Technical Review of the RCRA Facility Investigation Supplemental Sampling Report
November 2016
PUMA Energy Caribe LLC
Former Caribbean Petroleum Refining Terminal Bayamón, Puerto Rico
(EPA ID. No. PRD000632182)

ARCADIS Design & Consultancy for natural and built assets

USEPA Comment	Response to Comment
III. Specific Comments	
1. Section 4, Page 4-1, Concentration Units: Please keep a uniform nomenclature for the constituent's units of concentration. Some are reported in micrograms per kilogram (ug/kg), while others are reported in milligrams per kilogram (mg/kg) in the same section. Although not incorrect, it is a source of confusion. Given that the EPA Regional Screening Levels for both Residential and Industrial Soil Scenarios are provided in mg/kg, EPA recommends to provide all analytical results in mg/kg as much as possible throughout the Report.	Noted, and tables will be changed accordingly.
IV. Responses to USEPA Comments Issued on October 20, 2015	
2. **Section 5, Page 5-1, First paragraph:** Puma concluded that "sampling results did not indicate the presence of any analyte above USEPA 's Industrial RSL".EPA agrees partially with this conclusion. There are no RSLs for TPH-GRO and TPH-DRO. The most recent EPA RSL Tables released on May 2016 only provide RSLs for TPH depending on the amount of aliphatic and/or aromatics compounds. Please clarify if you used another criteria to reach this conclusion. Also, even if RSL exceedances become now inconclusive, what are the exposure scenarios given the Sites current use? Are there any potential exposure pathways that need to be evaluated?	Since this report was part of the original RFI report, it was decided to keep the same comparisons and, as previously mentioned in the RFI, the most current RSLs will be used in future reports submitted following approval of the RFI Report.
2. **Tables 2 and 3, Pages T-1 and T-2:** Please provide unit for analyte concentration.	Analyte concentrations were noted in the footnotes; however, we have added the concentration to each header, and were made uniform as per comment number 1.

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PUMA Energy Caribe, LLC

RCRA FACILITY INVESTIGATION SUPPLEMENTAL SAMPLING REPORT

Former Caribbean Petroleum Corporation
Refinery/Terminal - Bayamón, Puerto Rico

November 2016

RCRA FACILITY INVESTIGATION SUPPLEMENTAL SAMPLING REPORT

Former CAPECO Refinery/Terminal
Bayamón, Puerto Rico

Efraín Calderón Jr.
Project Manager

John Alonso, CHMM, REP
Client Director

Prepared for:

PUMA Energy Caribe, LLC

Prepared by:

Arcadis Caribe, PSC
48 City View Plaza 1, Suite 401
Rd 165, Km 1.2
Guaynabo
Puerto Rico 00968
Tel 787 777 4000
Fax 787 777 8086

Our Ref.:

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ACRONYMS AND ABBREVIATIONS

Arcadis	Arcadis Caribe, PSC
bgs	below ground surface
CAPECO	Caribbean Petroleum Corporation
DRO	diesel range organics
GRO	gasoline range organics
HASP	health and safety plan
ORO	oil range organics
PREQB	Puerto Rico Environmental Quality Board
PUMA	PUMA Energy Caribe, LLC
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RFI	Resource Conservation and Recovery Act Facility Investigation
SOP	standard operation procedures
SWMU	solid waste management unit
TPH	total petroleum hydrocarbons
USEPA	United States Environmental Protection Agency
WWTP	wastewater treatment plant

1 INTRODUCTION

On March 26, 2015, PUMA Energy Caribe, LLC (PUMA) submitted the Resource Conservation and Recovery Act Facility Investigation (RFI) Report for the former CAPECO Refinery/Terminal located at Road PR-28, Km 2, Luchetti Industrial Park in Bayamón, Puerto Rico (Facility). Arcadis Caribe, PSC (Arcadis) conducted the RFI in accordance with the Final RFI Work Plan (Work Plan) dated February 2013 that was approved by the United States Environmental Protection Agency (USEPA) on March 19, 2013. Arcadis prepared the RFI to satisfy the activities stipulated in the Agreement with the New Purchaser (Agreement) dated 2011 (Docket Num. RCRA-02-2011-7305) between PUMA and the USEPA. This Agreement served as a modification to the 1995 Administrative Order on Consent (Order), Docket Num. II RCRA-95-3008(h)-0303 that was in place prior to the May 2011 purchase by PUMA.

The RFI report prepared by Arcadis provided a summary of the assessment activities performed until December 31, 2014. The USEPA reviewed the RFI, and provided comments to PUMA on November 12, 2015. On January 12, 2016, representatives of the USEPA and PUMA reviewed the comments, and agreed that PUMA would be required to complete a supplemental sampling program to address data gaps identified by the USEPA in order to complete the RFI. In response to the agreements reached at the meeting, PUMA submitted a scope of work to complete the supplemental sampling (**Appendix A**). The USEPA approved the revised scope of work on February 8, 2016. This RFI Supplemental Sampling Report presents the findings and conclusions of this sampling.

2 GENERAL SITE DESCRIPTION

The Facility is located at Road PR-28, Km 2, Luchetti Industrial Park in Bayamón, Puerto Rico, approximately 3 miles to the south of the Atlantic Ocean coast. The land use on adjacent properties is primarily commercial or industrial. Commercial and industrial properties border the Facility to the south and west; the U.S. Army facility Fort Buchanan is to the east, and Highway PR-22 to the north.

The entire Facility encompasses approximately 179 acres, of which 115 acres are developed as a petroleum products storage facility, including operational buildings, administrative offices, parking areas, and a wastewater treatment plant to the north. The Facility has an aboveground pipeline for the transfer of fuel from loading docks on San Juan Bay and to customers at the Luis Muñoz Marín International Airport. A liquid propane gas storage and distribution area is under development at the Facility. The remainder of the property is undeveloped, and includes a wetland area and Las Lajas Creek. **Figure 1** shows the general location and topography of the Facility and surrounding areas.

3 SUPPLEMENTAL SAMPLING FIELD ACTIVITIES

The supplemental sampling program consisted of the collection of eight soil samples and the installation of two monitoring wells in the following three areas:

- Former oil lagoons (SWMU 11)
- Solid waste management units (SWMUs) 33, 34 and 35
- Wastewater treatment plant

The location of the samples collected in each of these areas is shown on **Figure 2.** The sample identification numbers and location are presented in **Table 1**. Samples were identified using the following nomenclature: FOL - # - #, meaning FOL - former oil lagoons, # - boring number, # - depth in feet; WWTP - SB - #, meaning WWTP - wastewater treatment plant, SB - soil boring, # - soil boring number - range in depth in feet; and WS - #, meaning WS - wetland soil, # - number of sample.

3.1 Soil Sampling in Former Oil Lagoon (SWMU 11)

Two soil samples were collected in the former oil lagoon area using a Geoprobe® direct-push sampling tool. The samples were collected just above the groundwater table at a depth approximately 16 feet below ground surface (bgs). (Note: the elevation in the area is approximately 10 feet above base grade elevation).

3.2 Soil Sampling in SWMU 33, 34 and 35 Area

Four soil samples were collected using a hand auger near SWMUs 33 (non-hazardous disposal site), 34 (sulfur lagoon), and 35 (catalytic waste). The samples were collected at a depth just above the water table at approximate depths ranging from 2 to 3 feet bgs.

3.3 Soil Sampling and Installation of Monitoring Wells at WWTP

Two groundwater monitoring wells were installed near the WWTP. As part of the monitoring well installation, one soil sample was collected just the water table at each location. The depths ranged between 2 and 5 feet bgs. The monitoring wells were developed, but they were not sampled as part of the Supplemental RFI. The monitoring well sampling was incorporated into the facility-wide semi-annual groundwater sampling program that occurred in June 2016.

