

**SUPPLEMENTAL PHASE II
ENVIRONMENTAL SITE ASSESSMENT REPORT**

RUSSELL CONCRETE INC. FACILITY
1400 10th AVENUE
VERO BEACH, INDIAN RIVER COUNTY, FLORIDA

prepared for

MASCHMEYER CONCRETE COMPANY OF FLORIDA
1142 WATERTOWER ROAD
LAKE PARK, FLORIDA 32757

prepared by

ANDREYEV ENGINEERING, INC.
3740 54TH AVENUE NORTH
ST. PETERSBURG, FLORIDA 33714

(727) 527-5735

AEI PROJECT NO. APEN-17-127

SEPTEMBER 22, 2017



September 22, 2017
AEI Project No.: APEN-17-127

TO: **Maschmeyer Concrete Company of Florida**
1142 Watertower Road
Lake Park, Florida 32757

Attn: Mr. Bob Tucker

SUBJECT: Supplemental Phase II Environmental Site Assessment, Commercial
Property, 1400 10th Avenue, Vero Beach, Indian River County, Florida

Dear Mr. Tucker:

Andreyev Engineering, Inc. (AEI) has completed the Supplemental Phase II Environmental Site Assessment Report for the above referenced site. This report has been completed pursuant to the proposal authorization by you. This report contains the results of the sampling activities and laboratory results and conclusions based on those results.

AEI appreciates the opportunity to be of service to you on this project and trust that the information included herein is complete and sufficient for your purposes. Should you have any questions concerning the contents of this report, please do not hesitate to contact us.

Sincerely,

ANDREYEV ENGINEERING, INC.

Todd Robbins
Project Manager

Scott Barfield, P.E.
Vice President

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Figure 2	Site Map & Sampling Location Map

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Appendix A	Groundwater Analytical Results
Appendix B	Groundwater Sampling Logs

STATEMENT OF PROFESSIONAL REVIEW

The Supplemental Phase II Environmental Site Assessment Report for the commercial property located at 1400 10th Avenue in Vero Beach, Indian River County, Florida has been prepared by a registered professional in the State of Florida. This report has been determined to be in accordance with professional practices pursuant to Chapter 492 of the Florida Statutes.

Scott Barfield, P.E.
Vice President
Florida Registration No. 60852

Signed this 22nd day of September, 2017

1.0 INTRODUCTION AND PURPOSE

On August 28, 2017 AEI was authorized by Mr. Troy Maschmeyer to conduct a Supplemental Phase II Environmental Site Assessment (ESA) for the subject property. Based on the results of the Phase I ESA prepared on December 22, 2014, three on-site environmental concerns were identified for the subject property. The concerns are identified as follows:

- REC #1** An in-active hydraulic lift in the maintenance building has the potential to have leaked and adversely impact the soil and groundwater near it.
- REC #2** The FDEP records indicated that in 1996 a discharge report form was required to be submitted and that site assessment activities were required to be conducted for the two 4,000 gallon diesel UST's removed in October 1995. There is no information in the FDEP files or databases that indicates a discharge of petroleum products was reported, or that site assessment activities were conducted pursuant to Chapter 62-770, FAC.
- REC #3** The FDEP records indicated that tank closure assessment activities were conducted for two 1,000-gallon gasoline UST's removed in March 1995. A tank closure assessment report was prepared. There is no information in the available FDEP Oculus database that the tank closure assessment report was approved by the Indian River County Health Department.

In December of 2014 AEI completed a Phase II ESA at the subject property to address the above-mentioned concerns. Based on the results of the Phase II an exceedance of the FDEP Soil Cleanup Target Levels (SCTLs) for Total Petroleum Hydrocarbon (TPH) was revealed at the SS-2 location collected from the former diesel UST area. Also, based on the Phase II, slight exceedances of the FDEP Groundwater Cleanup Target Levels (GCTLs) for 1-methylnaphthalene and 2-methylnaphthalene were revealed in the groundwater sample collected from TW-2 location collected from the former diesel UST area. A very slight GCTL exceedance for dibenzo(a,h)anthracene was also detected at the TW-1 location collected from the former gasoline UST area. We proposed to re-evaluate the TPH exceedance in soil sample SS-2 using the Massachusetts method of fractionation which may show that the hydrocarbons detected are of a less hazardous nature. We also proposed to resample the groundwater at the TW-1 and TW-2 locations to confirm the presence of petroleum hydrocarbons above the GCTLs.

The primary purpose of this Supplemental Phase II ESA was to confirm the presence of petroleum hydrocarbons above the FDEP GCTLs. The scope of this Supplemental Phase II ESA Report included the following activities:

1. Installed two (2) shallow groundwater monitoring wells to depths of 12 feet in the former TW-1 and TW-2 locations. Groundwater samples were extracted from the wells and analyzed by a State certified laboratory for EPA Method 8270 PAH parameters.
2. Installed one (1) hand auger boring at the former HA-2 location and collected a soil sample from a depth of 3 feet. The soil sample was analyzed by FL-PRO for TPH and the Massachusetts Method for TPH fractionation.
3. Prepared a report summarizing all of our assessment work and the results obtained.

The laboratory analytical results were reviewed and summarized with respect to the applicable criteria specified in the FDEP Cleanup Goals for Florida and Chapters 62-550 and 62-777, FAC with respect to maximum concentrations allowed in groundwater. This report summarizes the laboratory results.

2.0 SITE DESCRIPTION

2.1 Site Location

The subject property is located at 1400 10th Avenue in Vero Beach, Indian River County, Florida. The site is located to the south of 10th Avenue, to the west of a railroad right-of-way, and U.S. Highway 1 is approximately 700 feet to the east. The subject site lies entirely within Section 12, Township 33 South, Range 39 East, as shown on the USGS, "Vero Beach, Fla." Topographic Quadrangle Map, included as **Figure 1**.

2.2 Site Description

The subject site consists of a single parcel totaling 5.17 acres. The Russell Concrete facility, located on the site, is currently in-active. The facility contains eight buildings, which include warehouse buildings that are used for storage, a maintenance building, an office building, and a building that contains an employee break room. According to the Indian River County Property Appraiser website, the buildings on the subject site were constructed in 1949. The concrete plant equipment consists of materials storage areas, silos used for material storage, conveyors for material movement and loading, and a wash-water closed-loop containment system located in the southwest portion of the subject site. In addition, the facility contains storage areas that were used for curing concrete blocks, which were in use from approximately 1948 to 1996. During operations, the facility utilized 16 mixers and 40 other types of trucks and equipment.

