REPORT

RCRA TANK CLOSURE AND CONFIRMATORY SAMPLING PLAN

Liquid Environmental Services

Jacksonville, Florida

Submitted To: Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400 USA

Submitted By: Golder Associates Inc.
9428 Baymeadows Road, Suite 400
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August 2010 **103-82514**

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Golder Associates

August 5, 2010

103-82514

Mr. Tim Bahr
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: RCRA TANK CLOSURE AND SOLID WASTE MANAGEMENT UNIT (SWMU) CONFIRMATORY SAMPLING PLAN LIQUID ENVIRONMENTAL SERVICES 1640 TALLEYRAND AVENUE JACKSONVILLE, FLORIDA

Dear Mr. Bahr:

Golder Associates Inc. (Golder) is pleased to submit this Tank Closure and Solid Waste Management Unit Confirmatory Sampling Plan required under the Resource Conservation and Recovery Act (RCRA) for the closure of eight tanks at the Liquid Environmental Solutions (LES) facility in Jacksonville, Florida and investigation of four SWMUs identified in the RCRA Facility Assessment Report as requiring confirmatory sampling.

Golder is providing professional environmental and engineering services on behalf of LES. If you have any questions regarding this report, please contact the undersigned at (904) 363-3430.

Sincerely,

GOLDER ASSOCIATES INC.

Kirk A. Blevins, CHMM
Project Manager

James P. Oliveros, PG
Principal/Senior Hydrogeologist

Golder Associates Inc.
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1.0 INTRODUCTION

1.1 Background

Liquid Environmental Solutions (LES) recently purchased the former Industrial Water Services (IWS) facility located at 1640 Talleyrand Avenue, Jacksonville, Florida (the facility). The location of the facility is shown on Figure 1. As part of the transaction, IWS has retained ownership of the property, while LES owns and operates the facility. The facility treats wastewater and processes used oil under a used oil processor's permit, which has been transferred from IWS to LES. Golder understands that LES and IWS would like to obtain clean closure under RCRA of eight above-ground storage tanks (ASTs) that have been used for roughly 20 years to store and treat petroleum contact water (PCW). The need for RCRA closure is related to certain PCW having been designated in the early 1990s as a characteristic hazardous waste by virtue of benzene concentrations that exceeded the toxicity characteristic leaching procedure (TCLP) limit of 0.5 milligrams per liter (mg/L) and did not qualify for the petroleum exemption under RCRA. For approximately four years the facility treated both PCW that qualified for the exemption and PCW that was characteristically hazardous for benzene (waste code D018). During the mid-1990s, the U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP) made a determination that all PCW was similar in composition and should all be afforded the RCRA exemption. The facility continued processing PCW as before; however, it was no longer considered hazardous waste. IWS had been operating under a RCRA permit to treat D018 waste until the exemption was extended to all PCW. The facility was then able to operate under their used oil processor's permit, without overlapping RCRA requirements. However, due to cost implications, the facility chose to maintain a separate financial assurance instrument for closure of the eight ASTs rather than complete closure activities. Now that the facility has been sold to LES, proper closure of the ASTs under RCRA is a condition of the sale and a requirement that must be met before the FDEP will release IWS from the financial assurance requirements associated with the RCRA closure.

The remaining artifact of having been under a RCRA permit is that seven cone-bottom process tanks and a 60,000-gallon AST that were used to process the D018 waste were never formally closed under the RCRA program. A closure plan for the facility was developed and approved by FDEP in 2007; however, the closure plan is part of the used oil processor's permit and was developed to address closure activities required when the tanks are taken out of service. The RCRA closure required to satisfy the EPA and FDEP requirements should be predominantly an administrative exercise and sampling of environmental media, rather than physical closure, especially given that the characteristics of the liquids treated in the tanks have not changed in all the years that the tanks have been in service. From a practical standpoint, cleaning and decontaminating the tanks and containment surfaces in order to demonstrate clean closure of the tanks and then placing them back in service to treat the same liquid waste does not make much sense. The FDEP agreed with this understanding and is primarily requiring inspection of the tanks along

with soil and groundwater sampling to evaluate whether D018 waste had been released to the environment.

Golder has been retained by LES to prepare and implement a specific closure plan for the eight ASTs, as requested by the FDEP, to meet RCRA closure requirements. As discussed with the FDEP, Golder believes that an alternative closure strategy can be developed for these tanks that will allow the tanks to remain in service and will provide data to determine whether contaminants detected in soil or groundwater samples, if any, can reasonably be attributed to a release of D018 waste.

Two existing monitoring wells are present at the facility that had been installed by others from which samples were recently collected. Laboratory analyses did not indicate the presence of benzene (the constituent for which the D018 waste is designated). The FDEP has indicated that those wells cannot be used for closure activities unless construction information can be obtained. Construction logs have not yet been located for these wells. One report did indicate that the depth of the wells is 20 feet below ground surface (bgs), which is not unreasonable for that area of Jacksonville. The most important piece of information will be the length of screen in each well. For petroleum contamination, the FDEP requires that monitoring wells are constructed such that the water table fluctuation zone is within the screened interval and that the screen is not more than 10 feet long. The reason for this is that petroleum products have a lower density than water and tend to "float" on the water table surface when present in an undissolved phase.

As part of closure activities, Golder will attempt to locate additional records related to well construction or attempt to ascertain the screen length. LES may decide to use a down-hole camera to determine the screened interval if the well records are not available. If the screened interval cannot be determined, Golder will notify the FDEP with proposed locations and construction of one or more replacement wells, as needed.

In addition to regulatory closure of the eight ASTs, the FDEP is requiring, as part of the RCRA closure, that a confirmatory sampling (CS) plan be developed to evaluate if releases of hazardous constituents have occurred from certain solid waste management units (SWMUs) at the facility. A RCRA Facility Assessment (RFA) was completed for the facility by A.T. Kearney, Inc. (Kearney) and a revised RFA report was issued by the EPA on December 10, 1993 (Kearney, December 1993). The RFA identified 24 SWMUs and no areas of concern (AOCs) at the facility. A brief description of each SWMU, the wastes managed in each SWMU, and if there was any evidence of a release is summarized in Table 1. A more thorough description for each SWMU can be found in the RFA report.