4 SUMMARY OF ANALYTICAL RESULTS

4.1 Former Oil Lagoons

The two soil samples collected in the former oil lagoons area were reported at concentrations of TPH-GRO of 19,200 µg/kg and 22,200 µg/kg in samples FOL-1-16 and FOL-2-16, respectively. In addition, a concentration of TPH-DRO was reported at 11,500 µg/kg in sample FOL-1-16. All other analytes were reported below the detection levels. The results are summarized in **Table 2** and shown on **Figure 3**.

4.2 WWTP Area

The two soil samples collected in the WWTP area (WWTP-SB-1-2-3 and WWTP-SB-2-4-5) had reported concentrations of TPH-DRO of 3,240,000 µg/kg and 31,000 µg/kg, respectively. In addition, concentrations of total xylenes (20.6 mg/kg), TPH-GRO (15,500 mg/kg) and TPH-ORO (664,000 mg/kg) were also reported. All other analytes were reported below the detection levels. The results are summarized in **Table 2** and shown on **Figure 3**.

4.3 SWMUs 33, 34 and 35

Of the four samples collected near SWMUs 33, 34 and 35 area (WS-1, WS-2, WS-3 and WS-4), only sample WS-4 had a reported concentration above the analytical detection limit. TPH-DRO and TPH-ORO were reported at 58,200 µg/kg and 63,700 µg/kg, respectively, in this sample. The results are summarized in **Table 2** and shown on **Figure 3**.

4.4 Summary

The photolog for the sampling activities is provided in **Appendix B**. **Appendix C** includes field documentation obtained during the activities. In addition, **Table 2** includes the analytical results for the eight soil samples and the duplicate samples identified as DUP and DUP1.

Table 3 provides the quality assurance/quality control analytical results for the blanks collected as part of the sampling procedures. **Appendix D** includes the analytical results and documentation provided and certified by the laboratory for all samples.

5 CONCLUSIONS

The analytical results for the soil sampling completed for this Supplemental RFI only indicated detectable levels of TPH-GRO and/or TPH-DRO in several samples. The sampling results did not indicate the presence of any analyte above USEPA's Industrial RSL, as noted in the agreement RCRA-02-2011-7305 the facility will continue to be used as an industrial bulk oil terminal there for the potential expose pathways are limited or non-existent.

The sampling completed as part of this Supplemental RFI satisfies the requirements of the approved Work Plan, and does not change the conclusions or recommendations presented in the RFI and reviewed with the USEPA as part of the RFI review and Supplemental RFI Work Plan approval. Therefore, the submittal of this document completes PUMA's requirements for the RFI.

TABLES

Table 1. Soil Borings Rationale/Location Description

Soil Boring ID	Description
FOL-1	Former oil lagoon – north-east of terminal
FOL-2	Former oil lagoon – north-east of terminal
WWTP-SB-1	Former wastewater treatment plant area
WWTP-SB-2	Former wastewater treatment plant area
WS-1	Wetland – north of terminal
WS-2	Wetland – north of terminal
WS-3	Wetland – north of terminal
WS-4	Wetland – north of terminal

Table 2. Soil Sample Analytical Results(1)

		USEPA's Method 8260						USEPA's Methods 8015B Modified		
Sample ID	Date (mm.dd.yy)	Benzene (mg/kg)	Ethanol (mg/kg)	Ethylbenzene (mg/kg)	MTBE (mg/kg)	Toluene (mg/kg)	Total Xylenes (mg/kg)	TPH-GRO (C_6-C_{10}) (mg/kg)	TPH-DRO (C_{10}-C_{28}) (mg/kg)	TPH-ORO (>C_{28}-C_{40}) (mg/kg)
PREQB's Cleanup Levels		5 (a)	(b)	10 (a)	39 (a)	10 (a)	10 (a)	100 (a)	100 (a)	100 (a)
FOL-1-16	04.13.16	ND	ND	ND	ND	ND	ND	**19.2**	**11.5**	ND
FOL-2-16	04.13.16	ND	ND	ND	ND	ND	ND	**22.2**	15.0	ND
WWTP-SB-1-2-3	04.11.16	ND	ND	ND	ND	ND	20.6	**15.5**	**3240**	**664**

(1) units in mg/kg - milligrams per kilogram; ND - not detected; MTBE - methyl-tert-butyl-ether; DUP 1 - duplicate sample collected from WWTP-SB-1-2-3; DUP - duplicate sample collected from WS-_; a - PREQB's Requirements, Actions and Procedures for the Closure of Underground Storage Tank Systems (May 2011), b - value not established by the PREQB or the USEPA

Table 2. Soil Sample Analytical Results (Cont.)(1)

		USEPA's Method 8260						USEPA's Methods 8015B Modified		
Sample ID	**Date (mm.dd.yy)**	**Benzene (mg/kg)**	**Ethanol (mg/kg)**	**Ethylbenzene (mg/kg)**	**MTBE (mg/kg)**	**Toluene (mg/kg)**	**Total Xylenes (mg/kg)**	**TPH-GRO (C_6-C_{10}) (mg/kg)**	**TPH-DRO (C_{10}-C_{28}) (mg/kg)**	**TPH-ORO (>C_{28}-C_{40}) (mg/kg)**
WWTP-SB-2-4-5	04.12.16	ND	ND	ND	ND	ND	ND	ND	**31**	ND
DUP 1	04.11.16	ND	ND	ND	ND	ND	ND	ND	**146**	**120**
WS-1	05.05.16	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS-2	05.05.16	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS-3	05.05.16	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS-4	05.05.16	ND	ND	ND	ND	ND	ND	ND	**58.2**	**63.7**
DUP	05.05.16	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 3. QA/QC Analytical Results(2)

