# QUALITY ASSURANCE PROJECT PLAN
OGC #91-1176

HOWCO ENVIRONMENTAL SERVICES, INC.

AUGUST, 1992

Section 1.0 **TITLE AND DER APPROVAL PAGE**

**HOWCO ENVIRONMENTAL SERVICES, INC.**
**QUALITY ASSURANCE PROJECT PLAN**
**OGC #91-1176**

**Prepared by:**

**FLORIDA GROUNDWATER SERVICES, INC. (FGS)**
**308 SOUTH BOULEVARD**
**TAMPA, FLORIDA 33606**
**(813) 254-8202**



**Prepared for:**

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**DER Oversight:**

DER Project Manager — [Date]

DER QA Manager — [Date]

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# Section 3.0 PROJECT DESCRIPTION

## 3.1 Site Identification and History

Site Name: HOWCO Environmental Services, Inc.

Site Address: 843 43rd Street South
Street
St. Petersburg, Florida 33711
City, County and Zip Code

### 3.1.1 Site Identification and History

A Consent Order (OGC Case No. 91-1176) has been made and entered into between HOWCO Environmental Services, Inc. (HOWCO) and FDER regarding the oil reclamation facility located at 843 43rd Street South, St. Petersburg, Florida (see Figure 1). ERM - South, Inc. (ERM) performed a preliminary environmental audit of the facility in 1991. Specific findings of their investigations can be summarized as follows:

1) The property was purchased by Mr. Art Hagan in 1973. Until approximately 1975, no active property use or development occurred. Until 1975, the aerial photographs show the property was covered with grass, trees and bare soil. Some petroleum product storage activities, trucks, and paving equipment are evident in the 1975 aerial photograph. Until around 1977, the facility accepted used oils, stored in drums and tanks, and sold it for road construction. Until approximately 1977, the City of St. Petersburg dumped street sweepings on the northwestern portion of the property.

   The facility was expanded in 1980 to process more oil. In 1986, the existing tanks and oil cooker had been retrofit with concrete slabs, and the WWTP was added. In 1988, the wash rack was moved from the current parking lot to its present location (see Figure 2), additional concrete slaps were added, and sludge handling began. During this same time period, a concrete containment structure was built for the wash rack facility and sludge processing areas. A soil berm was also constructed in the north part of the facility.

2) The Florida Department of Environmental Regulation (FDER) conducted an inspection of the facility in April 1990, and issued a warning notice (WN90-0033HW52SWD) to HOWCO on April 12, 1990, alleging violations concerning manifest recordkeeping, entry control to the facility, inadequate training records, inadequate inspection records, etc.

3) On March 13, 1991, representatives from the U.S. Environmental Protection Agency (EPA) Region IV collected samples of certain materials stored in roll-off bins at the facility. The roll-off bins contained a mixture of dirt remaining from the processing of oil/water emulsion, primarily from oil/water separators and filter press cake from the WWTP. Historically, these materials have been tested for the appropriate analyte list and disposed of properly.

Samples of this material were reportedly collected by EPA personnel from five of the approximately 8 feet by 20 feet by 4 feet deep roll-off bins located in the storage area. The samples were collected at depths of approximately 18 inches, 24 inches, and also from the bottom of the bins, and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) metals and volatile organic compounds by the EPA laboratory in Athens, Georgia. Analytical results indicate that TCLP standards were not exceeded. The EPA has not pursued the matter any further.

Preliminary soil investigations were conducted by ERM at the site in August 1991. The purpose of their investigations were to identify areas of petroleum-impacted soil samples from selected locations using backhoe test pits and hand auger borings. Using an OVA, ERM determined the horizontal and vertical extent of excessively contaminated soil. The results of their work will be included in the CAR.

3.1.2 Summary of the Historical Data (see Table 3.1)

## 3.2 Project Scope and Purpose

3.2.1 Purpose of this Project:

This Plan is being submitted as a requirement of Consent Order #OGC 91-1176.

3.2.2 Intended end use of the data:

_____ Permit Compliance
_____ Feasibility Study
X___ Consent Order Compliance
_____ Remedial Action
_____ Contamination Assessment
_____ Water Quality Data Base (Specify which Data Base: _____)
_____ Facility Operating Report
_____ Other: _____

3.2.3 Project Schedule and Scope of Work

10-92
Beginning Date
10-94
Projected Ending Date

**Major Project Tasks**

| Specific Project Activity | | Scheduled Date |
|---|---|---|
| 1. | Soil Boring, Sample Collection | 10-92 |
| 2. | Monitor Well Installation and Sampling | 10-92 |
| 3. | CAR Preparation/Submittal | 01/93 |
| 4. | CAR Review/Approval | 01/93 |
| 5. | Preparation, Submittal & Approval of RAP | 09/93 |
| 6. | Implementation of RAP | 12/93 |

TABLE 3.1
Summary of Historical Data

| PARAMETER | CONCENTRATION RANGE | UNITS |
|---|---|---|
| **SOIL** | | |
| Barium | 4.9 | mg/kg, dw |
| Chromium | 2.4 | mg/kg, dw |
| Ethylbenzene | 110 | ug/kg, dw |
| Lead | 170 | mg/kg, dw |
| Mercury | 0.026 | mg/kg, dw |
| Toluene | 19 | ug/kg, dw |
| Trichloroethene | 9.8 | ug/kg, dw |
| Xylene | 160 | ug/kg, dw |
| TRPH | 15,000 | mg/kg, dw |
| Total Halogens | 820 | mg/kg, dw |

## 3.3 Project Organization

### 3.3.1 Field Operations

The field operations for this project will be conducted by:

FLORIDA GROUNDWATER SERVICES, INC. (FGS)

using Comprehensive QA Plan No.: 890395G.