According to the RFA, four SMWUs require confirmatory sampling to determine the potential for a release and include: SWMUs 3A and 3C (offloading racks #1 and #3, respectively), SWMU 4 (Baffle Tanks #3, #4, and #8), SWMU 11F (tertiary containment), and SWMU 21 (underground oil/wastewater pipeline

system). A more detailed description for each of these units and a unit specific sampling plan is described below (Section 4.0).

1.2 General Scope

The scope of work for the closure of the eight regulated tanks and confirmatory sampling of the SWMUs was developed based on discussions during a meeting on February 9, 2010 with individuals from the FDEP's Northeast District office and the RCRA program in Tallahassee, as wells as follow-up discussions with the FDEP and a recent meeting held in Tallahassee with representatives of LES and FDEP. As indicated above, we agreed that decontamination of the ASTs, for which RCRA closure is being sought, and subsequent rinsate sampling does not have to be conducted. The specific closure plan is described below (Section 3.0).

IWS previously maintained financial assurance for both closure of the RCRA-regulated tanks ($77,066) and the used oil processing operation ($261,375). As required for permit issuance, LES provided financial assurance documentation for the used oil processing operation, which was approved by FDEP. However, the FDEP maintains that IWS must continue to provide financial assurance for the RCRA closure, because they are the property owner and have a contractual obligation to close the tanks. The FDEP indicated that after the RCRA closure requirements are satisfied, the amount of financial assurance set aside for the used oil operation would have to be increased to include physical closure of the eight (former RCRA) ASTs.

The FDEP requested that the bottom of the large AST be visually inspected for excessive corrosion or other indications that liquids could leak from the tank. Visual inspection of the cone tanks, which are entirely above ground, was also requested.

Regarding soil and groundwater sampling, the FDEP indicated that the existing wells could be used for clean closure demonstration and confirmatory sampling activities if construction information could be obtained and if construction was appropriate for the task. Otherwise, one or more replacement wells might be needed. Soil samples were requested at several locations outside the containment structure. Soil sampling methodology and locations of soil samples are addressed in Section 4.0.

It is understood that the facility would be held to groundwater cleanup target levels (GCTLs) and residential direct exposure soil cleanup target levels (SCTLs) in Chapter 62-777 Florida Administrative Code (F.A.C.) unless a deed restriction is recorded for the property. In that case, commercial/industrial direct exposure SCTLs would apply for soil. In addition, the facility could have onsite groundwater contamination up to 10 times the GCTLs as long as the GCTLs are met at the property boundaries.

2.0 AVAILABLE INFORMATION

2.1 Groundwater

Two monitoring wells (MW-1 and MW-2) were installed at the site in 1991 and, based on recent sounding, appear to be constructed to a total depth of 20 feet each. The wells were sampled on December 10, 2009 for analysis of benzene and MTBE (methyl tert-butyl ether) using EPA Method 8260. The results did not indicate the presence of benzene above detection limits. MTBE was detected at levels between the method detection limit (MDL) and the practical quantitation limit (PQL), and were below GCTLs. The analytical results are included in Appendix A.

On March 5, 2010, Golder personnel installed a temporary piezometer at the location shown on Figure 2 to evaluate groundwater flow direction. The top-of-casing elevation of the piezometer and two existing monitoring wells were surveyed in relation to an assumed datum, and the depth to groundwater was measured. The results indicate that the direction of groundwater flow is toward the southeast, which is consistent with what would be expected in that area.

2.2 Tank Inspections and Testing

On January 6, 2010, LES personnel performed integrity testing of Tank 6. The results indicated tank wall thicknesses of between 0.281 and 0.316 inches. The results are included in Appendix B.

On March 5, 2010, Ms. Tanel Andry, a professional engineer registered in the State of Florida, visited the site to observe Tank 6 and Tanks 81 through 87. Tank 6 is an approximately 20-foot-diameter flat-bottomed, field-erected, riveted steel tank. Tanks 81 through 87 are approximately 8-foot diameter cone-bottomed tanks that are elevated above the concrete slab.

Prior to the site visit, LES personnel cleaned the inside of Tank 6, but minor amounts of rainwater had accumulated at the bottom between cleaning and the inspection. The bottom of the tank had a secondary fiberglass coating. The fiberglass was pulling up and had some minor cracking mainly along the locations of the rivets. At the locations where the fiberglass was pulling up, Ms. Andry observed very minor amounts of surficial corrosion. The tank bottom generally appeared to be in adequate condition and there was no evidence suggesting that the tank had been leaking. The outsides of Tank 6 and Tanks 81 through 87 had minor amounts of paint peeling and very minor amounts of surficial corrosion. Obvious signs of leaks or other signs of compromise to the outside of the tanks were not observed.

3.0 TANK CLOSURE PLAN

Title 40 CFR, Part 265.111 describes the general requirements for closure of a hazardous waste accumulation tank as follows:

"The owner or operator must close the facility in a manner that:

1. Minimizes the need for further maintenance.
2. Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere.

The LES facility has already achieved these two operational requirements since the tanks in question are sound and will continue to be used to process PCW and/or used oil, and because hazardous waste will not be managed or treated at the facility. This leaves only the question of whether soil or groundwater has been contaminated with D018 waste released during the early 1990s when certain PCW was deemed not to be exempt from RCRA regulations. In the event that constituents of the D018 waste are detected in soil or groundwater samples at concentration exceeding SCTLs or GCTLs, assessment and corrective action will be required under the provisions of Chapter 62-780, F.A.C. This will be the same whether the contaminants are actually from the D018 or from other non-hazardous sources, given that the RCRA program has replaced corrective action guidance requirements with Chapter 62-780 requirements.