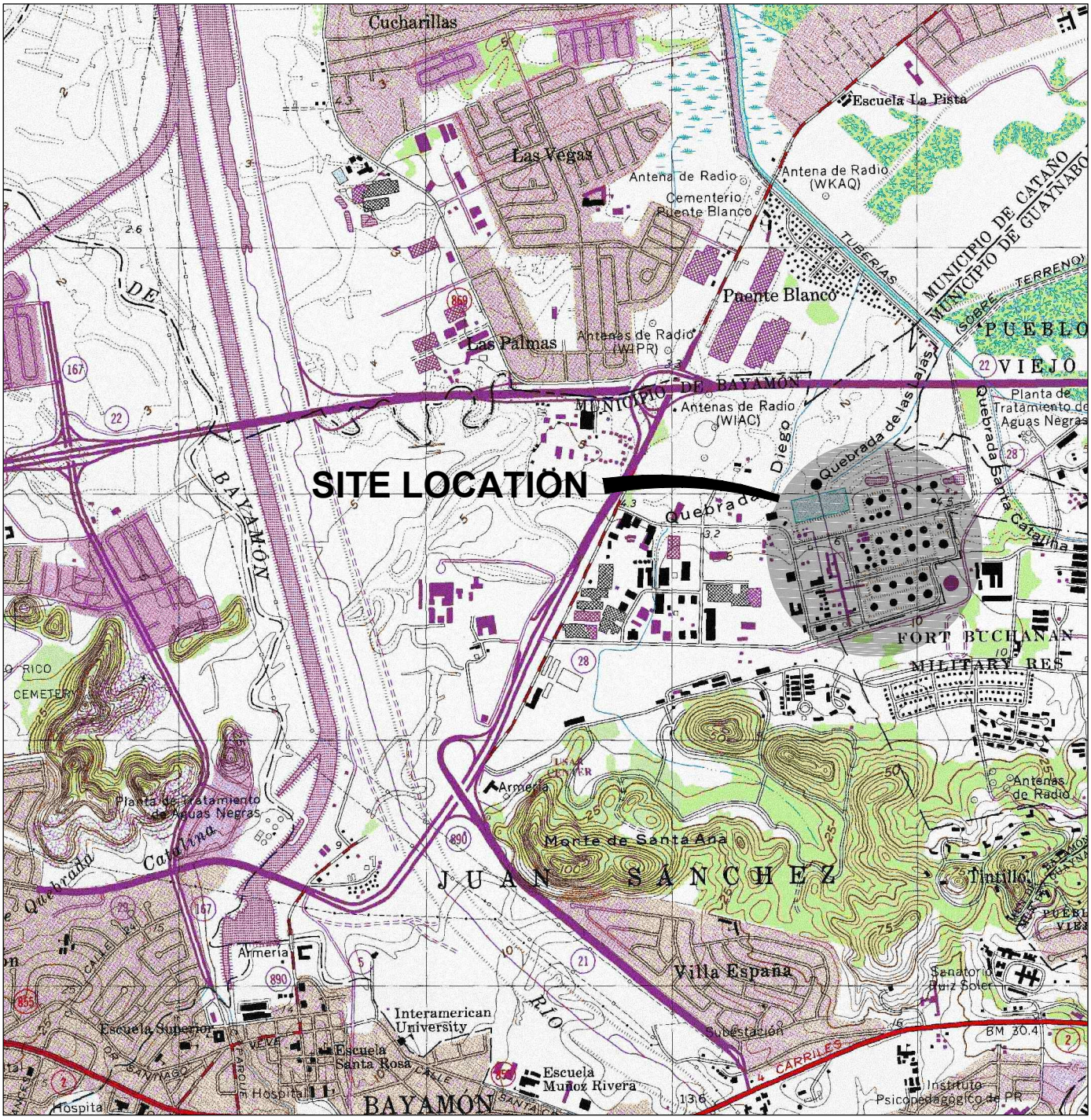
		USEPA's Method 8260						USEPA's Methods 8015B Modified		
Sample ID	**Date (mm.dd.yy)**	**Benzene (mg/L)**	**Ethanol (mg/L)**	**Ethylbenzene (mg/L)**	**MTBE (mg/L)**	**Toluene (mg/L)**	**Total Xylenes (mg/L)**	**TPH-GRO (C_6-C_{10}) (mg/L)**	**TPH-DRO (C_{10}-C_{28}) (mg/L)**	**TPH-ORO (>C_{28}-C_{40}) (mg/L)**
EB-041116	04.11.16	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB-041116	04.11.16	ND	ND	ND	ND	ND	ND	ND	NA	NA
TB041116	04.11.16	ND	ND	ND	ND	ND	ND	ND	NA	NA
EB-041216	04.12.16	ND	ND	ND	ND	ND	ND	ND	NA	NA

(2) units in mg/L; ND - not detected; NA - not analyzed, MTBE - methyl-tert-butyl-ether

Table 3. QA/QC Analytical Results (Cont.)[2]

		USEPA's Method 8260						USEPA's Methods 8015B Modified		
Sample ID	**Date (mm.dd.yy)**	**Benzene (mg/L)**	**Ethanol (mg/L)**	**Ethylbenzene (mg/L)**	**MTBE (mg/L)**	**Toluene (mg/L)**	**Total Xylenes (mg/L)**	**TPH-GRO (C_6-C_{10}) (mg/L)**	**TPH-DRO (C_{10}-C_{28}) (mg/L)**	**TPH-ORO (>C_{28}-C_{40}) (mg/L)**
FB-041216	04.12.16	ND	ND	ND	ND	ND	ND	ND	NA	NA
EB-041316	04.13.16	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB-041316	04.13.16	ND	ND	ND	ND	ND	ND	ND	NA	NA
EB-050516	05.05.16	ND	ND	ND	ND	ND	ND	ND	ND	ND
FB-050516	05.05.16	ND	ND	ND	ND	ND	ND	ND	NA	NA
TRIP BLANK	05.05.16	ND	ND	ND	ND	ND	ND	ND	NA	NA

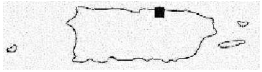
FIGURES



SOURCE: BAYAMON QUADRANGLE - 1969, PHOTO REVISED: 1982.

GRAPHIC SCALE: 1 : 20,000

1 .5 0 1 KM.



PUERTO RICO
QUADRANGLE LOCATION

PUMA ENERGY CARIBE, LLC
PUMA TERMINAL, KM. 2.0 LUCHETTI INDUSTRIAL PARK
BAYAMON, PUERTO RICO
RFI SUPPLEMENTAL SAMPLING REPORT

LOCATION MAP

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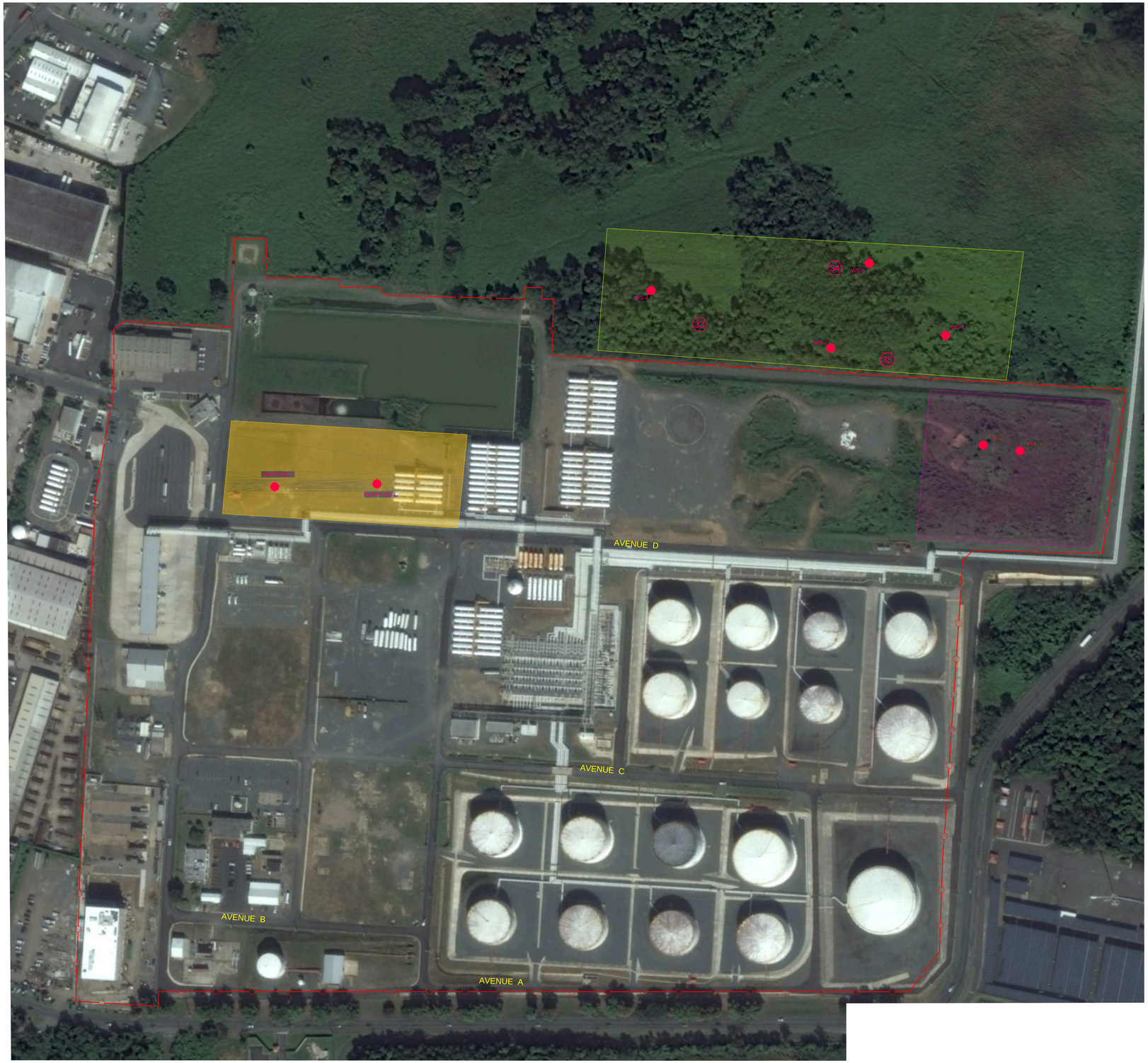
FIGURE
1