The Russell Concrete facility is fenced and utilizes water from the City of Vero Beach and from three water supply wells. Municipal service is utilized for wastewater disposal. Buried utilities on-site included water lines, electric lines, wastewater lines and stormwater lines. The majority of the stormwater generated on-site is directed to the wet stormwater retention pond located in the southeastern portion of the subject site. Other site improvements consist of concrete areas and paved areas in the central, northern, southern and western portions of the subject site. The subject site contains an access road that is approximately 800 feet long that extends from the eastern portion of the subject site to U.S. Highway 1.

3.0 ASSESSMENT METHODOLOGY AND RESULTS

3.1 Monitoring Well Installation

Monitoring wells MW-1 and MW-2 were installed to a depth of 12 feet in the former TW-1 and TW-2 locations on August 30, 2017. The monitoring wells were constructed with 10 feet of flush joint, 2-inch diameter 0.010-inch slotted well screen coupled to a two feet of 2-inch diameter Schedule 40 PVC riser. The annular space was filled with a 20/30 silica sand pack. The location of the monitoring wells is shown on **Figure 2**. Following the collection of groundwater samples, the monitoring wells were removed and the borehole backfilled with drill cuttings. During the installation activities, the shallow groundwater table was encountered at depths of approximately 5 to 5.5 feet below the ground surface.

3.2 Groundwater Sampling and Analytical Results

Groundwater sampling was conducted on August 30, 2017, in accordance with procedures and methods detailed in the FDEP's SOP-001/01 for field sampling activities. The groundwater laboratory analyses were performed by ENCO Labs located in Orlando, Florida. Samples collected from monitoring wells MW-1 and MW-2 were analyzed for EPA Method 8270 PAHs. Field parameters, including pH, conductivity and temperature, were recorded at various intervals during the purging of the wells. Samples were collected after at least three well volumes were purged and the field parameters had stabilized. This methodology indicates that groundwater samples collected are representative of aquifer conditions. The groundwater samples were collected with a field decontaminated peristaltic pump. The groundwater analytical data is summarized in the laboratory report included as **Appendix A** and the groundwater sampling logs are included in **Appendix B**.

Based on the results of the groundwater sampling and analysis, groundwater samples collected from monitoring wells MW-1 and MW-2 detected no concentrations of EPA Method 8270 PAHs which exceeded the laboratory detection limits.

3.3 Soil Sampling and Hydrocarbon Screening

On August 30, 2017, one soil sample (SS-2B) was collected from the former location of HA-2 and delivered to ENCO Labs located in Orlando, Florida for further analysis. Soil sample SS-2B was collected at a depth of 3 feet below land surface and analyzed by FL-PRO TRPH and MA DEP TRPH fractionation parameters. The location of the soil analytical sample is shown on **Figure 2**. The soil analytical data is provided in the laboratory report included as **Appendix A**.

Based on the results of the soil sampling and analysis, the soil sample collected from the former location of HA-2 detected no concentrations of TRPH which exceeded the laboratory detection limits.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

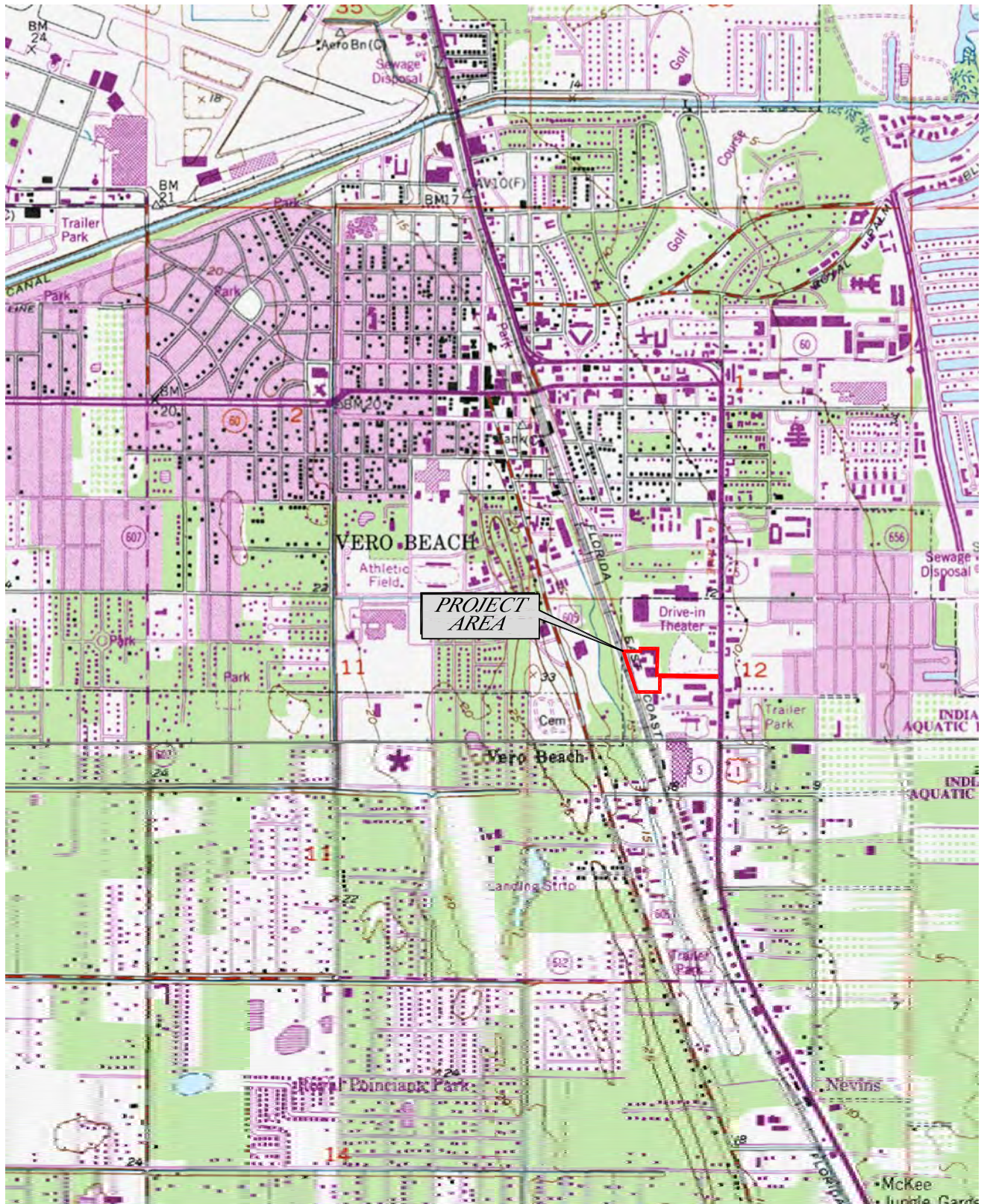
Based upon the results of this investigation the following conclusions are provided:

1. On August 28, 2017, AEI was authorized by Mr. Troy Maschmeyer to conduct a Supplemental Phase II Environmental Site Assessment (ESA) for the subject property.
2. The primary purpose of this Supplemental Phase II ESA was to confirm the presence of petroleum hydrocarbons in the soil and groundwater exceeding the FDEP GCTLs and SCTLs.
3. On August 30, 2017 AEI installed two groundwater monitoring wells (MW-1, MW-2) in the former locations of TW-1 and TW-2.
4. On August 30, 2017, groundwater samples were collected from monitoring wells MW-1 and MW-2 and analyzed for EPA Method 8270 PAHs. Based on the laboratory results there were no contaminants detected which exceeded the laboratory detection limits.
5. On August 30, 2017, one soil sample was collected at a depth of 3 feet and analyzed for FL-PRO TRPH and MA DEP TRPH fractionation parameters. Based on the laboratory results there were no contaminants detected which exceeded the laboratory detection limits.

4.2 Recommendations

Based on the results of the laboratory analysis of groundwater and soil samples collected, AEI recommends no additional testing at this time.

FIGURES



REFERENCE:
 U.S.G.S. VERO BEACH, FLA.
 QUADRANGLE MAP
 DATED 1949
 PHOTOREVISED 1983
 SECTION 12
 TOWNSHIP 33 SOUTH
 RANGE 39 EAST



**Andreyev
 Engineering,
 Inc.**

APPROXIMATE SCALE:
 1" = 2000'

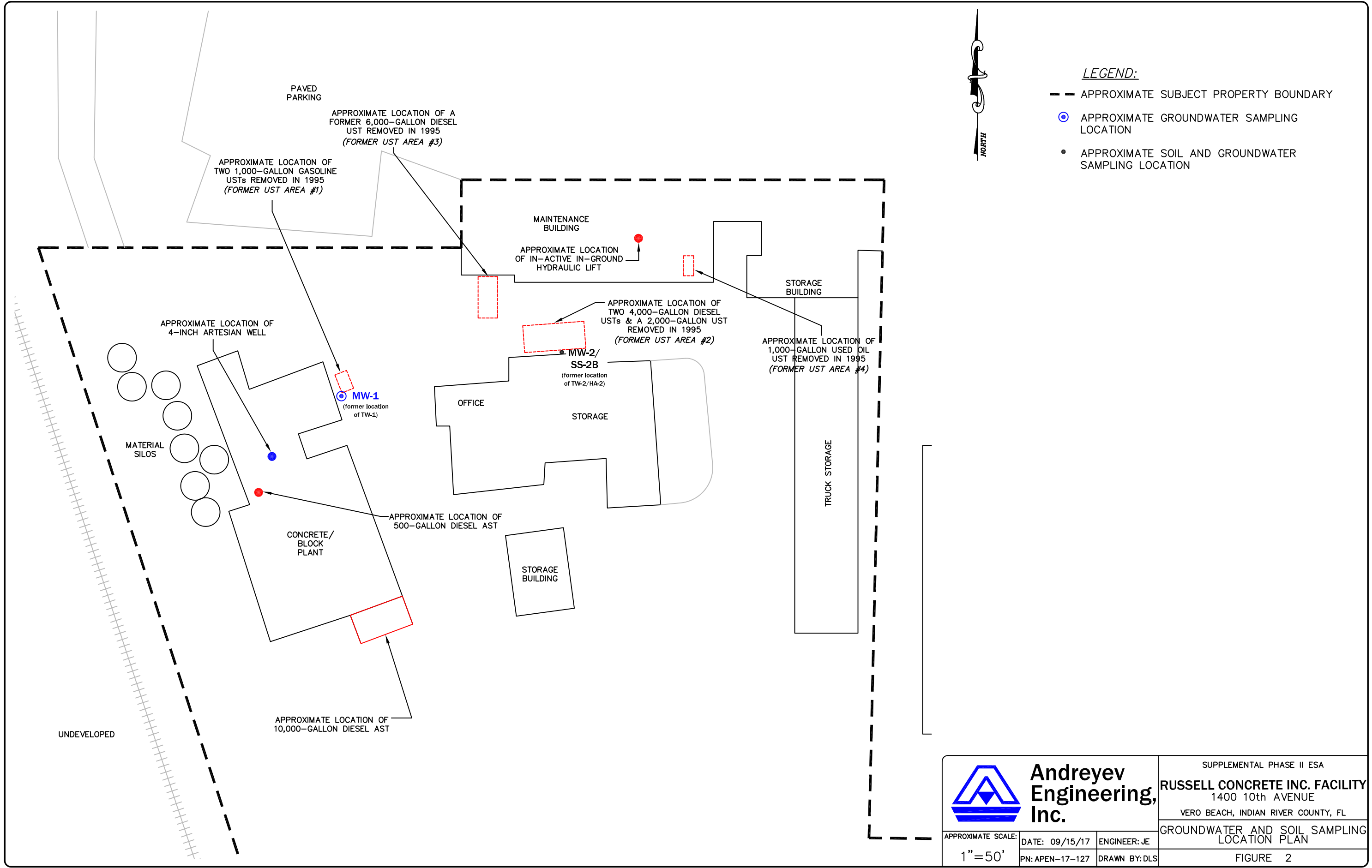
DATE: 09/15/17
 PN: APEN-17-127


ENGINEER: JE
 DRAWN BY: DLS

SUPPLEMENTAL PHASE II ESA
RUSSELL CONCRETE INC. FACILITY
 1400 10th AVENUE
 VERO BEACH, INDIAN RIVER COUNTY, FL

U.S.G.S. TOPOGRAPHIC MAP

FIGURE 1



 Andreyev Engineering, Inc.	SUPPLEMENTAL PHASE II ESA RUSSELL CONCRETE INC. FACILITY 1400 10th AVENUE VERO BEACH, INDIAN RIVER COUNTY, FL	
	GROUNDWATER AND SOIL SAMPLING LOCATION PLAN FIGURE 2	
APPROXIMATE SCALE: 1"=50'	DATE: 09/15/17 PN: APEN-17-127	ENGINEER: JE DRAWN BY: DLS

APPENDIX A
GROUNDWATER ANALYTICAL RESULTS



ENCO Laboratories

Accurate. Timely. Responsive. Innovative.

