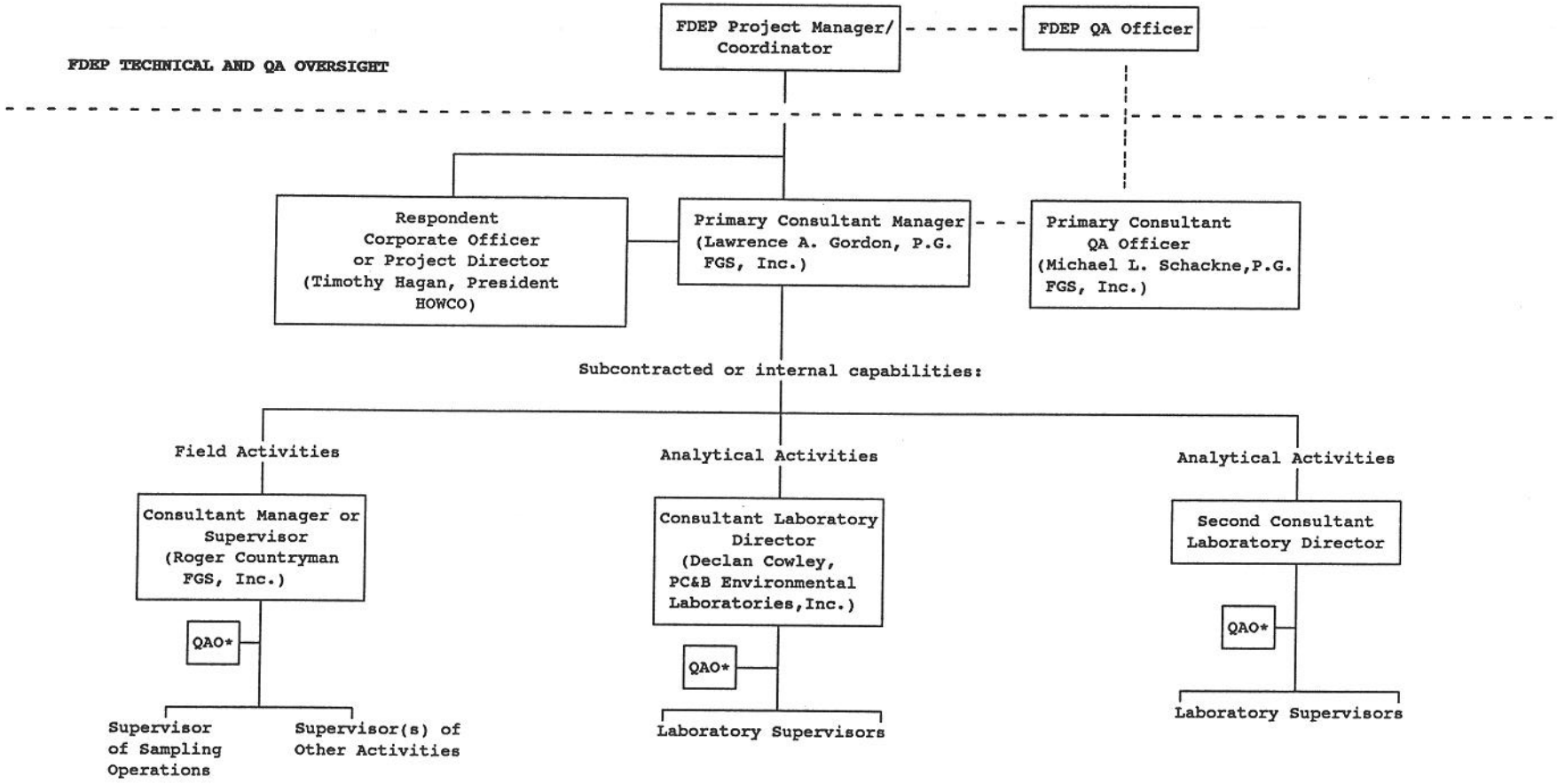

FDEP TECHNICAL AND QA OVERSIGHT
FDEP Project Manager/ Coordinator
FDEP QA Officer
Respondent Corporate Officer or Project Director (Timothy Hagan, President HOWCO)
Primary Consultant Manager (Lawrence A. Gordon, P.G. FGS, Inc.)
Primary Consultant QA Officer (Michael L. Schackne,P.G. FGS, Inc.)
Subcontracted or internal capabilities:
Field Activities
Analytical Activities
Analytical Activities
Consultant Manager or Supervisor (Roger Countryman FGS, Inc.)
Consultant Laboratory Director (Declan Cowley, PC&B Environmental Laboratories,Inc.)
Second Consultant Laboratory Director
QAO*
QAO*
QAO*
Supervisor of Sampling Operations
Supervisor(s) of Other Activities
Laboratory Supervisors
Laboratory Supervisors

TABLE 3.2
PROPOSED SAMPLES, MATRICES AND ANALYTICAL METHODS FOR THE PROJECT

The standards criteria outlined in 17-302 are the detection limit criteria for this project. The detection limits reported for this project shall at least meet, or be lower than the stated standards.

FIELD MEASUREMENTS WILL BE PERFORMED BY: FGS, Inc., whose CompQAP # is 890395G with annual amendments approved on 02/22/93.

Parameter	Method #
pH	EPA 150.1
Temperature	EPA 170.1
Specific Conductance	EPA 120.1
Turbidity	EPA 180.1
Dissolved Oxygen	EPA 360.1

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED BY THE ABOVE NAMED ORGANIZATION.