AERIAL IMAGING FEB., 2016 , COORDINATES: 18° 23' 6.50"N , 66°8' 40.12"W (SOURCE: GOOGLE EARTH PRO)

LEGEND:

SB-# NEW SOIL BORING AND SAMPLE LOCATION (2016)

WWTP AREA

FORMER OIL LAGOON AREA

SWMUs AREA

SWMU No.	SWMU DESCRIPTION
33	NON-HAZARDOUS DISPOSAL SITE
34	SULFUR LAGOON
35	CATALYTIC WASTE PUMP

NOT TO SCALE

PUMA ENERGY CARIBE, LLC
PUMA TERMINAL, KM. 2.0 LUCHETTI INDUSTRIAL PARK
BAYAMON, PUERTO RICO.

RFI SUPPLEMENTAL SAMPLING REPORT

NORTHERN TERMINAL AERIAL VIEWS (2011) AND DATA GAP AREAS

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FIGURE 2

Soil Sample Analytical Results	
Sample ID	WS-3
Date	05.05.16
Units	ug/kg
USEPA's Method 8260	
Benzene	ND
Ethanol	ND
Ethyl benzene	ND
Methyl tert-butyl ether	ND
Toluene	ND
Total Xylenes	ND
USEPA's Method 8015B Modified	
GRO (C6-C10)	ND
DRO (C10-C28)	ND
ORO (C28-C40)	ND

Soil Sample Analytical Results	
Sample ID	WS-2
Date	05.05.16
Units	ug/kg
USEPA's Method 8260	
Benzene	ND
Ethanol	ND
Ethyl benzene	ND
Methyl tert-butyl ether	ND
Toluene	ND
Total Xylenes	ND
USEPA's Method 8015B Modified	
GRO (C6-C10)	ND
DRO (C10-C28)	ND
ORO (C28-C40)	ND

Soil Sample Analytical Results	
Sample ID	WS-4
Date	05.05.16
Units	ug/kg
USEPA's Method 8260	
Benzene	ND
Ethanol	ND
Ethyl benzene	ND
Methyl tert-butyl ether	ND
Toluene	ND
Total Xylenes	ND
USEPA's Method 8015B Modified	
GRO (C6-C10)	ND
DRO (C10-C28)	**58200**
ORO (C28-C40)	**63700**

Soil Sample Analytical Results	
Sample ID	WS-1
Date	05.05.16
Units	ug/kg
USEPA's Method 8260	
Benzene	ND
Ethanol	ND
Ethyl benzene	ND
Methyl tert-butyl ether	ND
Toluene	ND
Total Xylenes	ND
USEPA's Method 8015B Modified	
GRO (C6-C10)	ND
DRO (C10-C28)	ND
ORO (C28-C40)	ND

Soil Sample Analytical Results	
Sample ID	WWTP-SB-2-4-5
Date	04.12.16
Units	ug/kg
USEPA's Method 8260	
Benzene	ND
Ethanol	ND
Ethyl benzene	ND
Methyl tert-butyl ether	ND
Toluene	ND
Total Xylenes	ND
USEPA's Method 8015B Modified	
GRO (C6-C10)	ND
DRO (C10-C28)	**31000**
ORO (C28-C40)	ND

Soil Sample Analytical Results	
Sample ID	FOL-1-16
Date	04.13.16
Units	ug/kg
USEPA's Method 8260	
Benzene	ND
Ethanol	ND
Ethyl benzene	ND
Methyl tert-butyl ether	ND
Toluene	ND
Total Xylenes	ND
USEPA's Method 8015B Modified	
GRO (C6-C10)	**19200**
DRO (C10-C28)	**11500**
ORO (C28-C40)	ND

Soil Sample Analytical Results	
Sample ID	WWTP-SB-1-2-3
Date	04.11.16
Units	ug/kg
USEPA's Method 8260	
Benzene	ND
Ethanol	ND
Ethyl benzene	ND
Methyl tert-butyl ether	ND
Toluene	ND
Total Xylenes	**20.6**
USEPA's Method 8015B Modified	
GRO (C6-C10)	**15500**
DRO (C10-C28)	**3240000**
ORO (C28-C40)	**664000**

Soil Sample Analytical Results	
Sample ID	FOL-2-16
Date	04.13.16
Units	ug/kg
USEPA's Method 8260	
Benzene	ND
Ethanol	ND
Ethyl benzene	ND
Methyl tert-butyl ether	ND
Toluene	ND
Total Xylenes	ND
USEPA's Method 8015B Modified	
GRO (C6-C10)	**22200**
DRO (C10-C28)	ND
ORO (C28-C40)	ND

LEGEND:

- MW-# — EXISTING MONITORING WELLS
- MW-# — SOIL BORING AND SAMPLE LOCATION (2014) 14 TOTALS
- SB-# — NEW SOIL BORING AND SAMPLE LOCATION (2016)
- WWTP AREA
- FORMER OIL LAGOON AREA
- SWMUs AREA

SWMU No.	SWMU DESCRIPTION
33	NON-HAZARDOUS DISPOSAL SITE
34	SULFUR LAGOON
35	CATALYTIC WASTE PUMP

N

NOT TO SCALE

PUMA ENERGY CARIBE, LLC
PUMA TERMINAL, KM. 2.0 LUCHETTI INDUSTRIAL PARK
BAYAMON, PUERTO RICO

RFI SUPPLEMENTAL SAMPLING REPORT

SOIL ANALYTICAL RESULTS FOR DATA GAP AREAS

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FIGURE 3

APPENDIX A

Scope of Work

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
CARIBBEAN ENVIRONMENTAL PROTECTION DIVISION
City View Plaza II – Suite 7000
#48 PR-165 km 1.2
Guaynabo, PR 00968-8069

026816

CERTIFIED MAIL/RETURN RECEIPT REQUESTED

Brenda Toraño-Díaz, PE
EHS Manager
Puma Energy Caribe, LLC
P.O. Box 11961
San Juan, PR 00922

RE: Approval of the September 2015 Final RCRA Facility Investigation Report and January 2016 Data Gap Scope of Work
Former Caribbean Petroleum Refining facility in Bayamón, Puerto Rico (PRD000632182)

Dear Ms. Toraño:

The U.S. Environmental Protection Agency (EPA) has received the September 2015 Final RCRA Facility Investigation (RFI) Report (hereafter Final RFI Report) and the January 2016 Data Gap Scope of Work (Data Gap SOW) for the former Caribbean Petroleum Refining facility in Bayamón, Puerto Rico, now owned and operated by Puma Energy Caribe, LLC (Puma). The Data Gap SOW was submitted after EPA requested additional soil and groundwater samples in the areas of Solid Waste Management Units (SWMUs) #11, #33, #34, #35 and the Waste Water Treatment Plant on the letter issued November 12, 2015. On a meeting with EPA on January 12, 2016, Puma agreed to submit a final version of the September 2015 RFI Report for EPA approval and submit the Data Gap SOW as supplementary work to the RFI.