The organization and personnel duties of the field consultant are described in Section 4.0, page 6 to 10, revised 05-29-90.

### 3.3.2 Laboratory Analytical Work

The laboratory analytical work will be performed by:

Orlando Laboratories, Inc.

using Comprehensive QA Plan No.: 860106G

The laboratory organization and personnel duties are described in Section 4.0, page 1 to 7, revised 2-17-92.

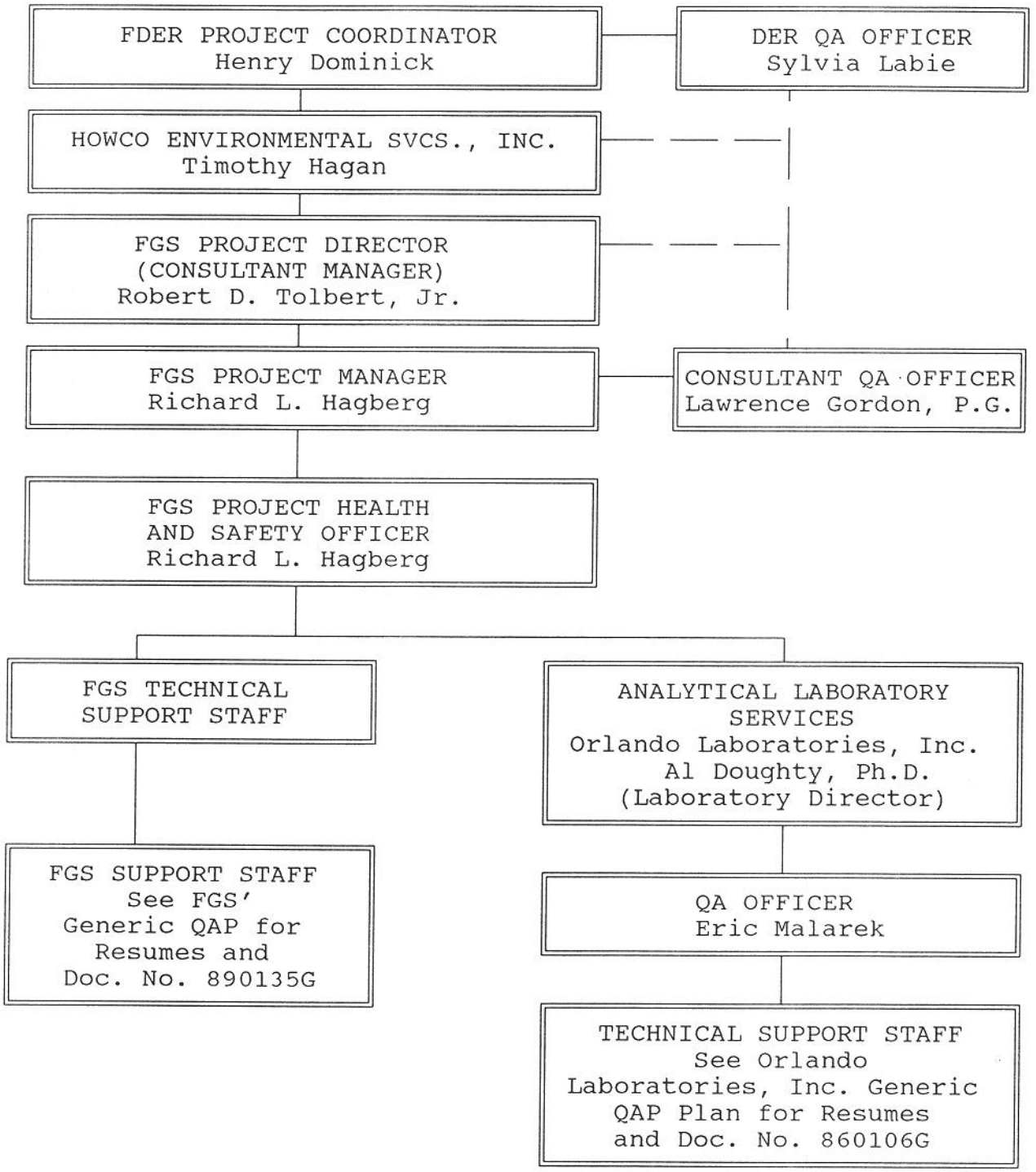
3.3.3 Project Organization - Refer to figure 3.1 for the specific organization of this project.