10775 Central Port Drive

Orlando FL, 32824

Phone: 407.826.5314 FAX: 407.850.6945

Thursday, September 14, 2017

Andreyev Engineering (AN016)

Attn: Todd Robbins

3740 54th Avenue North

St. Petersburg, FL 33714

RE: Laboratory Results for

Project Number: [none], Project Name/Desc: Russell Concrete Facility

ENCO Workorder(s): AA06194

Dear Todd Robbins,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Thursday, August 31, 2017.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Orlando. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Cassie B. Puryear

Project Manager

Enclosure(s)



SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: SS-2B	Lab ID: AA06194-01	Sampled: 08/30/17 10:45	Received: 08/31/17 14:30	
Parameter	Hold Date/Time(s)		Prep Date/Time(s)	Analysis Date/Time(s)
FL-PRO	09/13/17	10/15/17	09/05/17 11:00	09/06/17 13:58
MAEPH	09/13/17	10/16/17	09/06/17 08:54	09/08/17 00:22
MAEPH	09/13/17	10/16/17	09/06/17 08:56	09/08/17 00:51
MAVPH	09/27/17		09/07/17 10:05	09/07/17 17:06

Client ID: MW-1	Lab ID: AA06194-02	Sampled: 08/30/17 13:38	Received: 08/31/17 14:30	
Parameter	Hold Date/Time(s)		Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8270D	09/06/17	10/14/17	09/04/17 07:45	09/05/17 14:52

Client ID: MW-2	Lab ID: AA06194-03	Sampled: 08/30/17 12:51	Received: 08/31/17 14:30	
Parameter	Hold Date/Time(s)		Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8270D	09/06/17	10/14/17	09/04/17 07:45	09/05/17 15:14

SAMPLE DETECTION SUMMARY

No positive results detected.

ANALYTICAL RESULTS

Description: SS-2B

Lab Sample ID: AA06194-01

Received: 08/31/17 14:30

Matrix: Soil

Sampled: 08/30/17 10:45

Work Order: AA06194

Project: Russell Concrete Facility

Sampled By: Chad Gambill

% Solids: 83.38

FL Petroleum Range Organics

^ - ENCO Orlando certified analyte [NELAC E83182]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
TPH (C8-C40)^	4.1	U	mg/kg dry	1	4.1	6.8	7105015	FL-PRO	09/06/17 13:58	RGG	

Surrogates	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes
n-Nonatriacontane	3.5	1	4.04	86 %	60-118	7105015	FL-PRO	09/06/17 13:58	RGG	
o-Terphenyl	1.8	1	2.03	90 %	62-109	7105015	FL-PRO	09/06/17 13:58	RGG	

Volatile Petroleum Hydrocarbons by GC

^ - ENCO Cary certified analyte [NELAC E87610]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
C5-C8 Aliphatics^	0.888	U	mg/kg dry	1	0.888	3.60	7107013	MAVPH	09/07/17 17:06	BAM	
C9-C10 Aromatics^	0.576	U	mg/kg dry	1	0.576	1.20	7107013	MAVPH	09/07/17 17:06	BAM	
C9-C12 Aliphatics^	1.80	U	mg/kg dry	1	1.80	3.60	7107013	MAVPH	09/07/17 17:06	BAM	

Surrogates	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes
2,5-Dibromotoluene (FID)	7.02	1	11.0	64 %	70-130	7107013	MAVPH	09/07/17 17:06	BAM	QS-07
2,5-Dibromotoluene (PID)	7.91	1	11.0	72 %	70-130	7107013	MAVPH	09/07/17 17:06	BAM	

Extractable Petroleum Hydrocarbons by GC

^ - ENCO Cary certified analyte [NELAC E87610]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
C11-C22 Aromatics^	3.7	U	mg/kg dry	1	3.7	20	7106006	MAEPH	09/08/17 00:51	MWC	
C19-C36 Aliphatics^	3.7	U	mg/kg dry	1	3.7	20	7106005	MAEPH	09/08/17 00:22	MWC	
C9-C18 Aliphatics^	1.6	U	mg/kg dry	1	1.6	20	7106005	MAEPH	09/08/17 00:22	MWC	

Surrogates	Results	DF	Spike Lvl	% Rec	% Rec Limits	Batch	Method	Analyzed	By	Notes
2-Bromonaphthalene	3.6	1	4.00	90 %	40-140	7106006	MAEPH	09/08/17 00:51	MWC	
2-Fluorobiphenyl	4.4	1	4.00	109 %	40-140	7106006	MAEPH	09/08/17 00:51	MWC	
Chloro-octadecane	1.1	1	1.60	70 %	40-140	7106005	MAEPH	09/08/17 00:22	MWC	
o-Terphenyl	1.3	1	1.60	84 %	40-140	7106006	MAEPH	09/08/17 00:51	MWC	



www.encolabs.com

ANALYTICAL RESULTS

Description: MW-1

Lab Sample ID: AA06194-02

Received: 08/31/17 14:30

Matrix: Ground Water

Sampled: 08/30/17 13:38

Work Order: AA06194

Project: Russell Concrete Facility

Sampled By: Chad Gambill

Semivolatile Organic Compounds by GCMS SIM

^ - ENCO Orlando certified analyte [NELAC E83182]