After careful evaluation EPA considers that the Data Gap SOW is appropriate and addresses the comments issued on the November 12, 2015 letter. Therefore, EPA is granting approval of the September 2015 Final RFI Report. Please notify EPA and the Puerto Rico Environmental Quality Board at least fifteen (15) days prior to commencing fieldwork related to the supplementary sampling. If you have any questions regarding this matter, please contact geologist David N. Cuevas, Ph.D. at (787) 977-5856 or through electronic mail at cuevas.david@epa.gov.

Sincerely,

José C. Font, Director
Caribbean Environmental Protection Division

cc: Weldin Ortíz, Chairman
PR Environmental Quality Board

APPENDIX B

Photolog

Project Photographs

RCRA Facility Investigation Supplemental Sampling Report
Former Caribbean Petroleum Corporation Refinery/Terminal
Bayamón, Puerto Rico

Photo: 1

Date:
June 2016

Description:
Drilling activities by subcontractors during installation of groundwater monitoring well WWTP-1

Location:
Former wastewater treatment plant area

Photo: 2

Date:
June 2016

Description:
Drilling activities by subcontractors during installation of groundwater monitoring well WWTP-2

Location:
Former wastewater treatment plant area

Project Photographs

RCRA Facility Investigation Supplemental Sampling Report
Former Caribbean Petroleum Corporation Refinery/Terminal
Bayamón, Puerto Rico

Photo: 3

Date:
June 2016

Description:
General view of the sampled area, direction: southeast

Location:
Former oil lagoons (SWMU 11)

Photo: 4

Date:
June 2016

Description:
Sampling activities

Location:
SWMUs 33, 34, and 35 area

APPENDIX C

Field Documents

B0063764

Rite in the Rain®

ALL-WEATHER

UNIVERSAL

№ 371FX-M

RCRA RFI

USEPA

11-abril-2016

0645: Mariangela Heredia Burgos (personal de BBL Caribe) comprando hielo y agua para hidratacion en el campo.
0700: Llegada a BBL Caribe a buscar auto alquilado con equipo.
0730: Llegada a estadio del Terminal junto con personal de Groenrotech: William Rodriguez, Hardy Rodriguez y Yelitza Morales a proceso de registrarse en el guardia de seguridad. Se llamo a Brenda Corano para acceso. (por Raquel Vargas)
0800: Se formaron parejas Caliente y general. Nelson Aponte nos pidio los JSA's para actualizarse y pidio informacion de las tareas a realizarse.
0830: Se comenzo Charla de seguridad, discusion de JSA's y firma de permisos
0900: Se marcaron los puntos a banderear, por Efrain Calderon, se discutieron los estructu

Rellenado en el área con Brenda Lorato.
Se comienzan tareas de rotrico de utilidades.
0920: EB-041116
0930: Comienza muestreo con handauger en SB-1 del área de WWTP. Se muestreó duplicado de este muestra Dup 1. a las 1010 junto con muestra WWTP-SB-1-2-3. Este muestra fue seleccionada ya que esta localizada

antes del nivel freático detectado según los muestras, basado en consistencia y seguir de información de niveles de pozos aledaños.
1030: FB-041116, TB-041116.
El material geológico varía de "silty clay", "clay" y "sandy clay".
1100: Se midió nivel del agua en el barreno a DTW = 5.0' desde la superficie.

Luego comenzó a llover por 3ra vez en la mañana de hoy. Las 2 veces anteriores tomó 20 min cada una aproximadamente.
11:30-12:30: almuerzo.
1300: Nivel de agua medido desde la superficie fue: DTW = 4.5'
Luego de proseguí a instalar el pozo. por medio de HSA a una profundidad estimada de 13'.

1420: Se terminó de instalar el pozo. Ver Well log para detalle de construcción. Personal se dirigió a preparar area de descontaminación de equipo.
1530: Se entregó radio y permisos a Raquel.
1545: Salida del terreno junto con personal de CET.
1600: Comprando hielo para las muestras
1630: Llegada a la oficina. Nelda

12-abril-16

0030- Llegada a Arcadis Oficina Maciana Mercado Burzor. a buscar radio de Charlie para utilizar en el terminal, gases de Calibración que dejó Efraín y bajar del estacionamiento de Arcadis para acceso mas directo a la Oficina.

0700: Llegada al Terminal.

0730: Llegada al Terminal de personal de Gulfstream. Fr. William Rodriguez y Héctor Babilonia. Guardia de seguridad en la entrada nos pregunto si habíamos tomado charla de seguridad de Puma a lo que se le contesto que no ya que mi GET ni el personal de Arcadis presente lo habían tomado anteriormente. Guardia se comunico con Nelson y Brenda Lozano.

Brenda Lorano le informo que nos dejaiz entrar. Mariaela fue hablar con Brenda y se acordó que en el día de hoy en la tarde luego de terminar los pozos lo tomaremos junto con el training de escolta.

0800: Charla de seguridad de Arcadis a GET. Se firmaron los permisos aprobados por Brenda Gen. # 1220 HW-0053.

0825: EB-041216

0829: Se comenzó muestreo de suelo con Mandanga.

0851: WWTP-SB-2-45 Se tomó esta muestra basada en la presencia de humedad de la columna sedimentología ya que se encuentra por encima del nivel freático.

0935: EB-041216.

Nota: Se detecto bastante humedad al introducir el probe

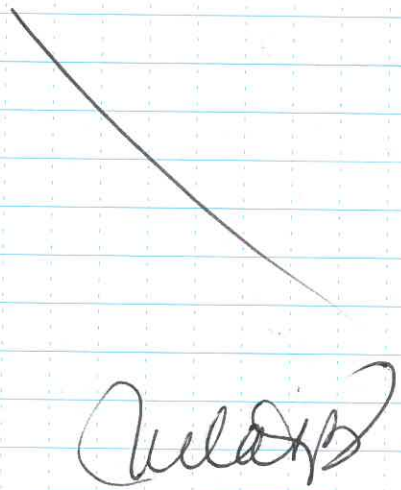
del interface ya que salió con sedimento y agua sin embargo la formación colapso unos le pies. Se procedió a introducir los barrenos para ampliar el barreno y ver si entra el agua. 1040: no se detecto entrada de agua. Se procedió a sacar los barrenos para dejarle tiempo de entrada. Ahora mismo la profundidad del barreno está en 13'4" desde la superficie. El probe sale un poco húmedo. Se procedió a introducir los barrenos para bajar mas de 13'4" como hasta ~15 para ver si agilizaba la recarga.

1130-1230: Almuerzo
1235: DTW = 0' no se detectó. pero se observó lodo mojado en el probe. Basado en datos de pozos aledaños como B-1 y B-9

los ciclos en fase de desarrollo se recan fácilmente, se tomó la decisión de instalar el pozo a una profundidad estimada de ~15. Se espera que, al igual que los pozos mencionados, este tarden en recargar por el alto contenido de arcilla y además el área ha sido compactada por las actividades de demolición, recargue el pozo en 1-2 días. Luego de

preparó el pad y baleros del pozo.
1410: Se dejaron baleros puestos en el pozo primero (WOTP-1) para mañana temprano y preparar el pad.
Luego nos dirigimos a tomar el training Charla de seguridad de Permisos requeridos Anual. Se preparó cadena de custodia.
1600: Llegada a Brasil. Se envió email a Efrain

de las tareas realizadas y lo que quedo pendiente:



13 - abril - 16

0700: Llegada a Arcos (Mariscal Mercado Bruno) a buscar camioneta con equipo.
0730: Llegada al terminal junto con Personal de Geoseminkch. William Rodriguez.
0745: Se aprobaron los permisos de trabajo por Brenda Lorano. Gen # 1245 y hw # 0054.
0800: Charla de seguridad y firma de documentos de campo, JSA's. Luego nos dirigimos a buscar

los puntos marcados por Efraín y Hardy el lunes pasado 11 abril. 0850: Se encontraron los puntos marcados para acceso a esta área utilizamos la grapa de Geoenvirotech que es Diesel. Volvimos al área de los pozos en WWTP a terminar de instalar los bolardos y el pad del pozo # 1. 0950: Se terminó de instalar bolardos y pad se recogió equipo incluyendo la máquina de barrenado para moverla hacia el área M. 1015: EB-041316 1037: Se colectó muestra de suelo en área M ó área de "former old Lagoons" (SWMU 11). La muestra que ubica más al sur se nombró FOL-1-116. Los suelos en este área variaron desde arcillas hasta mayormente "coarse to very coarse sand". La muestra fue tomada

a las 16' de acuerdo a lo estipulado en la propuesta aprobada.
1115: FOL-2-16 ubicada al norte 7mts respecto al punto 1 de muestreo. Los suelos también varían entre arcillas y arenas gruesas. No se detecto nivel freático. Solo había un poco de humedad a eso de los 18-30'. Las coordenadas de estos puntos son:

FOL-1-16:
18°25'7"
-66°7'47"

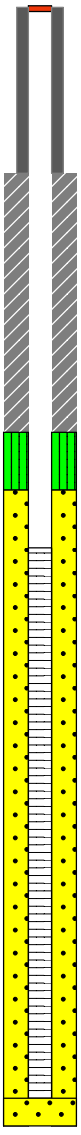
FOL-2-16:
18°25'7"
-66°7'48"

1130: FB-041316
Luego se prepara: Cerveza, cadena de custodia, muestras con labels y personal de GET punto los baldes y pozos.
1335: Se entregan

Nuestros en Pace.
1410: Regresamos
al Terminal para
hacer decm, recojo
equipo de GET,
cerrar permiso,
mencionar que
cierre el area donde
se realizó decm.
1445: Salida del Terminal
1520: Llegada a la
Oficina a informar
sobre las tareas de
hoy en Etrán.

Client:	Puma Energy Caribe, LLC	**Date Start/Finish:**	April 11, 2016	**Boring ID:**	WWTP-SB-1
Location:	Puma Energy Caribe Terminal, Bayamón, Puerto Rico	**Drilling Company:**	GeoEnviroTech, Inc.	**Borehole Depth:**	17.5'
Northing:	18 25'02.50"	**Driller's Name:**	W. Rodriguez	**Well ID:**	WWTP-1
Easting:	-66 08'09.99"	**Drilling Method:**	HA, DP	**Well Depth:**	16.48'
Descriptions by:	Marianela Mercado-Burgos	**Sampling Method:**	HA, DP	**Casing Elevation:**	2.90' ags
		Sampler Size:	2" ID 4' L	**Surface Elevation:**	NA
				▼ **Water Level:**	4.28'

DEPTH ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	USCS Code	Geologic Column	Stratigraphic Description
0 0	1	HA	1	0	GM		FILL: Gray (10YR 5/1) SILTY GRAVEL, silt to granules (75%), small to medium pebbles (25%), angular to subangular, medium sphericity, dry, very loose.
	2	HA	1	0	GM		
	3	HA	1	0	CH		Alluvial Deposits (Qa): Dark grayish brown (10YR 4/2) CLAY, high plasticity, 20% organic material content, strong odor
	4	HA	1	0	CL		Alluvial Deposits (Qa): Dark yellowish brown (10YR 3/6) SILTY CLAY, medium plasticity, silt 30%, soft
	5	HA	1	0	CL		
5 -5	6	DP	1	0	CL		
	7	DP	1	0	CL		
	8	DP	1	0	CH		Alluvial Deposits (Qa): Dark yellowish brown and gray CLAY, high plasticity, soft
	9	DP	1	0	CH		
	10	DP	1	0	CL		Alluvial Deposits (Qa): Dark yellowish brown and gray SILTY CLAY, (60% clay) medium plasticity, soft
10 -10	11	DP	1	0	CL		
	12	DP	1	0	CL		
	13	DP	1	0	CL		
	14	DP	1	0	CL		
	15	DP	1	0	CL		Alluvial Deposits (Qa): Dark yellowish brown and gray SANDY CLAY, medium to coarse sand (70%), wet
15 -15	16	DP	1	0	CL		
	17	DP	1	0	CL		



BBL Caribe ARCADIS

#48 City View Plaza I, Suite 401, Rd 165, km 1.2
Guaynabo, Puerto Rico 00968

Project No.: B0063764 Project Manager: Efraín Calderón Date: 7/7/2016

Template:

Remarks:

NA = Not Applicable/Available
HA=Hand Auger
DP= Direct Push
NR = No Recovery
HSA= Hollow Stem Auger
SS= Split Spoon

Client:	Puma Energy Caribe, LLC	**Date Start/Finish:**	April 12, 2016
Location:	Puma Energy Caribe Terminal, Bayamón, Puerto Rico	**Drilling Company:**	GeoEnviroTech, Inc.
Northing:	18 25'03.10"	**Driller's Name:**	W. Rodriguez
Easting:	-66 08'06.68"	**Drilling Method:**	HA, DP
Descriptions by:	Marianela Mercado-Burgos	**Sampling Method:**	HA, DP
		Sampler Size:	2" ID 4' L

Boring ID:	WWTP-SB-2
Borehole Depth:	17.5'
Well ID:	WWTP-2
Well Depth:	18.87'
Casing Elevation:	2.90' ags
Surface Elevation:	NA
Water Level:	11.26'

DEPTH ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID (ppm)	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
0 0	1	HA	1	0	SM		Alluvial Deposits (Qa): Brown (10YR 4/3) SILTY SAND, very fine sand to veru coarse sand (75%), silt and clay (10%), granules to small pebbles (15%), angular to subangular, dry, very loose, very thin roots present 1-3%.	Protective casing
	2	HA	1	0	SM			
	3	HA	1	0	ML		Alluvial Deposits (Qa): Brown CLAYEY SILT, blocky structure, dry, silt (70%), clay (30%)	concrete
	4	HA	1	0	SM			
	5	HA	1	0	SM		Alluvial Deposits (Qa): Brown (10YR 4/3) SILTY SAND, very fine sand to veru coarse sand (75%), silt and clay (10%), granules to small pebbles (15%), angular to subangular, dry, very loose, very thin roots present 1-3%.	
5 -5	6	DP	1	0	SM			bentonite
	7	DP	1	0	SM		Alluvial Deposits (Qa): Dark grayish brown (10YR 4/2) SILTY SAND, silt (10%), fine to very coarse sand (80%), small to medium pebbles (10%), subrounded to subangular, dry to wet,	sand
	8	DP	1	0	CL			screen
	9	DP	1	0	CL			
	10	DP	1	0	CL		Alluvial Deposits (Qa): Dark yellowish brown (10YR 4/4) SILTY CLAY, silt (30%), clay (70%), moist to wet	
10 -10	11	DP	1	0	CL		Alluvial Deposits (Qa): Dark gray (5Y 4/1) SILTY CLAY, silt (30%), clay (70%), moist, high plasticity	
	12	DP	1	0	CL			
	13	DP	1	0	SC		Alluvial Deposits (Qa): Dark yellowish brown CLAYEY SAND, clay (40%), fine to coarse sand (60%), wet	
	14	DP	1	0	SC			
	15	DP	1	0	CH		Alluvial Deposits (Qa): Dark yellowish brown and dark gray CLAY, high plasticity, moist to wet, strong odor	
15 -15	16	DP	1	0	CH			
	17	DP	1	0	CL		Alluvial Deposits (Qa): Dark yellowish brown (10YR 4/4) SILTY CLAY, silt (30%), clay (70%), moist, crumbles easily	
	18	DP	1	0	CL			
	19	DP	1	0	CL		Alluvial Deposits (Qa): Brown SANDY CLAY, fine to medium sand (10%), high plasticity, moist to wet	