If the existing monitoring well near Tank #6 (MW-2) is determined by the FDEP to be sufficient for closure with respect to groundwater, a sample will be collected and analyzed for the constituents of concern listed below in Section 4.1. In addition, two soil borings will be installed through the concrete containment at the locations shown on Figure 2. Samples will be collected in accordance with the procedures described in Section 4.2 and samples will be analyzed for the Used Oil Group of constituents listed in Table C of Chapter 62-770 F.A.C., which include the following:

- Priority pollutant VOCs using EPA Method 8260
- Priority pollutant volatile organic halocarbons (VOHs) using EPA Method 8260
- Priority pollutant SVOCs using EPA Method 8270
- Polycyclic aromatic hydrocarbons (PAHs) using EPA Method 8270
- TRPH using the FL-PRO Method
- Polychlorinated biphenyls (PCBs) using EPA Method 8082
- Four heavy metals (arsenic, cadmium, chromium, and lead) using EPA Method 6010

The soil samples coupled with the groundwater sample should be sufficient to determine whether there has been a release associated with Tank #6.

4.0 CONFIRMATORY SAMPLING PLAN

4.1 Constituents of Concern

Historically, the facility has stored mineral spirits, diesel, coal tar, fuel oil, ethanol, and gasoline additives. Since 1986, the facility has accepted and treats oily wastewater and PCW, some containing benzene, which was considered D018 waste in the early 1990s if samples contained benzene at concentrations exceeding the toxicity characteristic leaching procedure (TCLP). Given these historical activities at the facility and based on recommendations in the RFA, samples collected for the CS plan will be analyzed for the following constituents:

- VOCs using EPA Method 8260
- TRPH using the FL-PRO Method

4.2 SOIL SAMPLING METHODOLOGY

Soil samples will be collected at each boring indicated below for the SWMUs in the following manner. Samples will be collected from the surface to 0.5 foot below ground surface (bgs), from 0.5 to 2 feet bgs, and from every 2-foot interval thereafter, until groundwater is reached, with the final sample collected just above the water table, if possible. Samples will be collected either using a stainless steel hand auger or a direct-push technology (DPT) drill rig. Sampling will be conducted in accordance with FDEP Standard Operating Procedures (SOPs) for soil sampling, revised May 2008. Samples will be submitted to a NELAP certified laboratory under proper chain-of-custody procedures. Initially, only the surface soil sample and the sample collected from just above the water table will be analyzed. The remaining sample(s) will be held by the laboratory pending initial results. If no constituents of concern are detected in the first two samples analyzed from a given location, no additional analysis of remaining samples from that location may be required.

4.3 SWMU 3A – Rack #1

SWMU 3A is located directly north of ASTs 93 and 94 as shown on Figure 2. At the time of the RFA visual site inspection (VSI), this unit consisted of a bermed, concrete pad measuring approximately 25 feet by 10 feet and is located outside of the facility's tertiary containment (SWMU 11F). Tanker trucks park over the concrete pad and oily wastewater/PCW is unloaded by hoses to aboveground couplings located within the tertiary containment. A drain is located in the middle of the concrete pad and collects spillage from the offloading tankers. The collected spillage then discharges to a sump located immediately south of the unit, within the tertiary containment. At the time of the VSI for the RFA, the pad was heavily stained, had significant cracks in the concrete, and the berm was crumbling in several locations. Reportedly, IWS replaced Rack #1's drain and concrete pad/berm in 2002, to comply with EPA's Centralized Waste Treatment Rule Modifications. However, no soil samples were collected at the time of the upgrade to determine if a discharge had occurred within the SWMU. Therefore, limited soil sampling is appropriate.

The RFA indicated that the unit managed nonhazardous oily wastewaters and wastewaters contaminated with benzene. The RFA recommended collecting soil samples in the areas of cracked concrete and/or heavy staining to determine if hazardous constituents had been released to the underlying soils. Therefore, Golder proposes to install two soil borings adjacent to the side of the concrete pad. Each boring will be located near areas of cracked berm and/or heavy staining, if present. Soil samples will be analyzed for the constituents listed in Section 4.1.

4.4 SWMU 3C – Rack #3

SWMU 3C is located directly north of AST 1 as shown on Figure 2. At the time of the RFA VSI, this unit consisted of a bermed, concrete pad measuring approximately 20 feet by 10 feet and is located outside of the facility's tertiary containment. Tanker trucks park over the concrete pad and oily wastewater/PCW is unloaded by hoses to aboveground couplings located within the tertiary containment. A drain is located in the middle of the concrete pad and collects spillage from the offloading tankers. The collected spillage then discharges to a sump located immediately south of the unit. At the time of the VSI for the RFA, the pad was heavily stained, had significant cracks in the concrete, and the berm was crumbling in several locations. Reportedly, IWS replaced Rack #3's drain and concrete pad/berm in 2002, to comply with EPA's Centralized Waste Treatment Rule Modifications. However, no soil samples were collected at the time of the upgrade to determine if a discharge had occurred within the SWMU. Therefore, limited soil sampling is appropriate.

The RFA indicated that the unit managed nonhazardous oily wastewaters and wastewaters contaminated with benzene. The RFA recommended collecting soil samples in the areas of cracked concreter and/or heavy staining to determine if hazardous constituents had been released to the underlying soils. Soil boring placement and soil sampling will be as described for SWMU 3A.

4.5 SWMU 4 – Baffle Tanks #3, #4, and #8

SWMU 4 is located in the western portion of the facility, within the tertiary containment (SWMU 11F), as shown on Figure 2. At the time of the RFA VSI, the unit consisted of two 30,000-gallon baffled steel tanks (3 A/B and 4 A/B) and one 18,000-gallon non-baffled tank (that has since been removed). A one foot high concrete curb surrounds the tanks on three sides with the north side not curbed. Reportedly, these tanks stored oily wastewaters, oil, or separated gasoline and at the time of inspection for the RFA, the concrete pad on the northern side of tank 3 was heavily stained. The RFA indicated that runoff from the unit may have been discharged to the grassy area north of the unit.