3.3.4 Modifications or Additions - The following personnel and their duty descriptions are not included in the referenced CompQAPs:

A. Field Personnel
   1. Jeffrey L. Hagberg, Project Engineer
   2. Maura Clark, Project Geologist
   3. Bruce Crater, Project Geologist

B. Laboratory Personnel
   1.
   2.
   3.

FIGURE 3.1
Project Organization



## 3.4 Project Objectives

### 3.4.1 Data Quality Objectives

The standards criteria outlined in DER Rule 17-770 are the detection limit criteria for this project. The detection limits reported for this project shall at least meet, or be lower than the standards.

X The data quality objectives for this project are the routine QA targets listed in the laboratory CompQAP.

___ The minimum detection limits to be achieved for this study differ from the routine detection limits specified in the laboratory CompQAP and are included as a part of Table 3.3.

___ The precision and accuracy requirements differ from the routine targets specified in the laboratory CompQAP and are included as a part of Table 3.3.

### 3.4.2 Proposed samples for project

a. See Table 3.2 of this Section for a summary of the sampling and analysis activities.
b. See Figure 3.2 for a map of the project site.

### 3.4.3 QA Targets for Precision, Accuracy and Minimum Detection Limits

#### a. Field Analytical Measurements

Field Measurements to be performed by Florida Groundwater Services, Inc. (FGS) are listed below:

| Parameter | | Method # |
|---|---|---|
| 1. | pH | 150.1 |
| 2. | Specific Conductance | 120.1 |
| 3. | Temperature | 170.1 |
| 4. | Hydrocarbon Vapors in Soil | GQAP No. 890395G, Pg. 19, Sec. 6 |
| 5. | | |

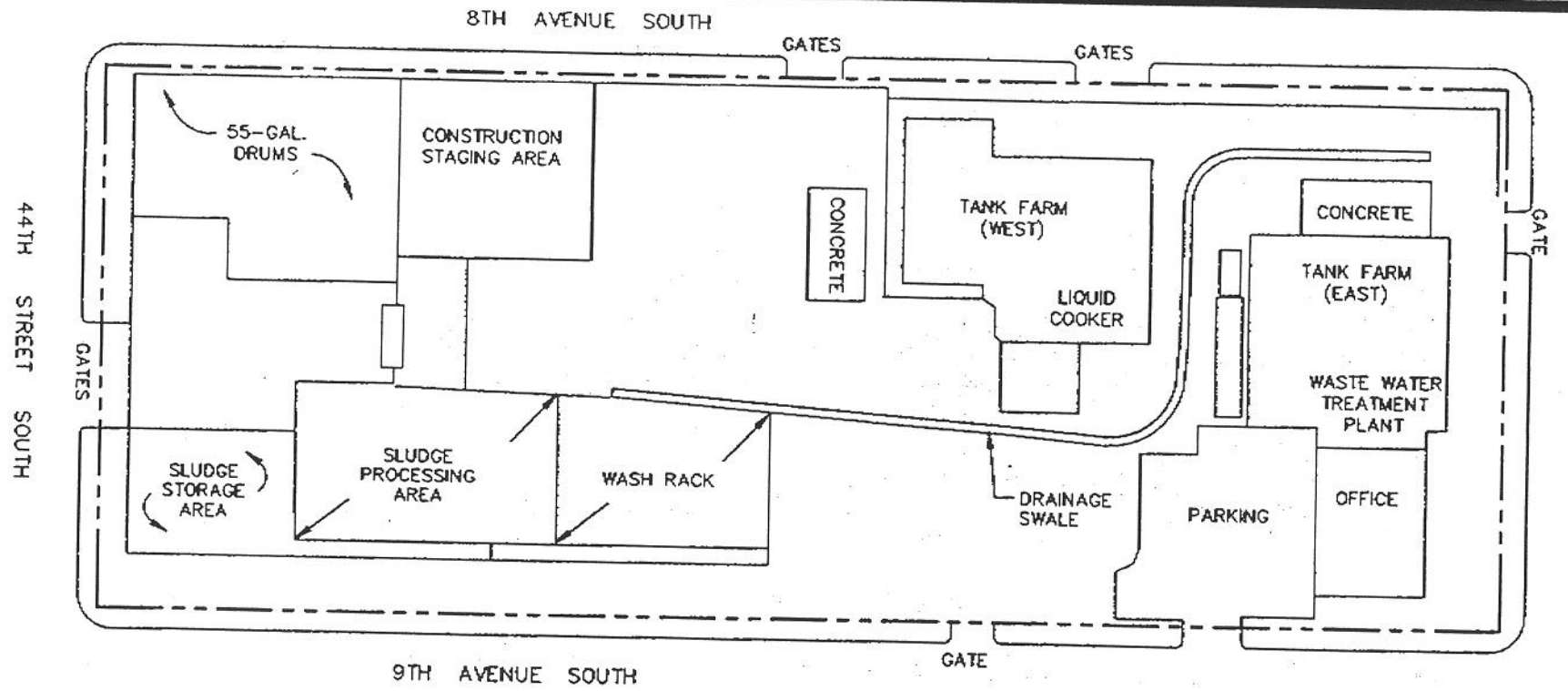
Refer to CompQAP # 890395G, Section 5, page 10 to 11, revised 05/29/90.