0
5
10
15

BBL Caribe ARCADIS

#48 City View Plaza I, Suite 401, Rd 165, km 1.2
Guaynabo, Puerto Rico 00968

Project No.: B0063764 Project Manager: Efraín Calderón Date: 7/7/2016

Template:

Remarks:

NA = Not Applicable/Available
HA=Hand Auger
DP= Direct Push
NR = No Recovery
HSA= Hollow Stem Auger
SS= Split Spoon

BBL Caribe ARCADIS

Sample/Core Log

Boring/Well WWTP-SB-1 Project No. B0063764 Page 1 of ____

Site Location WWTP, Puma Terminal Drilling Started April 11, 16 Drilling Completed ____

Total Depth Drilled 21 Feet Hole Diameter 3 inches Type of Sample/ Coring Device grab

Length and Diameter of Coring Device 4' x 2.5" Sampling Interval 1 Feet

Land Surface Elevation ____ Feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used N/A Drilling Method Direct Push / HSA

Drilling Contractor Gweniwtech, Inc. Driller W. Rodriguez Helper H. Rodriguez

Prepared by Marianela Mercado Burgos Hammer Weight N/A Hammer Drop N/A ins

Time	Sample Depth (feet bgs) From	To	Core Recovery (Feet)	PID Reading with depth interval (ppm)	Sample/Core Description
0940	0	1	1	0	(10YR (5/1)) Gray silt to very coarse sand/granules (75%), small to medium pebbles angular to subangular, medium sphericity, dry, very loose.
0959	1	2	1	0	Same as above, dry (FILL)
1010	2	3	1	0	(10YR 4/2) Dark grayish brown clay, high plasticity, high organic material (20%) strong odor.
1021	3	4	1	0	(10YR 3/6) Dark yellowish brown ~~silty~~ clay, medium plasticity (silt 30%) clay 70% soft.
1029	4	5	1	0	Same as above.
1035	6	7	1	0	Same as above, strong odor
1041	7	9	2	0	Dark yell. brown and gray clay, high plasticity, soft.
1055	9	13	4	0	same as above color but silty clay (silt 40%, clay 60%)

BBL Caribe ARCADIS

Sample/Core Log (Cont.)

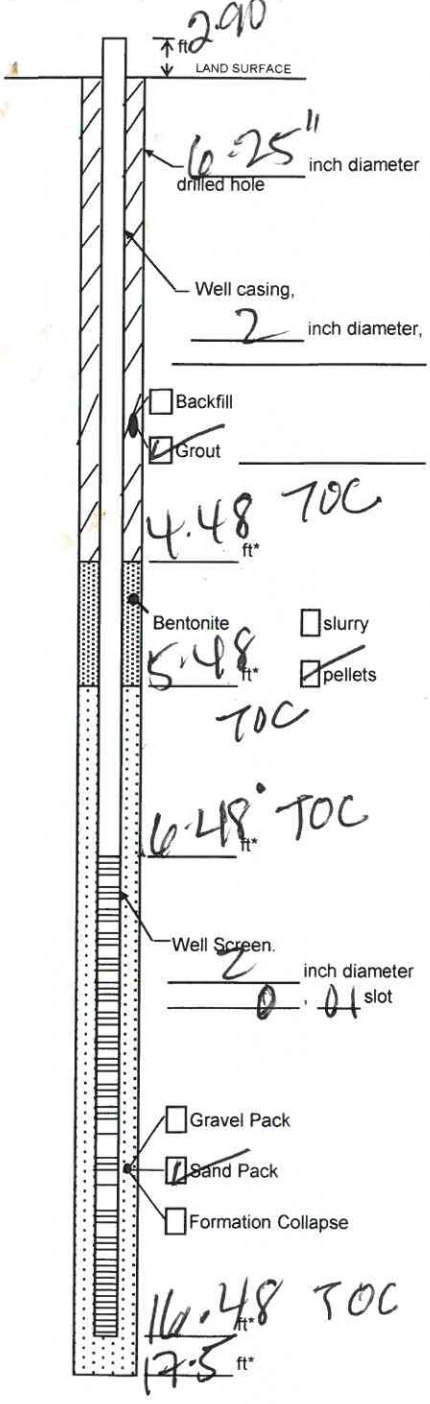
Boring/Well _____ Project No. _____ Page _____ of _____

Time	Sample Depth (feet bgs) From	To	Core Recovery (Feet)	PID Reading with depth interval (ppm)	Sample/Core Description
1100	13	14	1	0	Same as above.
1105	14	17	3	0	Same as above color Sandy clay, sand med. to coarse (some) clay some wet, very soft.
1110	17	18	1	0	Same as above, wet
1111	18	19	1	0	Same as 7-9, wet
1124	19	21	3	0	Same as 14-17, wet

BBL Caribe ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project BQ063764 Well WWTP-1

Town/City Bayamón (Puma Terminal)

County State PR

Permit No. G 1219 / H-0052

Land-Surface Elevation and Datum:

____ feet ☐ Surveyed ☐ Estimated

Installation Date(s) 4/11/16

Drilling Method HSA

Drilling Contractor G-Envirotech, Inc.

Drilling Fluid N/A

Development Technique(s) and Date(s)

Fluid Loss During Drilling ____ gallons

Water Removed During Development ____ gallons

Static Depth to Water ____ feet below M.P.

Pumping Depth to Water ____ feet below M.P.

Pumping Duration ____ hours

Yield ____ gpm Date ____

Specific Capacity ____ gpm/ft

Well Purpose monitoring well

Remarks DTW = 4.28' TOC

Prepared by

BBL Caribe ARCADIS

Sample/Core Log

Boring/Well UWTP-SB-2 Project No. BBV63764 Page 1 of 2

Site Location Puma Terminal, UWTP Drilling Started 4/12/16 Drilling Completed 4/12/16

Total Depth Drilled 21 Feet Hole Diameter 3 inches

Type of Sample/ Coring Device grab

Length and Diameter of Coring Device 4' x 25" Sampling Interval 1 Feet

Land Surface Elevation _____ Feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used N/A Drilling Method Direct Push / HA

Drilling Contractor Geoenvirotech Inc. Driller W. Rodriguez Helper H. Babilonia

Prepared by Marianela Morales Burgos Hammer Weight N/A Hammer Drop N/A ins

Time	Sample Depth (feet bgs) From	To	Core Recovery (Feet)	PID Reading with depth interval (ppm)	Sample/Core Description
0829	0	1	1	0	(10YR 4/3) Brown Silty Sand. Very fine sand to very coarse sand (75%), Silt and clay 10%, granules to small pebbles 15%. (angular to sub angular) dry, very loose. Very fine roots present at 1-3%.
0833	1	2	1	0	Same as above.
0844	2	3	1	0	Brown clayey Silt, blocky structure, dry, (70% Silt, 30% clay).
0847	3	4	1	0	Same as 0-1.
0851	4	5	1	0	(10YR 4/2) Dark grayish brown Silty Sand. (Silt 30%, ~~very fine~~ to very coarse sand 80%), dry to moist. (10% small to med. pebbles, subrounded to sub angular).
0910	5	7	2	0	Same as above, moist to wet.
0915	7	8.5	1.5	0	Dark yell. brown (10YR 4/4)

BBL Caribe ARCADIS

Sample/Core Log (Cont.)