<u>Analyte [CAS Number]</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Batch</u>	<u>Method</u>	<u>Analyzed</u>	<u>By</u>	<u>Notes</u>
1-Methylnaphthalene [90-12-0]^	0.047	U	ug/L	1	0.047	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
2-Methylnaphthalene [91-57-6]^	0.044	U	ug/L	1	0.044	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Acenaphthene [83-32-9]^	0.037	U	ug/L	1	0.037	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Acenaphthylene [208-96-8]^	0.036	U	ug/L	1	0.036	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Anthracene [120-12-7]^	0.036	U	ug/L	1	0.036	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Benzo(a)anthracene [56-55-3]^	0.037	U	ug/L	1	0.037	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Benzo(a)pyrene [50-32-8]^	0.043	U	ug/L	1	0.043	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Benzo(b)fluoranthene [205-99-2]^	0.059	U	ug/L	1	0.059	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Benzo(g,h,i)perylene [191-24-2]^	0.040	U	ug/L	1	0.040	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Benzo(k)fluoranthene [207-08-9]^	0.046	U	ug/L	1	0.046	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Chrysene [218-01-9]^	0.051	U	ug/L	1	0.051	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Dibenzo(a,h)anthracene [53-70-3]^	0.026	U	ug/L	1	0.026	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Fluoranthene [206-44-0]^	0.051	U	ug/L	1	0.051	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Fluorene [86-73-7]^	0.038	U	ug/L	1	0.038	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Indeno(1,2,3-cd)pyrene [193-39-5]^	0.037	U	ug/L	1	0.037	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Naphthalene [91-20-3]^	0.035	U	ug/L	1	0.035	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Phenanthrene [85-01-8]^	0.039	U	ug/L	1	0.039	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
Pyrene [129-00-0]^	0.048	U	ug/L	1	0.048	0.10	7104001	EPA 8270D	09/05/17 14:52	jfi	
<u>Surrogates</u>	<u>Results</u>	<u>DF</u>	<u>Spike Lvl</u>	<u>% Rec</u>	<u>% Rec Limits</u>	<u>Batch</u>	<u>Method</u>	<u>Analyzed</u>	<u>By</u>	<u>Notes</u>	
<i>p-Terphenyl</i>	2.0	1	5.71	36 %	66-136	7104001	EPA 8270D	09/05/17 14:52	jfi	QS-03, QS-07	



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ANALYTICAL RESULTS

Description: MW-2

Lab Sample ID: AA06194-03

Received: 08/31/17 14:30

Matrix: Ground Water

Sampled: 08/30/17 12:51

Work Order: AA06194

Project: Russell Concrete Facility

Sampled By: Chad Gambill

Semivolatile Organic Compounds by GCMS SIM

^ - ENCO Orlando certified analyte [NELAC E83182]

<u>Analyte [CAS Number]</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Batch</u>	<u>Method</u>	<u>Analyzed</u>	<u>By</u>	<u>Notes</u>
1-Methylnaphthalene [90-12-0]^	0.047	U	ug/L	1	0.047	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
2-Methylnaphthalene [91-57-6]^	0.044	U	ug/L	1	0.044	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Acenaphthene [83-32-9]^	0.037	U	ug/L	1	0.037	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Acenaphthylene [208-96-8]^	0.036	U	ug/L	1	0.036	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Anthracene [120-12-7]^	0.036	U	ug/L	1	0.036	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Benzo(a)anthracene [56-55-3]^	0.037	U	ug/L	1	0.037	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Benzo(a)pyrene [50-32-8]^	0.043	U	ug/L	1	0.043	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Benzo(b)fluoranthene [205-99-2]^	0.059	U	ug/L	1	0.059	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Benzo(g,h,i)perylene [191-24-2]^	0.040	U	ug/L	1	0.040	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Benzo(k)fluoranthene [207-08-9]^	0.046	U	ug/L	1	0.046	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Chrysene [218-01-9]^	0.051	U	ug/L	1	0.051	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Dibenzo(a,h)anthracene [53-70-3]^	0.026	U	ug/L	1	0.026	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Fluoranthene [206-44-0]^	0.051	U	ug/L	1	0.051	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Fluorene [86-73-7]^	0.038	U	ug/L	1	0.038	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Indeno(1,2,3-cd)pyrene [193-39-5]^	0.037	U	ug/L	1	0.037	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Naphthalene [91-20-3]^	0.035	U	ug/L	1	0.035	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Phenanthrene [85-01-8]^	0.039	U	ug/L	1	0.039	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	
Pyrene [129-00-0]^	0.048	U	ug/L	1	0.048	0.10	7104001	EPA 8270D	09/05/17 15:14	jfi	

<u>Surrogates</u>	<u>Results</u>	<u>DF</u>	<u>Spike Lvl</u>	<u>% Rec</u>	<u>% Rec Limits</u>	<u>Batch</u>	<u>Method</u>	<u>Analyzed</u>	<u>By</u>	<u>Notes</u>
p-Terphenyl	3.8	1	5.71	66 %	66-136	7104001	EPA 8270D	09/05/17 15:14	jfi	

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS SIM - Quality Control

Batch 7I04001 - EPA 3511_MS

Blank (7I04001-BLK1)

Prepared: 09/04/2017 07:45 Analyzed: 09/05/2017 09:43

Analyte	Result	Flaq	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1-Methylnaphthalene	0.047	U	0.10	ug/L							
2-Methylnaphthalene	0.044	U	0.10	ug/L							
Acenaphthene	0.037	U	0.10	ug/L							
Acenaphthylene	0.036	U	0.10	ug/L							
Anthracene	0.036	U	0.10	ug/L							
Benzo(a)anthracene	0.037	U	0.10	ug/L							
Benzo(a)pyrene	0.043	U	0.10	ug/L							
Benzo(b)fluoranthene	0.059	U	0.10	ug/L							
Benzo(g,h,i)perylene	0.040	U	0.10	ug/L							
Benzo(k)fluoranthene	0.046	U	0.10	ug/L							
Chrysene	0.051	U	0.10	ug/L							
Dibenzo(a,h)anthracene	0.026	U	0.10	ug/L							
Fluoranthene	0.051	U	0.10	ug/L							
Fluorene	0.038	U	0.10	ug/L							
Indeno(1,2,3-cd)pyrene	0.037	U	0.10	ug/L							
Naphthalene	0.035	U	0.10	ug/L							
Phenanthrene	0.039	U	0.10	ug/L							
Pyrene	0.048	U	0.10	ug/L							
<i>p</i> -Terphenyl	5.9			ug/L	5.71		103	66-136			

LCS (7I04001-BS1)

Prepared: 09/04/2017 07:45 Analyzed: 09/05/2017 10:05

Analyte	Result	Flaq	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Acenaphthene	4.8		0.10	ug/L	5.71		83	80-120			
Benzo(a)pyrene	5.3		0.10	ug/L	5.71		93	73-149			
Benzo(g,h,i)perylene	4.9		0.10	ug/L	5.71		86	57-124			
Naphthalene	4.2		0.10	ug/L	5.71		74	68-120			
<i>p</i> -Terphenyl	5.6			ug/L	5.71		98	66-136			

Matrix Spike (7I04001-MS1)

Prepared: 09/04/2017 07:45 Analyzed: 09/05/2017 10:27

Source: AA05623-21

Analyte	Result	Flaq	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Acenaphthene	16		0.10	ug/L	5.71	14	42	80-120			QM-07
Benzo(a)pyrene	4.9		0.10	ug/L	5.71	0.043 U	85	73-149			
Benzo(g,h,i)perylene	4.5		0.10	ug/L	5.71	0.040 U	78	57-124			
Naphthalene	27	L	0.10	ug/L	5.71	29	NR	68-120			QM-07
<i>p</i> -Terphenyl	5.3			ug/L	5.71		93	66-136			