TABLE 3.2

Proposed Samples for the Project
(Summary)

| Frequency | Sample Matrix | Sample Source | Analytical Method # | # Samples | QUALITY CONTROL SUMMARY TB | EB | Other |
|---|---|---|---|---|---|---|---|
| 1 | Water | Groundwater | 206.2, 210.2 | 1 | - | | |
| 1 | Water | Groundwater | 213.1, 218.1 | | - | | |
| 1 | Water | Groundwater | 220.1, 239.1 | | - | | |
| 1 | Water | Groundwater | 245.1, 249.1 | | - | | |
| 1 | Water | Groundwater | 270.3, 204.1 | | - | | |
| 1 | Water | Groundwater | 272.1, 279.1,289.1 | | - | | |
| 1 | Water | Groundwater | 150.1, 120.1 | | - | 1 | |
| 1 | Water | Groundwater | 170.1 | | - | 1 | |
| 1 | Water | Groundwater | 601/602 | 7 | 1 | 1 | |
| 1 | Water | Groundwater | 610 | 7 | - | | |
| 1 | Water | Groundwater | 418.1 | 7 | | | |
| 1 | Water | Groundwater | 504 | 7 | 1 | 1 | |

FB - Field Blank
TB - Trip Blank
EP - Equipment Blank
FD - Field duplicate
Other - state type




# FIGURE 3.2
# SITE MAP

FLORIDA GROUNDWATER SERVICES, INC.
308 SOUTH BOULEVARD TAMPA, FLORIDA 33606 (813)-254-8202
ENVIRONMENTAL AND CONTAMINATION ASSESSMENTS/HYDROGEOLOGICAL MODELING, STUDIES AND PERMITTING

The following deviations from the stated CompQAP objectives for field measurements are noted as follows:

| Method Number | Precision | Accuracy |
|---|---|---|
| 1. N/A | N/A | N/A |
| 2. | | |
| 3. | | |

b. Laboratory Analyses

Laboratory Analyses to be performed by Orlando Laboratories, Inc. are listed on Table 3.3 by specific citation.

# TABLE 3.3
## Method Identification and QA Objectives

| Method No. | Matrix | Component | CompQAP Section No. | CompQAP Rev. Date | CompQAP Page # |
|---|---|---|---|---|---|
| 601 | Water | Chloromethane | 5 | 9/22/92 | 6 |
| 601 | Water | Bromomethane | 5 | 9/22/92 | 6 |
| 601 | Water | Vinyl Chloride | 5 | 9/22/92 | 6 |
| 601 | Water | Dichlorodifluoromethane | 5 | 9/22/92 | 6 |
| 601 | Water | Chloroethane | 5 | 9/22/92 | 6 |
| 601 | Water | Methylene Chloride | 5 | 9/22/92 | 6 |
| 601 | Water | 1,1-Dichloroethane | 5 | 9/22/92 | 6 |
| 601 | Water | Trichlorofluoromethane | 5 | 9/22/92 | 6 |
| 601 | Water | 1,1-dichloroethane | 5 | 9/22/92 | 6 |
| 601 | Water | Trans-1,2,dichloroethane | 5 | 9/22/92 | 6 |
| 601 | Water | Chloroform | 5 | 9/22/92 | 6 |
| 601 | Water | 1,2-dichloroethane | 5 | 9/22/92 | 6 |
| 601 | Water | 1,1,1-trichlorothane | 5 | 9/22/92 | 6 |
| 601 | Water | Carbon tetrachloride | 5 | 9/22/92 | 6 |
| 601 | Water | bromodichloromethane | 5 | 9/22/92 | 6 |
| 601 | Water | 1,2-dichloropropane | 5 | 9/22/92 | 6 |
| 601 | Water | Trans-1,3-dichloropropene | 5 | 9/22/92 | 6 |
| 601 | Water | Trichloroethene | 5 | 9/22/92 | 6 |
| 601 | Water | Dibromochloromethane | 5 | 9/22/92 | 6 |
| 601 | Water | 1,1,2-trichloroethane | 5 | 9/22/92 | 6 |
| 601 | Water | Cis-1,3-dichloropropene | 5 | 9/22/92 | 6 |
| 601 | Water | 2-chloroethylvinylether | 5 | 9/22/92 | 6 |
| 601 | Water | Bromoform | 5 | 9/22/92 | 6 |
| 601 | Water | Chlorobenzene | 5 | 9/22/92 | 6 |
| 601 | Water | 1,1,2,2-tetrachloroethane | 5 | 9/22/92 | 6 |
| 601 | Water | Tetrachloroethene | 5 | 9/22/92 | 6 |
| 601 | Water | 1,2-dichlorobenzene | 5 | 9/22/92 | 6 |
| 601 | Water | 1,3-dichlorobenzene | 5 | 9/22/92 | 6 |
| 601 | Water | 1,4-dichlorobenzene | 5 | 9/22/92 | 7 |