LABORATORY ANALYSES WILL BE PERFORMED BY: PC&B Environmental Laboratories, Inc., whose CompQAP # is 900134G with annual amendments approved on 11/20/93 .

FREQUENCY	SAMPLE MATRIX	SAMPLE SOURCE	# SAMPLES	QUALITY CONTROL SUMMARY			ANALYTICAL METHOD #	COMPONENT	QA TARGETS*		
				TB	EB	FD			P	A	MDL
1	Water	Groundwater	6	-	1	1	200.7, 239.2				
1	Water	Groundwater	6	-	1	1	200.7, 200.7				
1	Water	Groundwater	6	-	1	1	239.2				
1	Water	Groundwater	6	-	1	1	245.1, 206.2				
1	Water	Groundwater	6	-	1	1	270.2				
1	Water	Groundwater	6	-	1	1	200.7				
1	Water	Groundwater	6	1	1	1	601/602				
1	Water	Groundwater	6	-	1	1	610				
1	Water	Groundwater	6	-	1	1	418.1				
1	Water	Groundwater	6	-	1	1	504				
1	Water	Groundwater	6	-	1	1	420.1				
1	Solid	Soil	6	1	1	1	8010				
1	Solid	Soil	6	1	1	1	8020				
1	Solid	Soil	6		1	1	8080				
1	Solid	Soil	6		1	1	9073				

TB - Trip Blank
EB - Equipment Blank
FD - Field Duplicate

P - Precision
A - Accuracy
MDL - Method Detection Limit

* These values need to be completed if the Data Quality Objectives stated in the project description are different from the routine QA objectives cited in the CompQAP(s) or are not included in the CompQAP(s).

DEP Form 17-160.900(1) (Revised 1-92)

TABLE 4.1
PROPOSED SAMPLING EQUIPMENT

The following equipment will be used by FGS, Inc. for this project. With the exception of the additional equipment, discussions on use and restrictions are included in CompQAP # 890395G updated with annual amendments which were approved 02/22/93.