Matrix Spike Dup (7I04001-MSD1)

Prepared: 09/04/2017 07:45 Analyzed: 09/05/2017 10:49

Source: AA05623-21

Analyte	Result	Flaq	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Acenaphthene	15		0.10	ug/L	5.71	14	31	80-120	4	25	QM-07
Benzo(a)pyrene	4.3		0.10	ug/L	5.71	0.043 U	76	73-149	11	25	
Benzo(g,h,i)perylene	4.0		0.10	ug/L	5.71	0.040 U	70	57-124	12	25	
Naphthalene	26	L	0.10	ug/L	5.71	29	NR	68-120	4	25	QM-07
<i>p</i> -Terphenyl	4.9			ug/L	5.71		85	66-136			

Batch 7I05042 - EPA 3511_MS

QUALITY CONTROL DATA

Semivolatile Organic Compounds by GCMS SIM - Quality Control

Blank (7I05042-BLK1)

Prepared: 09/05/2017 17:18 Analyzed: 09/06/2017 11:59

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
1-Methylnaphthalene	0.047	U	0.10	ug/L							
2-Methylnaphthalene	0.044	U	0.10	ug/L							
Acenaphthene	0.037	U	0.10	ug/L							
Acenaphthylene	0.036	U	0.10	ug/L							
Anthracene	0.036	U	0.10	ug/L							
Benzo(a)anthracene	0.037	U	0.10	ug/L							
Benzo(a)pyrene	0.043	U	0.10	ug/L							
Benzo(b)fluoranthene	0.059	U	0.10	ug/L							
Benzo(g,h,i)perylene	0.040	U	0.10	ug/L							
Benzo(k)fluoranthene	0.046	U	0.10	ug/L							
Chrysene	0.051	U	0.10	ug/L							
Dibenzo(a,h)anthracene	0.026	U	0.10	ug/L							
Fluoranthene	0.051	U	0.10	ug/L							
Fluorene	0.038	U	0.10	ug/L							
Indeno(1,2,3-cd)pyrene	0.037	U	0.10	ug/L							
Naphthalene	0.035	U	0.10	ug/L							
Phenanthrene	0.039	U	0.10	ug/L							
Pyrene	0.048	U	0.10	ug/L							
<i>p</i> -Terphenyl	7.1			ug/L	5.71		124	66-136			

LCS (7I05042-BS1)

Prepared: 09/05/2017 17:18 Analyzed: 09/06/2017 12:43

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Acenaphthene	4.6		0.10	ug/L	5.71		81	80-120			
Benzo(a)pyrene	5.8		0.10	ug/L	5.71		102	73-149			
Benzo(g,h,i)perylene	5.9		0.10	ug/L	5.71		103	57-124			
Naphthalene	4.5		0.10	ug/L	5.71		79	68-120			
<i>p</i> -Terphenyl	7.1			ug/L	5.71		124	66-136			

Matrix Spike (7I05042-MS1)

Prepared: 09/05/2017 17:18 Analyzed: 09/06/2017 13:05

Source: AA06381-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Acenaphthene	5.0		0.10	ug/L	5.71	0.037 U	88	80-120			
Benzo(a)pyrene	6.2		0.10	ug/L	5.71	0.043 U	109	73-149			
Benzo(g,h,i)perylene	6.2		0.10	ug/L	5.71	0.040 U	109	57-124			
Naphthalene	4.8		0.10	ug/L	5.71	0.035 U	84	68-120			
<i>p</i> -Terphenyl	7.6			ug/L	5.71		133	66-136			

Matrix Spike Dup (7I05042-MSD1)

Prepared: 09/05/2017 17:18 Analyzed: 09/06/2017 13:27

Source: AA06381-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Acenaphthene	4.6		0.10	ug/L	5.71	0.037 U	80	80-120	9	25	
Benzo(a)pyrene	5.7		0.10	ug/L	5.71	0.043 U	99	73-149	9	25	
Benzo(g,h,i)perylene	5.6		0.10	ug/L	5.71	0.040 U	98	57-124	11	25	
Naphthalene	4.3		0.10	ug/L	5.71	0.035 U	76	68-120	11	25	
<i>p</i> -Terphenyl	6.1			ug/L	5.71		107	66-136			

FL Petroleum Range Organics - Quality Control

Batch 7I05015 - SOP EXSV-33

QUALITY CONTROL DATA

FL Petroleum Range Organics - Quality Control

Blank (7I05015-BLK1)

Prepared: 09/05/2017 01:00 Analyzed: 09/06/2017 09:46

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
TPH (C8-C40)	3.4	U	5.7	mg/kg wet							
<i>n</i> -Nonatriacontane	3.6			mg/kg wet	3.33		109	60-118			
<i>o</i> -Terphenyl	1.6			mg/kg wet	1.67		96	62-109			

LCS (7I05015-BS1)

Prepared: 09/05/2017 01:00 Analyzed: 09/06/2017 10:17

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
TPH (C8-C40)	40		5.7	mg/kg wet	56.7		71	63-153			
<i>n</i> -Nonatriacontane	2.8			mg/kg wet	3.33		83	60-118			
<i>o</i> -Terphenyl	1.4			mg/kg wet	1.67		84	62-109			

Matrix Spike (7I05015-MS1)

Prepared: 09/05/2017 01:00 Analyzed: 09/06/2017 10:49

Source: AA06400-01

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
TPH (C8-C40)	80		7.5	mg/kg dry	75.5	40	53	62-204			QM-07
<i>n</i> -Nonatriacontane	3.5			mg/kg dry	4.44		80	60-118			
<i>o</i> -Terphenyl	2.0			mg/kg dry	2.23		89	62-109			

Matrix Spike Dup (7I05015-MSD1)

Prepared: 09/05/2017 01:00 Analyzed: 09/06/2017 11:20

Source: AA06400-01

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
TPH (C8-C40)	86		7.5	mg/kg dry	74.7	40	61	62-204	7	25	QM-07
<i>n</i> -Nonatriacontane	3.1			mg/kg dry	4.40		70	60-118			
<i>o</i> -Terphenyl	1.6			mg/kg dry	2.21		72	62-109			