| Method No. | Matrix | Component | CompQAP Section No. | CompQAP Rev. Date | CompQAP Page # |
|---|---|---|---|---|---|
| 504 | Water | 1-2,Dibromoethane (EDB) | 5 | 9/22/92 | 2 |
| 610 | Water | Acenaphthene | 5 | 9/22/92 | 9 |
| 610 | Water | Acenaphthylene | 5 | 9/22/92 | 9 |
| 610 | Water | Benzo(a)pyrene | 5 | 9/22/92 | 9 |
| 610 | Water | Benzo(b)fluoranthene | 5 | 9/22/92 | 9 |
| 610 | Water | Benzo(k)fluoranthene | 5 | 9/22/92 | 9 |
| 610 | Water | Benzo(g,h,i)perylene | 5 | 9/22/92 | 9 |
| 610 | Water | Chrysene | 5 | 9/22/92 | 9 |
| 610 | Water | Benzo(a)anthracene | 5 | 9/22/92 | 9 |
| 610 | Water | Fluorene | 5 | 9/22/92 | 9 |
| 610 | Water | Ideno(1,2,3-cd)pyrene | 5 | 9/22/92 | 9 |
| 610 | Water | Dibenzo(a,h)anthracene | 5 | 9/22/92 | 9 |
| 610 | Water | 1-Methylnaphthalene | 5 | 9/22/92 | 9 |
| 610 | Water | 2-Methylnaphthalene | 5 | 9/22/92 | 9 |
| 610 | Water | Naphthalene | 5 | 9/22/92 | 9 |
| 610 | Water | Phenanthrene | 5 | 9/22/92 | 9 |
| 610 | Water | Anthracene | 5 | 9/22/92 | 9 |
| 610 | Water | Pyrene | 5 | 9/22/92 | 9 |
| 602 | Water | Benzene | 5 | 9/22/92 | 7 |
| 602 | Water | Toluene | 5 | 9/22/92 | 7 |
| 602 | Water | Total Xylenes | 5 | 9/22/92 | 7 |
| 602 | Water | Ethylbenzene | 5 | 9/22/92 | 7 |
| 602 | Water | Methyl tert-butyl ether (MTBE) | 5 | 9/22/92 | 7 |
| 418.1 | Water | Total Recoverable Petroleum Hydrocarbons | 5 | 9/22/92 | 54 |
| 7421 | Water | Lead | 5 | 9/22/92 | 49 |
| 7060 | Water | Arsenic | 5 | 9/22/92 | 45 |
| 6010 | Water | Barium | 5 | 9/22/92 | 45 |
| 6010 | Water | Cadmium | 5 | 9/22/92 | 45 |
| 6010 | Water | Chromium | 5 | 9/22/92 | 47 |
| 7470 | Water | Mercury | 5 | 9/22/92 | 49 |
| 7740 | Water | Selenium | 5 | 9/22/92 | 52 |
| 6010 | Water | Silver | 5 | 9/22/92 | 52 |

# Section 4.0 FIELD PROCEDURES AND QUALITY CONTROL

CompQAP citations in this section refer to CompQAP # 890395G, unless otherwise specified.

## 4.1 Sampling Equipment

The following is a list of the equipment to be used for this project:

| Equipment Description | Construction Materials | Use |
|---|---|---|
| Purging Equipment | | |
| 1. Geotech Geopump (peristaltic) | Poly with Teflon tail piece. | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| Sampling Equipment | | |
| 1. Voss Bailer (disposable) | Teflon | |
| 2. Bailer | Stainless Steel | |
| 3. QED .45 micron disposable = inline filters | Non-Contaminating | |
| 4. | | |
| 5. | | |
| Field Measurement Equipment | | (Not Applicable) |
| 1. Cole Parmer Degi-Senge pH meter | | |
| 2. HACH Turbidimeter | | |
| 3. YSI SCT Meter | | |
| 4. | | |
| 5. | | |

Refer to CompQAP Section 6.0, page 31 to 32, revised 6/03/92, for specific discussions on construction and use.

Additional equipment not addressed in the CompQAP will include:

| Equipment Description | Construction Materials | Use |
|---|---|---|
| 1. Voss Bailer (Disposable) | Teflon ($^{R}$) | 1 Time |
| 2. | | |
| 3. | | |
| 4. | | |

## 4.2 Sampling Protocols - See Table 4.1

**TABLE 4.1**

**Sampling Protocols**

These citations refer to CompQAP # 890135G

| Topic | Section # | Page #'s | Revision Date |
|---|---|---|---|
| 1. Equipment Decontamination | 6.2 | 36 - 38 | 6/03/92 |
| 2. Groundwater sampling protocols | 6.1.5 | 21 - 25 | 5/29/90 |
| 3. Surface water sampling protocols | 6.1.6 | 33 - 34 | 10/19/90 |
| 4. Soil sampling protocols | 6.1.3 | 15 - 18 | 10/19/90 |
| 5. Sediment sampling protocols | 6.1.3 | 15 - 18 | 10/19/90 |
| 6. Field filtration protocols | 6.1.5.1 | 23 | 5/29/91 |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |

Deviations or modifications to the above-referenced procedures are:

| Protocol | Modification | Justification |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |

TABLE 4.2

**Equipment Decontamination and Cleaning Procedures**

These citations refer to CompQAP # 890135G

| Equipment Category | Cleaning Location | Section # | Page # | Revision Date |
|---|---|---|---|---|
| Bailers (Stainless Steel) | Pre-cleaned at laboratory. | 6.2 | 36 | 10/19/90 |
| Soil Auger | At office prior to use and in-field between sample locations. | 6.2 | 36 - 37 | 10/19/90 |
| Sample Spoons (Stainless Steel) | At office prior to use and in-field between sample locations. | 6.2 | 36 - 37 | 10/19/90 |

Deviations or modifications to the procedures referenced above:

| Equipment Category | | | | | Modification |
|---|---|---|---|---|---|
| 1.Bailers (Teflon) - Disposable | Disposable: pre-cleaned by manufacturer. | 6.2 | 36 | 10/19/90 | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |

**NOTE: Equipment must be precleaned prior to on-site arrival.**

4.3 **Field Equipment Cleaning and Decontamination Procedures**

Refer to Table 4.2 for specific references.