EQUIPMENT DESCRIPTION	CONSTRUCTION MATERIALS	USE
Purging Equipment (include construction of tubing, tail pipes, etc.)		
1. Geopump peristaltic pump	Anodized Al, teflon tubing	Purging
2. B-K hand pump	PVC, stainless steel	Purging, Development
3. Honda pump	Cast Al, plastic	Purging, Development
4.		
5.		
Sampling Equipment		
1. Voss teflon disposable bailer	Teflon	Sampling
2. Teflon bailer	Teflon	Sampling
3. Stainless steel bailer	Stainless Steel	Sampling
4. Glass sample container	Glass	Sampling
5. Stainless steel spoon	Stainless Steel	Sampling
6.		
7.		
Additional equipment not addressed in the CompQAP includes[1]:		
1. Disposable In-line Filters	N/A	Sampling metals
2.		
3.		
4.		

[1]**If the sampling protocols for using this equipment are not included in the cited CompQAP, the sampling protocols must be discussed in Section 4.2.1 of this Quality Assurance Project Plan.**

Field Measurement Equipment (construction does not need to be specified)

1. YSI Model33 salinity, conductivity, temperature meter
2. Cole Parmer "Digi-Sense" pH meter, Model 5944-10
3. OVA
4.
5.

TABLE 4.2
FIELD ACTIVITIES

The following field protocols will be used by FGS, Inc.. The Comprehensive QA Plan number for this organization is 890395G. The date of the last update approval is February 22, 1993.

All protocols, procedures and policies in the above-mentioned document which are pertinent to this Quality Assurance Project Plan will be followed and are summarized below:

	VOCs	Extr. Org.	Metals	Inorg. Anions	Org.	Phys. Prop.	Micro	Other (specify)
Groundwater	X	X	X	X	X	X		
Groundwater (in-place plumbing)								
Potable Water								
Surface Water								
Soil	X	X	X		X			
Sediment/Sludges								
Automatic Samplers								
Field Filtration			X					
Wastewater								
Stormwater runoff								

SAMPLE CONTAINERS

Sample containers will be supplied by: PC&B Environmental Laboratories, Inc.

XX Sample containers will be prepreserved by the above-referenced organization and additional acid will be provided; **OR**

— Field organizations will preserve samples on-site using protocols outlined in the ComQAP.

EQUIPMENT DECONTAMINATION

Equipment decontamination will follow protocols outlined in the above-referenced CompQAP.*

EQUIPMENT SHALL BE PRECLEANED PRIOR TO ON-SITE ARRIVAL

***If more than one organization is involved with these activities, this QAPP must specifically identify the equipment and/or sample containers to be provided by each organization.**

WASTE DISPOSAL

XX The procedures for handling wastes from equipment cleaning and from sampling are discussed in the above-referenced CompQAP.

— The disposal procedures for handling wastes for this project differ from those outlined in the above referenced CompQAP and are outlined in Section 4.2.2.

Section 6.0 QUALITY ASSURANCE MANAGEMENT

6.1 Corrective Actions

In addition to corrective actions cited in the approved Comprehensive QA Plans, **ALL INVOLVED PARTIES WILL INITIATE ANY CORRECTIVE ACTION DEEMED NECESSARY BY DEP.**

6.2 Performance and Systems Audits

6.2.1 Field Activities

Specific audits planned for this project are:

Audit Type	Frequency/Date	Description
1. Laboratory	Prior to, and after analyses of samples.	Internal Laboratory
2. Routine FDEP	Reasonable frequency.	Field/Laboratory
3.		

6.2.2 Laboratory Activities

Specific audits planned for this project are:

Audit Type	Frequency/Date	Description
1. Internal Systems	Annual	Laboratory
2. Internal Systems	Annual	Field
3. External Systems	Annual/Reasonable Frequency	FDHRS USEPA FDEP QAO FDHRS USEPA FDEP

ALL INVOLVED PARTIES WILL CONSENT TO AUDITS BY DEP IF DEEMED NECESSARY.

6.3 Quality Assurance Reports

Project specific QA Reports will be submitted to FDEP Quality Assurance Section, Tallahassee, Florida and PC&B Environmental Laboratories, Inc. at a frequency of one final report.

Note: Frequency must comply with Table IV, Appendix D of the DEP Manual for Preparing Quality Assurance Plans or Table 6 of Chapter 17-160, F.A.C.. Quality Assurance.