IWS upgraded the area just north of SWMU 4 in 1995. Reportedly, several feet of dirt were removed and a thick concrete pad was poured for the installation of a filter press. At the time of this upgrade, no soil samples were collected. Therefore, limited soil sampling is appropriate.

The RFA recommended collecting soil samples along the unlined areas surrounding the unit to determine if hazardous constituents had been released to the underlying soil. Considering that the unit is contained within the tertiary containment (SWMU 11F, to be investigated separately), Golder proposes to install three borings along the perimeter of the unit as shown in Figure 2, if accessible (boring locations may need to moved due to constraints for a drill rig to operate). Given that oily wastewater and PCW was transferred in this unit, samples will be analyzed for the constituents listed in Section 4.1.

4.6 SWMU 11F – Tertiary Containment

SWMU 11F encompasses all the containment areas for the treatment/storage tanks and associated aboveground piping. The unit consists of a concrete slab with an approximate 1-foot high curb. The concrete slab slopes towards Sump #4 in the southeast corner of the facility. Reportedly, the unit managed stormwater runoff, spillage, and any leakage from the tanks and processing equipment and piping contained within the unit. At the time of the VSI for the RFA, the unit was heavily stained, cracked, and in poor condition in several places.

To evaluate if a release has occurred from this unit, the RFA recommended that soil borings be installed along the periphery of the containment unit. As discussed in the February 8, 2010 meeting with the FDEP, soil borings proposed for closure of the ASTs would include similar sampling; therefore, rather than collecting soil samples for closure of the eight ASTs, soil samples will be collected at the locations indicated on Figure 2 and sampling will be conducted as described in Section 4.2 and analyzed for the constituents listed in Section 4.1.

4.7 SWMU 21 – Underground Oil/Wastewater Pipeline System

SWMU 21 is located beneath the tertiary containment (SWMU 11F), but the precise location is unknown. Facility personnel indicated that there are no existing “as-built” drawings with the underground pipeline locations. In the mid-1950s, a portion of these lines were used to transfer mineral spirits from the port facility on the east side of Talleyrand Avenue to the facility. Additionally, other lines were used to transfer nonhazardous oily wastewater and wastewater potentially containing benzene throughout the facility. Reportedly, the lines used to transfer mineral spirits were plugged in 1960 and the remaining lines were being abandoned during the VSI for the RFA.

The RFA recommended that the integrity of the pipeline be investigated by either pressure testing, camera inspection, or by other means as the pipeline is being abandoned. According to the RFA, if the results of the integrity testing indicate that the pipeline has not been compromised then no further action is required. Golder will review all available documentation provided by IWS and LES to determine if the pipelines were abandoned and if the integrity of the pipeline was determined at the time of the abandonment, as required by FDEP. If documentation exists that the pipelines were in good condition prior to their abandonment, then no confirmatory samples will be collected and this unit should be given no further action status.

Considering that any potential piping would be located underneath the tertiary containment (SWMU 11F) without known locations and that potential releases from the pipeline would not be discernable from potential releases from the tertiary containment or other SWMUs, Golder recommends combing SWMU 21 and SWMU 11F into one SWMU or area of concern (AOC). If these units are combined into one SWMU, then the proposed confirmatory sampling for SWMU 11F (Section 4.7) would be used to evaluate if a release has occurred from either units.

5.0 CONCLUSION

The AST closure and confirmatory sampling plan has been prepared to conform to the requirements of 40 CFR 265.112. A professional engineer familiar with the site, this plan, and data generated during the closure process will certify that the tank system has been closed according to the requirements of 40 CFR 265 Subpart G and Golder will issue a report stating such with a signed and sealed closure certification page. The CS scope of work has been prepared in general accordance with the suggested sampling strategy outlined in the RFA. Data collected during confirmatory sampling will be evaluated and if constituents are detected in soil samples at concentrations exceeding the residential SCTLs, then a RCRA Facility Investigation (RFI) may be required.

GOLDER ASSOCIATES INC.