4.4 **Sample Containers**

Sample containers will be provided by Orlando Laboratories, Inc. Container preparation procedures are found in CompQAP # 860106G, Section 6.7, page 25 to Page 27, revised 02/17/92.

4.5 **Preservation Protocols**

Preservatives will be provided by Orlando Laboratories, Inc. Documentation for reagents are found in CompQAP # 860106G, Section 6.7, page 25 to 27, revised 02/17/92.

Preservation will be done by Orlando Laboratories, Inc. following protocols listed in CompQAP # 86124G, Section 6.0, page 4 to 6, revised 2/17/92.

4.6 **Sample Dispatch**

Procedures for transporting the samples to the laboratory are listed in CompQAP #890359G, Section 7.0, page 39, revised 5/29/90.

4.7 **Waste Disposal**

Procedures for handling wastes from equipment cleaning and from sampling are listed in CompQAP #890395G, Section 6.0, page 38, revised 06/03/92.

All wastes generated during sampling and equipment decontamination will be containerized on-site for subsequent disposal. Disposal of solid waste will be dependent upon the results of the analytical testing.

## 4.8 Field Sample Custody

Procedures for sample custody are found in CompQAP #890395G, Section 7.0, page 39 to 45, revised 05/29/90.

Deviations or modifications to the field custody procedures are listed below:

1.
2.
3.

## 4.9 Field Measurements

Field measurements are listed in Section 3.4.3 of this QAPP. Deviations or modifications to the procedures listed are as follows:

1. N/A
2.
3.

Other field measurements that will be made are:

1.
2.
3.

## 4.10 Field Calibration Procedures

Calibration protocols for field analytical measurements are listed in CompQAP #890395G, Section 8.0, page 46 to 50, revised 05/29/90.

Deviations to the procedures outlined in the above reference are:

| Calibration Procedure | Deviation |
|---|---|
| 1. | |
| 2. | |
| 3. | |

Project specific field measurement equipment not mentioned in the above reference are as

follows:
1.
2.
3.

Calibration procedures for equipment listed above are outlined on Table 4.3.

### 4.11 Preventative Maintenance

Field equipment preventative maintenance protocols are discussed in CompQAP #890395G, Section 13.0, page 64, revised 05/29/90.

The following additions or modifications to field equipment maintenance procedures are as follows:
1.
2.
3.

### 4.12 Field Quality Control Checks and Routines to Assess Precision and Accuracy

The proposed schedule of field QC checks are summarized on Table 3.2 of Section 3.4.

Routines to assess the Precision and Accuracy of field measurements are found in CompQAP #890395G, Section 11.2, page 56 to 60, revised 10/19/90.

### 4.13 Data Reduction, Validation and Reporting

Field activities relative to this section are found in CompQAP #890395G, Section 10.0, page 48 to 55, revised 05/29/90.

TABLE 4.3

Additional Equipment Calibration Procedures

| Instrument | Calibration Standard Source | Initial Calib. | Acceptance/Rejection Criteria | Frequency | # Standards Cont. Calib. | Acceptance/Rejection Criteria | Frequency |
|---|---|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

# Section 5.0 LABORATORY PROCEDURES AND QUALITY CONTROL

References in this section refer to the Orlando Laboratories, Inc. Laboratory CompQAP # 860106G.

## 5.1 Laboratory Custody Procedures

Laboratory sample custody procedures and documentation are found in CompQAP Section 7.0, page 1 to 32, revised 02/17/92.

Deviations or modifications to the laboratory procedures are listed below:

1.
2.
3.

## 5.2 Laboratory Analytical Procedures

### 5.2.1 Laboratory Glassware Cleaning Protocols

Refer to CompQAP Section 8.1.1, page 1 to 4, revised 09/22/92.

Deviations or modifications to the referenced protocols are listed below:

1.
2.
3.

### 5.2.2 Method Modifications and/or Deviations

Deviations or modifications to the listed analytical procedures are as follows:

1. Refer to ComQAP Section 8.1.2. pages 3 to 4 - Revised 9/22/92.
2.
3.

## 5.3 Waste Disposal

Waste disposal practices in the laboratory are listed in CompQAP Section 8.3, page 5 to 10, revised 09/22/92.

## 5.4 Calibration Procedures and Frequency

Laboratory calibration protocols are listed in CompQAP Section 9.0, page 1 to 30, revised 2/17/92.

Deviations to the procedures outlined in the above reference are:

| Calibration Procedure | Deviation |
|---|---|
| 1. | |
| 2. | |
| 3. | |

Project specific measurement and/or analytical equipment not mentioned in the above reference are as follows:

1.
2.
3.