Volatile Petroleum Hydrocarbons by GC - Quality Control

Batch 7I07013 - EPA 5035

Blank (7I07013-BLK1)

Prepared: 09/07/2017 10:05 Analyzed: 09/07/2017 14:10

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
C5-C8 Aliphatics	0.740	U	3.00	mg/kg wet							
C9-C10 Aromatics	0.480	U	1.00	mg/kg wet							
C9-C12 Aliphatics	1.50	U	3.00	mg/kg wet							
<i>2,5</i> -Dibromotoluene (FID)	9.59			mg/kg wet	10.0		96	70-130			
<i>2,5</i> -Dibromotoluene (PID)	9.43			mg/kg wet	10.0		94	70-130			

LCS (7I07013-BS1)

Prepared: 09/07/2017 10:05 Analyzed: 09/07/2017 14:41

Analyte	Result	Flag	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
C5-C8 Aliphatics	11.2		3.00	mg/kg wet	12.0		93	70-130			
C9-C10 Aromatics	4.12		1.00	mg/kg wet	4.01		103	70-130			
C9-C12 Aliphatics	13.7		3.00	mg/kg wet	12.0		114	70-130			
<i>2,5</i> -Dibromotoluene (FID)	7.94			mg/kg wet	10.0		79	70-130			
<i>2,5</i> -Dibromotoluene (PID)	8.71			mg/kg wet	10.0		87	70-130			

QUALITY CONTROL DATA

Volatile Petroleum Hydrocarbons by GC - Quality Control

Batch 7I07013 - EPA 5035 - Continued

LCS Dup (7I07013-BSD1)

Prepared: 09/07/2017 10:05 Analyzed: 09/07/2017 16:35

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
C5-C8 Aliphatics	10.5		3.00	mg/kg wet	12.0		88	70-130	6	25	
C9-C10 Aromatics	4.58		1.00	mg/kg wet	4.00		115	70-130	11	25	
C9-C12 Aliphatics	13.7		3.00	mg/kg wet	12.0		114	70-130	0.03	25	
2,5-Dibromotoluene (FID)	8.05			mg/kg wet	10.0		80	70-130			
2,5-Dibromotoluene (PID)	9.92			mg/kg wet	10.0		99	70-130			

Extractable Petroleum Hydrocarbons by GC - Quality Control

Batch 7I06005 - EPA 3550C

Blank (7I06005-BLK1)

Prepared: 09/06/2017 08:54 Analyzed: 09/07/2017 19:36

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
C19-C36 Aliphatics	3.1	U	17	mg/kg wet							
C9-C18 Aliphatics	1.3	U	17	mg/kg wet							
Chloro-octadecane	1.2			mg/kg wet	1.33		89	40-140			

LCS (7I06005-BS1)

Prepared: 09/06/2017 08:54 Analyzed: 09/07/2017 20:33

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
C19-C36 Aliphatics	18		17	mg/kg wet	21.3		83	40-140			
C9-C18 Aliphatics	12	I	17	mg/kg wet	16.0		78	40-140			
Chloro-octadecane	1.0			mg/kg wet	1.33		77	40-140			

LCS Dup (7I06005-BSD1)

Prepared: 09/06/2017 08:54 Analyzed: 09/07/2017 21:30

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
C19-C36 Aliphatics	18		17	mg/kg wet	21.3		83	40-140	0.6	25	
C9-C18 Aliphatics	13	I	17	mg/kg wet	16.0		79	40-140	2	25	
Chloro-octadecane	1.0			mg/kg wet	1.33		78	40-140			

Batch 7I06006 - EPA 3550C

Blank (7I06006-BLK1)

Prepared: 09/06/2017 08:56 Analyzed: 09/07/2017 20:04

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
C11-C22 Aromatics	3.1	U	17	mg/kg wet							
2-Bromonaphthalene	3.6			ug/mL	4.00		91	40-140			
2-Fluorobiphenyl	4.1			ug/mL	4.00		101	40-140			
o-Terphenyl	1.4			mg/kg wet	1.33		105	40-140			

LCS (7I06006-BS1)

Prepared: 09/06/2017 08:56 Analyzed: 09/07/2017 21:02

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
C11-C22 Aromatics	25		17	mg/kg wet	22.7		112	40-140			
2-Bromonaphthalene	4.1			ug/mL	4.00		101	40-140			
2-Fluorobiphenyl	4.7			ug/mL	4.00		119	40-140			

QUALITY CONTROL DATA

Extractable Petroleum Hydrocarbons by GC - Quality Control

Batch 7I06006 - EPA 3550C - Continued

LCS (7I06006-BS1) Continued

Prepared: 09/06/2017 08:56 Analyzed: 09/07/2017 21:02

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
<i>o-Terphenyl</i>	<i>1.4</i>			<i>mg/kg wet</i>	<i>1.33</i>		<i>108</i>	<i>40-140</i>			

LCS Dup (7I06006-BSD1)

Prepared: 09/06/2017 08:56 Analyzed: 09/07/2017 21:59

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
C11-C22 Aromatics	24		17	mg/kg wet	22.7		104	40-140	7	25	
<i>2-Bromonaphthalene</i>	<i>4.5</i>			<i>ug/mL</i>	<i>4.00</i>		<i>113</i>	<i>40-140</i>			
<i>2-Fluorobiphenyl</i>	<i>4.6</i>			<i>ug/mL</i>	<i>4.00</i>		<i>115</i>	<i>40-140</i>			
<i>o-Terphenyl</i>	<i>1.4</i>			<i>mg/kg wet</i>	<i>1.33</i>		<i>106</i>	<i>40-140</i>			

FLAGS/NOTES AND DEFINITIONS

PQL	PQL: Practical Quantitation Limit.
B	Results are based upon membrane filter colony counts that are outside the method indicated ideal range.
I	The reported value is between the laboratory method detection limit (MDL) and the practical quantitation limit (PQL).
J	Estimated value.
K	Off-scale low; Actual value is known to be less than the value given.
L	Off-scale high; Actual value is known to be greater than value given.
M	Presence of analyte is verified but not quantified; the actual value is less than the MRL but greater than the MDL.
N	Presumptive evidence of presence of material.
O	Sampled, but analysis lost or not performed.
Q	Sample exceeded the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only and shall not be used in statistical analysis.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.
Z	Too many colonies were present (TNTC); the numeric value represents the filtration volume.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
*	Not reported due to interference.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QS-03	Surrogate recovery outside acceptance limits
QS-07	Surrogate recovery biased low due to matrix interference confirmed by re-extraction and/or re-analysis.