for Tanel Esin Andry, PE
Certifying Engineer

Kirk A. Blevins, CHMM
Project Manager

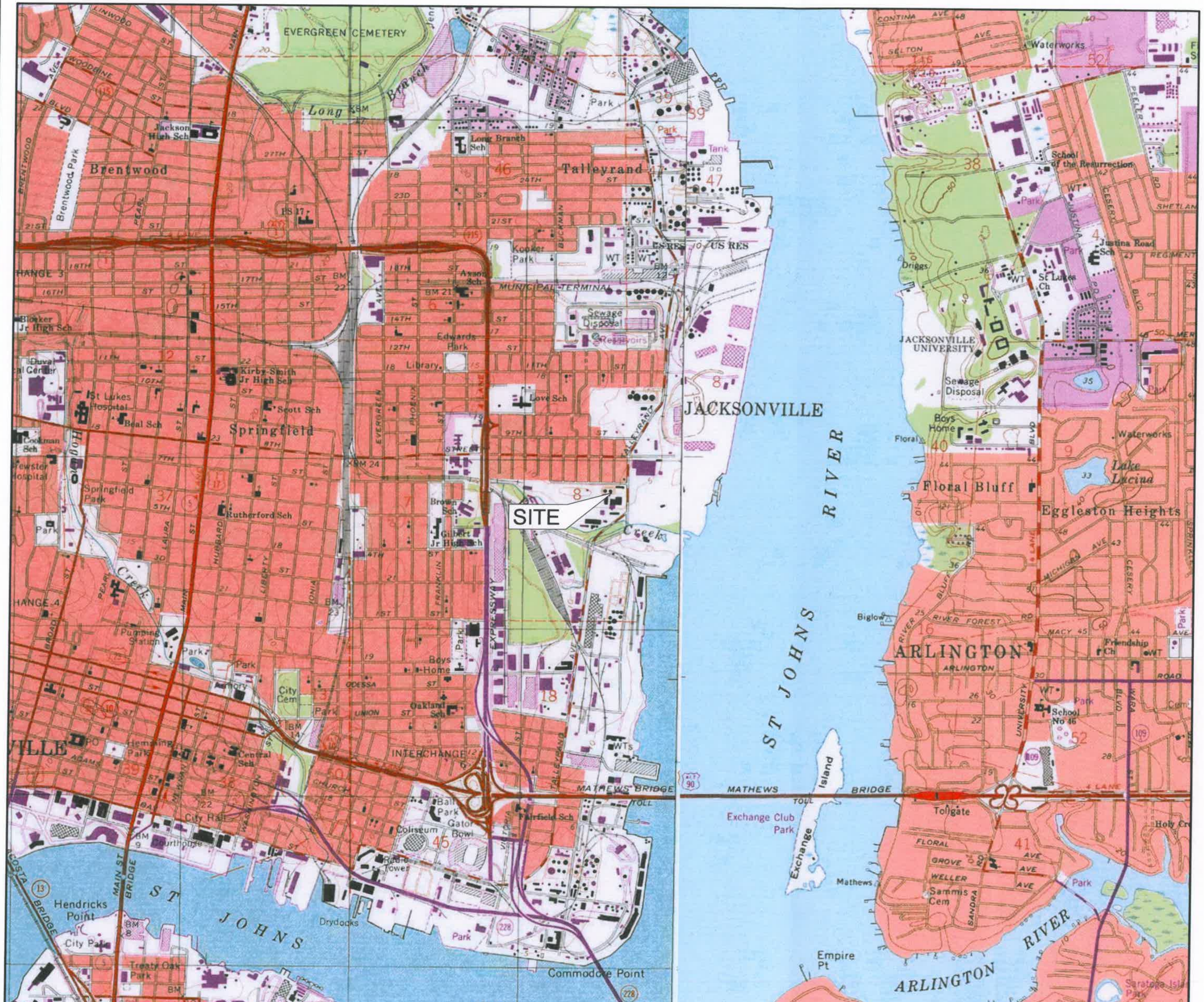
James P. Oliveros, PG
Senior Consultant and Principal

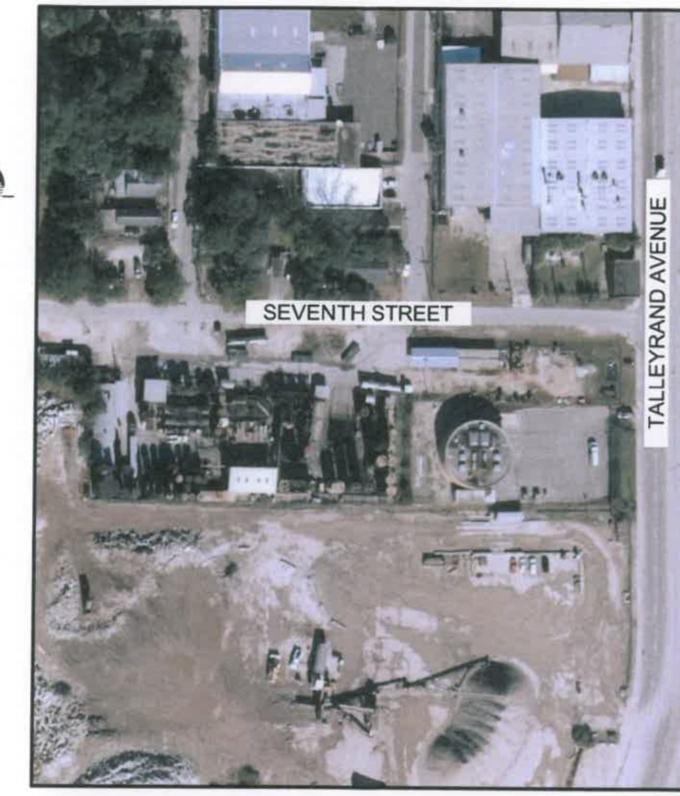
TEA/JPO/veh

G:\Projects\103\103-82\103-82514\Tank Closure Plan\Confirmatory Sampling and Tank Closure Plan - Final 8-5-10.docx

TABLES

FIGURES





200 0 200
SCALE FEET

REFERENCES

1.) JANUARY 28, 2008 AERIAL OBTAINED FROM THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT).

2.) USGS TOPOGRAPHIC MAP, 7.5 MIN. QUADRANGLE MAP SERIES: JACKSONVILLE, ARLINGTON QUADRANGLES, DUVAL COUNTY, FLORIDA.