Calibration procedures for the above equipment are outlined on Table 5.1.

## 5.5 Preventative Maintenance

Laboratory instrument preventative maintenance protocols are discussed in CompQAP Section 10.0, page 1 to 4, revised 09/22/91.

The following modifications to or deviations from the referenced protocols are listed below:

1.
2.
3.

## 5.6 Quality Control Checks, Routines to Assess Precision and Accuracy, and Calculation of Method Detection Limits

### 5.6.1 Laboratory Quality Control Measures

The types of laboratory control checks outlined on Table 5.2 will be used when analyzing samples for this project.

### 5.6.2 Routine Procedures to Assess Precision and Accuracy

Routine procedures to assess the Precision and Accuracy of

TABLE 5.1

Additional Laboratory Equipment Calibration Procedures

| Instrument | Calibration Standard Source | Initial Calib. | Acceptance/Rejection Criteria | Frequency | # Standards Cont. Calib. | Acceptance/Rejection Criteria | Frequency |
|---|---|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

# TABLE 5.2

## Laboratory Quality Control Checks

Refer to Laboratory CompQAP # 86124G for frequency and description.

| QC Check | | Section No. | Page No. | Revision Date |
|---|---|---|---|---|
| 1. | Blanks | 11.1 | 1 | 02/17/92 |
| 2. | Method Reagent Blanks | 11.1 | 1 | 02/17/92 |
| 3. | Reagent Water Spikes | 11.1 | 1 | 02/17/92 |
| 4. | Reagent Matrix Spikes | 11.1 | 1 | 02/17/92 |
| 5. | QC Check Samples | 11.1 | 1 | 02/17/92 |
| 6. | QC Control Check Standards | 11.1 | 1 | 02/17/92 |
| 7. | Duplicates | 11.1 | 2 | 02/17/92 |
| 8. | Calibration Standards | 11.1 | 2 | 02/17/92 |
| 9. | Surrogate Spikes | 11.1 | 2 | 02/17/92 |
| 10. | Internal Standards | 11.1 | 2 | 02/17/92 |

Deviations (or additions) to the types of laboratory QC checks or frequency are listed below:
1.
2.
3.

Deviations to the referenced procedures to assess precision and accuracy are as follows:
1.
2.
3.

5.6.3 Method Detection Limits

Method Detection Limit determinations are discussed in the Laboratory CompQAP Section 11.5, page 6 to 7, revised 02/17/92.

Deviations to calculations of method detection limits are as follows:
1.
2.
3.

## 5.7 Data Reduction, Validation and Reporting

Laboratory activities relative to this section are found in CompQAP Section 12.0, page 1 to 16, revised 09/22/91.

Deviations or revisions to the above reference are as follows:
1.
2.
3.

# Section 6.0 QUALITY ASSURANCE MANAGEMENT

## 6.1 Corrective Actions

### 6.1.1 Field Corrective Action

Protocols to initiate corrective actions by field personnel are listed in CompQAP # 890395G, Section 15, page 68, revised 05/29/90.

Revisions to these procedures are listed below:
1.
2.
3.

### 6.1.2 Laboratory Corrective Action

Protocols to initiate corrective actions by laboratory personnel are listed in CompQAP # 86010G, Section 13.0, page 1 to 3, revised 09/22/91.

Revisions to these procedures are listed below:
1.
2.
3.

**ALL INVOLVED PARTIES WILL INITIATE ANY CORRECTIVE ACTION DEEMED NECESSARY BY DER.**

## 6.2 Performance and Systems Audits

### 6.2.1 Field Activities

a. Routine performance and systems audits are discussed in CompQAP # 890395G, Section 12.0, page 61 to 63, revised 06/29/90.

b. 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 FDER | Reasonable frequency. | Field/Laboratory |
| 3. | | |

6.2.2 Laboratory Activities

a. Routine performance and systems audits are discussed in CompQAP # 860106G, Section 14.0, page 1 to 45, revised 09/22/91.

b. 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 | F.D.H.R.S., U.S.E.P.A., F.D.E.R. |
| 4. Internal Performance | Semi-Annually | QAO |
| 5. External Performance | Semi-Annually | FDHRS, USEPA, FDER |

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

6.3 **Quality Assurance Reports**

QA Reports will be submitted to Orlando Laboratories, Inc., and FDER Project Manager and QA Manager at a frequency of one every two years, and every two years thereafter, and one final report.

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

# Section 7.0 **RESUMES**

## 7.1. Field activities

Refer to CompQAP # 890395G, Section 17.0, page 70 to 75, revised 5/29/90.

Additional (or new) resumes are as follows:

1. Jeffrey L. Hagberg, Project Engineer
2. Maura Clark, Project Hydrogeologist
3. Rogert T. Countryman, II
4. Janie L. Hagberg

## 7.2 Laboratory activities

Refer to CompQAP # 860106G, Section 16.0, page 1 to 22, revised 02/17/92.

Additional (or new) resumes are as follows:

1.
2.

* 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 or are not included in the CompQAP.