ENVIRONMENTAL CONSERVATION LABORATORIES CHAIN-OF-CUSTODY RECORD

10775 Central Port Dr. Orlando, FL 32824 (407) 826-5314 Fax (407) 850-6945

4810 Executive Park Court, Suite 111 Jacksonville, FL 32216-6069 (904) 296-3007 Fax (904) 296-6210

102-A Woodwinds Industrial Ct. Cary, NC 27511 (919) 467-3090 Fax (919) 467-3515

Client Name Andreyev Engineering (AN016)		Project Number		Requested Analyses								Requested Turnaround Times					
Address 3740 54th Avenue North		Project Name/Desc Russell Concrete Facility		8270D PAH SIM	FLPRO	EPH Aliph, EPH Arom, EPH Unfractionated	VPH Aliph, VPH Arom									Note : Rush requests subject to acceptance by the facility	
City/ST/Zip St. Petersburg, FL 33714		PO # / Billing Info						Standard <input checked="" type="checkbox"/>		Expedited <input type="checkbox"/>		Due ___ / ___ / ___					
Tel (727) 527-5735		Reporting Contact Todd Robbins						Billing Contact Todd Robbins		Lab Workorder AA06194							
Sampler(s) Name, Affiliation (Print) Chad Cambill AEI		Billing Contact Todd Robbins						Site Location / Time Zone Vero Beach									
Sampler(s) Signature 				Preservation (See Codes) (Combine as necessary)													

Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers											Sample Comments
	SS-2B	8/30/17	1045	G	SO	4		X	X	X							
	MW-1	8/30/17	1338	G	GW	1	X										
	MW-2	8/30/17	1251	G	GW	1	X										
<-- Total # of Containers																	

Sample Kit Prepared By ECG	Date/Time 8/25/17 12:45	Relinquished By 	Date/Time 8/25/17 12:45	Received By 	Date/Time 8/29/17 9:00
Comments/Special Reporting Requirements	Relinquished By 	Date/Time 8/30/17 14:20	Received By Adriana Ramirez	Date/Time 08/31/17 14:30	
	Relinquished By	Date/Time	Received By	Date/Time	
Cooler #'s & Temps on Receipt Fedex Med -315 0.3°C			Condition Upon Receipt <input checked="" type="checkbox"/> Acceptable <input type="checkbox"/> Unacceptable		

Matrix : GW-Groundwater SO-Soil DW-Drinking Water SE-Sediment SW-Surface Water WW-Wastewater A-Air O-Other (detail in comments) Preservation: I-Ice H-HCl N-HNO3 S-H2SO4 NO-NaOH O-Other (detail in comments)
 Note : All samples submitted to ENCO Labs are in accordance with the terms and conditions listed on the reverse of this form, unless prior written agreements exist

APPENDIX B
GROUNDWATER SAMPLING LOGS

DEP Form FD 9000-24: GROUNDWATER SAMPLING LOG

SITE NAME: Russell Concrete	SITE LOCATION: Vero Beach
WELL NO: MW-1	SAMPLE ID: MW-1
DATE: 8/30/17	

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 2 feet to 12 feet	STATIC DEPTH TO WATER (feet): 5.30	PURGE PUMP TYPE OR BAILER: PP
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH -- STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (12 feet - 5.30 feet) X 0.16 gallons/foot = 1.07 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): 7	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 7	PURGING INITIATED AT: 1328	PURGING ENDED AT: 1339	TOTAL VOLUME PURGED (gallons): 2.25

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 S/cm	DISSOLVED OXYGEN (circle units) mg/L or % saturation	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1333	1.25	1.25	1.25	6.15	5.83	29.57	444.4	.03	41.3	sl cloby	None
1335	.5	1.75	↓	6.20	5.77	29.67	427.3	.04	↓	↓	↓
1337	.5	2.25	↓	6.23	5.75	29.71	432.5	.03	↓	↓	↓

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" = 0.0008; 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: Chad Cambill AFI			SAMPLER(S) SIGNATURE(S):			SAMPLING INITIATED AT: 1338		SAMPLING ENDED AT: 1340	
PUMP OR TUBING DEPTH IN WELL (feet): 7			TUBING MATERIAL CODE: PE		FIELD-FILTERED: Y <input checked="" type="checkbox"/> (N)		FILTER SIZE: _____ μm		
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> (N)			TUBING Y <input checked="" type="checkbox"/> (N (replaced))		DUPLICATE: Y <input checked="" type="checkbox"/> (N)				

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
MW-1	1	AG	250ml	None	_____	_____	PAH	APP	400

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) 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)

DEP Form FD 9000-24: GROUNDWATER SAMPLING LOG

SITE NAME: Russell Concrete	SITE LOCATION: Vero Beach
WELL NO: MW-2	SAMPLE ID: MW-2 DATE: 8/30/17

PURGING DATA

WELL DIAMETER (inches): 2	TUBING DIAMETER (inches): 3/8	WELL SCREEN INTERVAL DEPTH: 2 feet to 12 feet	STATIC DEPTH TO WATER (feet): 5.20	PURGE PUMP TYPE OR BAILER: PP
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (12 feet - 5.20 feet) X 0.16 gallons/foot = 1.10 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): 7	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 7	PURGING INITIATED AT: 1241	PURGING ENDED AT: 1252	TOTAL VOLUME PURGED (gallons): 2.25

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)
1246	1.25	1.25	1.25	5.50	6.26	29.59	531.5	.01	58.1	sl/dy	None
1248	.5	1.75	↓	5.50	6.30	29.58	523.0	.01	↓	↓	↓
1250	.5	2.25	↓	5.56	6.30	29.58	520.3	.01	↓	↓	↓

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: Chad Gambill AEI		SAMPLER(S) SIGNATURE(S):		SAMPLING INITIATED AT: 1251	SAMPLING ENDED AT: 1253
PUMP OR TUBING DEPTH IN WELL (feet): 7		TUBING MATERIAL CODE: PE	FIELD-FILTERED: Y <input checked="" type="checkbox"/> (N)	FILTER SIZE: _____ μm	
FIELD DECONTAMINATION: PUMP Y <input checked="" type="checkbox"/> (N)		TUBING Y <input checked="" type="checkbox"/> (N (replaced))	DUPLICATE: Y <input checked="" type="checkbox"/> (N)		

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION (including wet ice)			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
MW-2	1	AG	250ml	None	—————	—————	PAH	APP	400

REMARKS:

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; HDPE = High Density Polyethylene; LDPE = Low Density Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After (Through) 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)