2000 0 2000
SCALE FEET

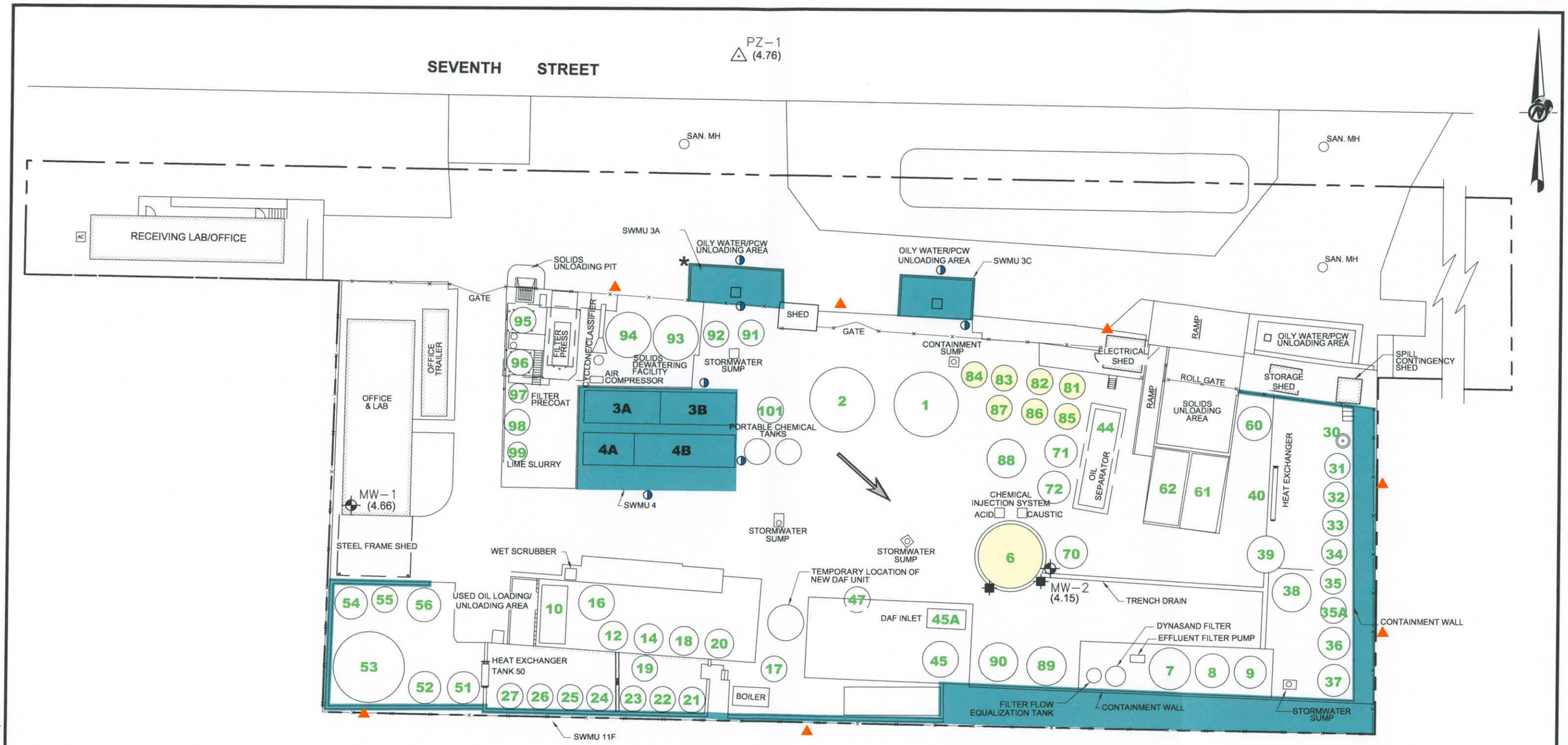
PROJECT
LIQUID ENVIRONMENTAL SOL/RCRA/FL

TITLE
SITE LOCATION MAP

Golder Associates
Jacksonville, Florida

PROJECT No.	103-82514		FILE No.	10382514-A002
DESIGN	TEA	03/22/10	SCALE AS SHOWN	REV. 0
CADD	PMD	03/22/10		
CHECK	KAB	08/05/10	**FIGURE 1**	
REVIEW	JPO	08/05/10		

Drawing file: 10382514-A002.dwg Aug 05, 2010 - 1:30pm



LEGEND

- PROPERTY BOUNDARY
- FENCE LINE
- 1 — TANK ID No.
- RCRA TANKS FOR CLOSURE
- SOLID WASTE MANAGEMENT UNIT (SWMU)
- EXISTING MONITORING WELL LOCATION
- TEMPORARY PIEZOMETER LOCATION
- BENCHMARK - ASSUMED ELEVATION 7ft
- PROPOSED SOIL BORING LOCATIONS FOR SWMU'S 11F AND 21 AND TANK CLOSURE
- PROPOSED SOIL BORING LOCATIONS FOR SWMU'S 3A, 3C AND 4
- PROPOSED SOIL BORING LOCATIONS FOR TANK #6 CLOSURE
- (ELEV.) — GROUNDWATER ELEVATION
- GROUNDWATER FLOW DIRECTION

NOTES

1.) GROUNDWATER ELEVATIONS ARE BASED ON ASSUMED BENCHMARK GROUND SURFACE ELEVATION OF 7ft BASED ON USGS TOPO.
2.) SWMU 3A - RACK #1
3.) SWMU 3C - RACK #3
4.) SWMU 4 - BAFFLE TANKS
5.) SWMU 11F - TERTIARY CONTAINMENT (ENCOMPASSES MOST OF THE FACILITY)
6.) SWMU 21 - UNDERGROUND OIL / WASTEWATER PIPELINE SYSTEM (THROUGHOUT THE FACILITY)
7.) PROPOSED BORING LOCATIONS COULD BE MOVED IF LOCATIONS ARE NOT ACCESSIBLE.

REFERENCES

1.) BASE MAP; MITTAUER & ASSOCIATES, INC., INDUSTRIAL WATER SERVICES, INC. USED OIL PROCESSING FACILITY PERMIT CLOSURE PLAN - SITE PLAN, ATTACHMENT C-9A, DATED AUGUST 2002.