# JEFFERY L. HAGBERG
# ENVIRONMENTAL ENGINEER

## EDUCATION

B.S. Environmental Engineering, University of Florida, 1990.

## EXPERIENCE

Mr. Hagberg has proven project experience on numerous projects. He has conducted Level I and II Environmental Assessments, in which his responsibilities included Soil Borings, Installation of Monitoring Wells, OVA Readings, and EPA Groundwater Sampling Techniques. He has participated in Consumptive Use Permitting, Underground Storage Tank (UST) removal and associated remediation activities. He also has experience ranging from EDB Groundwater Contamination to Aquifer Protection Studies.

## REPRESENTATIVE PROJECTS

- Numerous Level I and II Environmental Assessments throughout Central Florida.
- Participated in extensive Groundwater Monitoring Study involving EDB Groundwater Contamination.
- Project Manager on several Contamination Assessments (CA) projects. Conducted Soil Borings, installed Monitoring Wells and performed Organic Vapor Analyses (OVA) testing.
- Involved in many phases of Remedial Action Plans (RAP's), including Modeling and Design Work.

## AFFILIATIONS

Water Pollution Control Federation (WPCF)
American Water Works Association (AWWA)
Air and Waste Management Association (AWMA)
National Water Well Association (NWWA)

MAURA CLARK
HYDROGEOLOGIST

EDUCATION

BS, Geology, Long Island University, 1986

EXPERIENCE

Ms. Clark is experienced in the fields of environmental geology and hydrogeology as well as hazardous waste site investigations and remediation. She has developed plans for and participated in numerous groundwater and soil contamination assessments and associated site clean-up activities. Ms. Clark has also completed EPA training course 162.5 (Hazardous Materials and Spill Incident Response).

REPRESENTATIVE PROJECTS

- Ms. Clark has participated as an on site supervisor for a large scale soil/gas survey at a Superfund site in Southern New Jersey.
- Principal Field Investigator for hydrogeologic investigations of a major chemical company in Piscataway, NJ. Responsibilities included supervision of monitoring well installation and soil sampling.
- Supervised installations of soil borings, monitoring wells, and on-site health and safety practices for a failed underground fuel oil tank farm at a former airplane manufacturing facility in Northern New Jersey.
- Principal Field Investigator for an ECRA investigation of a major petroleum refinery in North Delaware.
- Supervised field activities for remedial projects involving the removal of contaminated soils at several manufacturing and industrial facilities in the Tampa Bay area.
- Supervised several tank removal projects involving soil remediation, groundwater and soil sampling for major petroleum companies.
- Principal Field Investigator for hydraulic investigations of a large parcel for Pinellas County. Responsibilities included supervision of monitoring well installation and sampling, soil sampling, geophysical data interpretation and aquifer tests.
- Principal Field Investigator for several former landfill sites in Hillsborough and Pinellas Counties. Responsibilities included aquifer tests, monitor well installations, logging of test pits, hydrogeologic research, surface water and soil sampling.

# ROGER A. COUNTRYMAN, II
# HYDROGEOLOGIST

## EDUCATION

B.A., Geology, University of South Florida, May, 1991.
A.A., Pensacola Junior College, August, 1988.
Supplemental Coursework: Hydrogeology

## EXPERIENCE

Mr. Countryman has one and a half years experience in the fields of environmental geology and hydrogeology. He has participated in numerous Phase II Site Investigations, Soil and Groundwater Contamination Assessments, Underground Storage Tank removals and associated Initial Remedial Action activities.

## REPRESENTATIVE PROJECTS

- Conducted the flushing of the on-site potable water system at the Breed Automotive Plant in Lakeland, Florida.

- Performed numerous Initial Remedial Actions involving: soil sampling, coordination of soil and product disposal, and site restoration on petroleum contaminated sites.

- Performed numerous Contamination Assessments involving: groundwater monitor well installation and sampling, soil sampling and vadose zone, soil/gas monitoring and sampling per F.A.C. 17-770 Guidelines.

# JANIE L. HAGBERG, E.I.
# ENVIRONMENTAL ENGINEER

## EDUCATION

University of Florida - Bachelor of Science in Environmental Engineering, 1990

## PROFESSIONAL REGISTRATION

Engineer Intern, State of Florida
OSHA Training Course, 1991

## EXPERIENCE

Mrs. Hagberg has varied project experience ranging from project engineer for contamination assessment activities per F.A.C. 17-770, preparation of Remedial Action Plans, and design of utility distribution systems. She has conducted numerous Phase I and II environmental assessments. Additional project experience includes utilities planning and permitting with local and City agencies.

Prior to joining FGS, Mrs. Hagberg was responsible for the monitoring of air and surface water discharges, as well as potable supplies pursuant to FDER and NPDES permits at a large industrial plant.

## REPRESENTATIVE PROJECTS

- State of Florida Department of Corrections - Project Engineer for the design of water distribution system at prison drug treatment center.
- BP Oil - Design of groundwater remediation system in conjunction with preparation of Remedial Action Plan (RAP).
- Gardinier, Inc. - Landfill construction site monitoring plan organization and implementation.
- Amoco Oil - Project management for preparation of Contamination Assessment Plan (CAP).

## AFFILIATIONS:

American Water Works Association
National Water Well Association