30 0 30
SCALE FEET

PROJECT
LIQUID ENVIRONMENTAL SOL/RCRA/FL

TITLE
SITE MAP

Golder Associates Jacksonville, Florida

PROJECT No.	103–82514		FILE No.	10382514–A003	
DESIGN	KAB	07/16/10	SCALE	AS SHOWN	REV. 0
CADD	KLH	07/16/10			
CHECK	KAB	08/05/10			
REVIEW	JPO	08/05/10			

FIGURE 2

Drawing file: 10382514–A003.dwg Aug 05, 2010 – 1:28pm

APPENDIX A
LABORATORY ANALYTICAL RESULTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 640-25150-1

Job Description: Monitoring Wells

For:
Industrial Water Services
PO BOX 43369
Jacksonville, FL 32203

Attention: Ms. Danielle Messer

Noël Savoie

Approved for release.
Noel Savoie
Project Manager I
12/14/2009 4:41 PM

Noel Savoie
Project Manager I
noel.savoie@testamericainc.com
12/14/2009

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the TestAmerica Project Manager who signed this test report.
Measurement uncertainty data, as referenced in Section 20.12 of the TestAmerica Tallahassee Quality Assurance Manual, are available upon request

Florida Department of Health Certification No. E81005

TestAmerica Laboratories, Inc.
TestAmerica Tallahassee 2846 Industrial Plaza Drive, Tallahassee, FL 32301
Tel (850) 878-3994 Fax (850) 878-9504 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

METHOD SUMMARY

Client: Industrial Water Services

Job Number: 640-25150-1

Description	Lab Location	Method	Preparation Method
Matrix Water			
Volatile Organic Compounds by GC/MS	TAL TAL	SW846 8260C	
Purge and Trap	TAL TAL		SW846 5030C

Lab References:

TAL TAL = TestAmerica Tallahassee

Method References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Industrial Water Services

Job Number: 640-25150-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
640-25150-1	MW-1	Water	12/10/2009 1215	12/11/2009 0930
640-25150-2	MW-2	Water	12/10/2009 1300	12/11/2009 0930

Client: Industrial Water Services

Job Number: 640-25150-1

Client Sample ID: MW-1

Lab Sample ID: 640-25150-1
Client Matrix: Water

Date Sampled: 12/10/2009 1215
Date Received: 12/11/2009 0930

8260C Volatile Organic Compounds by GC/MS

Method: 8260C
Preparation: 5030C
Dilution: 1.0
Date Analyzed: 12/12/2009 1848
Date Prepared: 12/12/2009 1848

Analysis Batch: 640-63904

Instrument ID: VMA
Lab File ID: 1A121223.D
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

Analyte	Result (ug/L)	Qualifier	MDL	PQL
Methyl tert-butyl ether	0.77	I	0.21	1.0
Benzene	0.28	U	0.28	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane	105		83 - 123
Toluene-d8 (Surr)	99		78 - 126
4-Bromofluorobenzene	95		70 - 119

Client: Industrial Water Services

Job Number: 640-25150-1

Client Sample ID: MW-2

Lab Sample ID: 640-25150-2
Client Matrix: Water

Date Sampled: 12/10/2009 1300
Date Received: 12/11/2009 0930

8260C Volatile Organic Compounds by GC/MS

Method: 8260C
Preparation: 5030C
Dilution: 1.0
Date Analyzed: 12/12/2009 1910
Date Prepared: 12/12/2009 1910

Analysis Batch: 640-63904

Instrument ID: VMA
Lab File ID: 1A121224.D
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

Analyte	Result (ug/L)	Qualifier	MDL	PQL
Methyl tert-butyl ether	0.90	I	0.21	1.0
Benzene	0.28	U	0.28	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane	104		83 - 123
Toluene-d8 (Surr)	102		78 - 126
4-Bromofluorobenzene	98		70 - 119

DATA REPORTING QUALIFIERS

Client: Industrial Water Services

Job Number: 640-25150-1

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Indicates that the compound was analyzed for but not detected.
	I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

Client: Industrial Water Services

Job Number: 640-25150-1

Surrogate Recovery Report

8260C Volatile Organic Compounds by GC/MS

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	TOL %Rec	BFB %Rec
640-25150-1	MW-1	105	99	95
640-25150-2	MW-2	104	102	98
MB 640-63904/5		96	107	101
LCS 640-63904/3		96	104	106
LCSD 640-63904/4		101	96	99

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane	83-123
TOL = Toluene-d8 (Surr)	78-126
BFB = 4-Bromofluorobenzene	70-119

Client: Industrial Water Services

Job Number: 640-25150-1

Method Blank - Batch: 640-63904

Method: 8260C
Preparation: 5030C

Lab Sample ID: MB 640-63904/5
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/12/2009 1257
Date Prepared: 12/12/2009 1257

Analysis Batch: 640-63904
Prep Batch: N/A
Units: ug/L

Instrument ID: VMA 5973
Lab File ID: 1A121208.D
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

Analyte	Result	Qual	MDL	PQL
Methyl tert-butyl ether	0.21	U	0.21	1.0
Benzene	0.28	U	0.28	1.0

Surrogate	% Rec	Acceptance Limits
Dibromofluoromethane	96	83 - 123
Toluene-d8 (Surr)	107	78 - 126
4-Bromofluorobenzene	101	70 - 119

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 640-63904

Method: 8260C
Preparation: 5030C

LCS Lab Sample ID: LCS 640-63904/3
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/12/2009 1124
Date Prepared: 12/12/2009 1124

Analysis Batch: 640-63904
Prep Batch: N/A
Units: ug/L

Instrument ID: VMA 5973
Lab File ID: 1A121204.D
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

LCSD Lab Sample ID: LCSD 640-63904/4
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 12/12/2009 1146
Date Prepared: 12/12/2009 1146

Analysis Batch: 640-63904
Prep Batch: N/A
Units: ug/L

Instrument ID: VMA 5973
Lab File ID: 1A121205.D
Initial Weight/Volume: 40 mL
Final Weight/Volume: 40 mL

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Methyl tert-butyl ether	104	107	67 - 128	3	30		
Benzene	100	97	59 - 132	3	22		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
Dibromofluoromethane	96	101	83 - 123
Toluene-d8 (Surr)	104	96	78 - 126
4-Bromofluorobenzene	106	99	70 - 119

Calculations are performed before rounding to avoid round-off errors in calculated results.

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME:	TWS	SITE LOCATION:	
WELL NO:	MW-1	SAMPLE ID:	DATE: 12/10/09

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:
2	3/8		7.05	PP

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH − STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)

10.59 = (17.64 feet − 7.05 feet) x 0.16 gallons/foot = 1.70 gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
10.00	10.00	1200	1215	7.5

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1205	2.5	2.5	0.5	7.15	6.97	23.3	525	0.41	7.84	CLEAR	NONE
1210	2.5	~~5.0~~ 5.0	0.5	7.17	6.75	23.5	521	0.49	9.82		
1215	2.5	7.5	0.5	7.20	6.71	23.5	506	0.43	7.82	↓	↓
		RA 12/10									

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
KURT HENDL AES		1215	1275
PUMP OR TUBING DEPTH IN WELL (feet): 10.00	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
	3	CG	40ML	HCL	—	—	VOC	RFPP	80

REMARKS: TWS WAS ALREAD PURGEING WHEN I ARRIVED

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)

NOTES: 1. **The above do not constitute all of the information required by Chapter 62-160, F.A.C.**

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

Form FD 9000-24

GROUNDWATER SAMPLING LOG

SITE NAME: IWS	SITE LOCATION:	
WELL NO: MW-2	SAMPLE ID:	DATE: 12/10/09

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): 4.46	PURGE PUMP TYPE OR BAILER: PP

WELL VOLUME PURGE: (only fill out if applicable) 1 WELL VOLUME = (TOTAL WELL DEPTH − STATIC DEPTH TO WATER) X WELL CAPACITY

23.64 − 27.50 feet − 4.46 feet) x 0.16 gallons/foot = 3.69 gallons

EQUIPMENT VOLUME PURGE: (only fill out if applicable) 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 10.00	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 10.00	PURGING INITIATED AT: 1240	PURGING ENDED AT: 1300	TOTAL VOLUME PURGED (gallons): 10.0

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1250	5.0	5.0	0.5	4.65	6.64	24.0	303	0.40	19.76	CLEAR	NONE
1255	2.5	7.5	0.5	4.80	6.64	24.2	307	0.39	19.75	↓	↓
1300	2.5	10.0	0.5	5.00	6.63	24.1	307	0.40	19.72	↓	↓

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: KURT HENDL AES	SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: 1300	SAMPLING ENDED AT: 1305
PUMP OR TUBING DEPTH IN WELL (feet): 10.00	TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y (N) Filtration Equipment Type:	FILTER SIZE: ____ µm
FIELD DECONTAMINATION: PUMP (Y) N	TUBING Y (N) (replaced)	DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION					
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
	3	CG	40ML	HCL	—	—	VOC	RFPP	80

REMARKS: IWS WAS ALREADY PURGING WHEN I ARRIVED

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

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Revision Date: February 12, 2009

Jacksonville Service Center
8933 Western Way Suite 1
Jacksonville, FL 32256
Phone (904) 519-9551 Fax (904) 519-9552

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: KURT HENDL	Lab PM: Savoie, Noel	Carrier Tracking No(s):	COC No: 640-18536.1
Client Contact: Ms. Danielle Messer	Phone: 904 449-4312	E-Mail: noel.savoie@testamericainc.com		Page: Page 1 of 1
Company: Industrial Water Services				Job #: 640-25150

Address: PO BOX 43369	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Jacksonville	TAT Requested (days):		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - Di Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
State, Zip: FL, 32203	PO #:		
Phone: 904-354-0372(Tel)	WO #:		Other:
Email: danielle.messer@iwsww.com	Project #: 64001695		
Project Name: Monitoring Wells	SSOW#:		
Site:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wasteoil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - Benzene, MTBE	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
MW-1	12/10/09	1215	G	GW			X		
MW-2	↓	1300	G	↓			X		

Page 1 of 1

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: 1345	Date/Time: 12/10/09	Company: ACS	Received by:
Relinquished by:	Date/Time: 10DEC09 1800	Company: FA	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Received by:	Date/Time: 10DEC09 1315	Company
Received by:	Date/Time: 12-11-09 0930	Company
Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1, 2

APPENDIX B
ULTRASONIC THICKNESS TESTING RESULTS

Industrial Water Services ~ Tank Integrity-Testing Program

Facility: Jacksonville

Test Date:

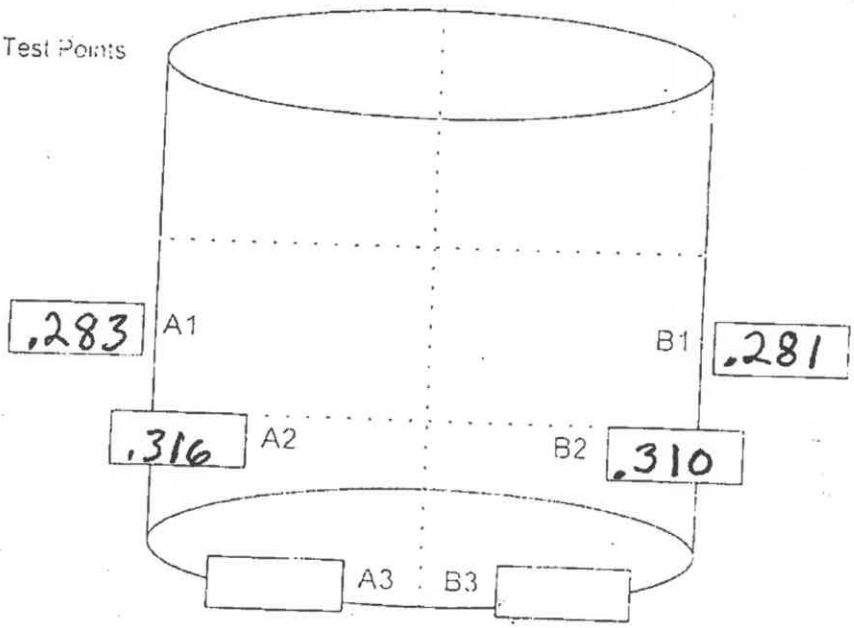
Tank # 06

Direction A = SOUTH & WEST B = NORTH & EAST
(North/South/East/West)

Where: Thickness Original, TO = _____

Year Built = _____

Test Points



Tested 1/6/2010

AI Water