Boring/Well _____ Project No. _____ Page ____ of ____

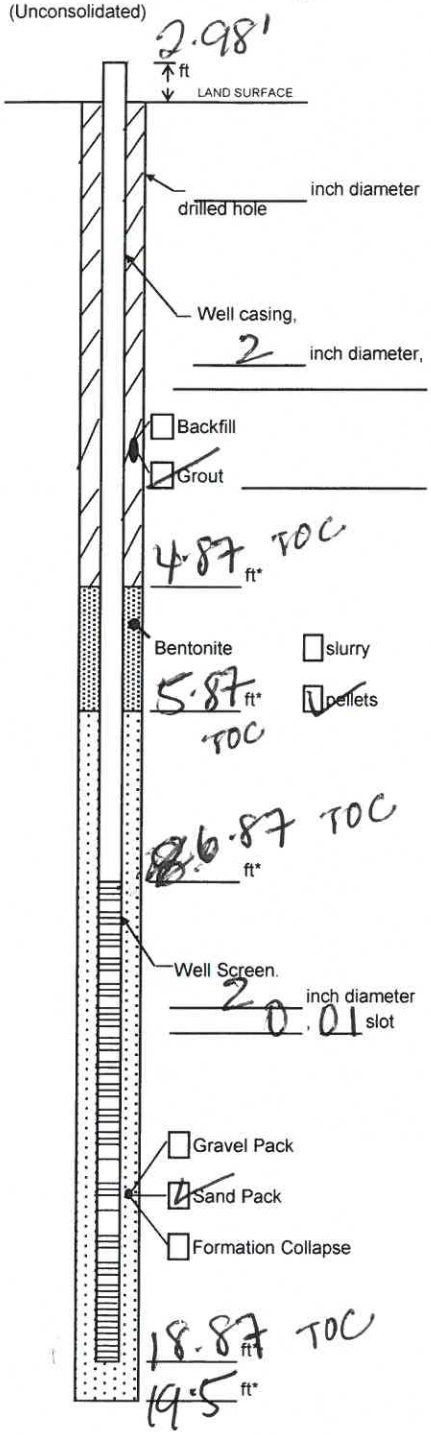
Time	Sample Depth (feet bgs) From	To	Core Recovery (Feet)	PID Reading with depth interval (ppm)	Sample/Core Description
					Silty clay (70%, 30%), moist to wet. Soft.
0918	8.5	12	3.5	0	~~Same as~~ Dark gray (5Y 4/1) Silty clay (70% 30%) moist, high plasticity.
0919	12	14	1	0	Dark yel. brown clayey sand clay 40%, fine to coarse sand 60%. wet
0925	14	16	2	0	Dark yel brown to dark gray clay, high plasticity, moist to wet (strong odor).
0926	16	17	1	0	Same as 7-8.5, crumbles easily. moist.
0930	17	20	3	0	↳ Brown sandy clay, sand 10% fine to medium. high plasticity, wet + moist
0931	20	21	1	0	Dark yel. brown to dark gray sandy clay (60% 40%) moist to wet, high plasticity.

Helath

BBL Caribe ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project B0063764 Well WWTP-2

Town/City Bayamon Terminal Pump

County _____ State P.R.

Permit No. Gen #1220 HW = 0053

Land-Surface Elevation and Datum:

_____ feet ☐ Surveyed ☐ Estimated

Installation Date(s) 12-abril-16

Drilling Method HSA

Drilling Contractor Geoenvtech, Inc.

Drilling Fluid N/A

Development Technique(s) and Date(s)

Fluid Loss During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

Well Purpose Monitoring Well at WWTP area

Remarks DTW = 11.26' TOC

Prepared by

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1968673

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: BBL Caribe / Arcadis	Report To: Efrain Caldemon	Attention:
Address: Carr 165 Km 1.2 Guaynabo PR City View Plaza I Ste 401	Copy To:	Company Name:
	Purchase Order No.:	Address:
Email To: efrain.caldemon@arcadis.com	Project Name: RCRA RFI - USEPA	Pace Quote Reference:
Phone: 787-777-4000 Fax:	Project Number: B0063764	Pace Project Manager:
Requested Due Date/TAT:		Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☑ RCRA ☐ OTHER _____

Site Location STATE: Terminal PR Plume

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information: SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	BTEX	Ethanol	TPH GRO	MTBE	TPH DRO	TPH DRO	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	EB-041116		WT	G			4/11/16	0920		5	2			3							✓	✓	✓	✓	✓			
2	WWTP-SB-1-2-3		SL	G			4/11/16	1010		2	2										✓	✓	✓	✓	✓			
3	DUP1		SL	G			4/11/16	0000		2	2										✓	✓	✓	✓	✓			
4	EB-041116		WT	G			4/11/16	1030		3				3							✓	✓	✓	✓				
5	TB-041116		WT	G			4/11/16	0000		3				3							✓	✓	✓					
6	EB-041216		WT	G			4/12/16	0825		5	2			3							✓	✓	✓	✓	✓			
7	WWTP-SB-2-4-5		SL	G			4/12/16	0851		2	2										✓	✓	✓	✓	✓			
8	EB-041216		WT	G			4/12/16	0935		3				3							✓	✓	✓					
9	EB-041316		WT	G			4/13/16	1015		5	2			3							✓	✓	✓	✓	✓			
10	FB-041316		WT	G			4/13/16	1130		3				3							✓	✓	✓					
11	FOL-1-16		SL	G			4/13/16	1037		2	2										✓	✓	✓	✓	✓			
12	FOL-2-16		SL	G			4/13/16	1115		2	2										✓	✓	✓	✓	✓			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	[illegible]	4/13/16	1230	[illegible]	4/14/16	13:30	

2

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Manuela Mercado Burgos

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY):

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

BBL Caribe ARCADIS

Utilities and Structures Checklist

Project: RCRA RFI - USEPA
Project Number: BDV63764
Date: 11-April-16
Work locations applicable to this clearance checklist:

WWTP- SB-1

Pre-Field Work

One Call or "811" notified 48-72 hours in advance of work? ☐ Yes ☑ No
Utility companies notified during the One Call process ☐ See attached ticket

List any other utilities requiring notification: ☐ None

Client provided utility maps or "as built" drawings showing utilities? ☐ Yes ☐ No

Field Work

Markings present: ☐ Paint ☐ Pin flags/stakes ☐ Other ☑ None

Subsurface Utility Lines of Evidence Used (3 Minimum):

☐ One Call/"811"
☐ Client Provided Maps/Drawings **OR** ☐ Maps/Drawings requested but not provided
☐ Client Clearance
☐ Interviews: Name(s)/Affiliation(s)

Did persons interviewed indicate depths of any utilities in the subsurface?
☐ Yes, depths provided:

☐ Did not know or refused to answer

Comments:

☐ Site Inspection
☑ GPR
☐ Air-Knife
☐ Hydro-Knife
☐ Public Records/Maps
☑ Radiofrequency
☑ Metal Detector
☑ Handauger
☐ Potholing
☐ Probing
☐ Private Locator:
☐ Marine Locator:
☐ Other:

Tips for Successful Utility Location:
1. No excessive turning or downward force of handaugers/shovels, etc.
2. No hammering- no pickaxes-no digging bars-no hurrying or shortcutting
3. Select alternate/backup locations for clearance
4. Utilities may run directly under asphalt/concrete or be > 5 ft depth
5. Be on site when utilizing private utility locators

Name and Company: Greenwatch, Inc.
Name and Company:

TRACK

BBL Caribe ARCADIS

Site Inspection

During inspections look for the following ("YES" requires follow up investigation):

		Utility color codes		
a)	Natural gas line present (evidence of a gas meter)?	Yellow	☐ Yes	☒ No
b)	Evidence of subsurface electric lines :	Red		
	i) Conduits to ground from electric meter?		☐ Yes	☒ No
	ii) Overhead electric lines absent		☐ Yes	☒ No
	iii) Light poles, electric devices with no overhead lines?		☐ Yes	☒ No
c)	Evidence of water lines:	Blue		
	i) Water meter on site?		☐ Yes	☒ No
	ii) Fire hydrants in vicinity of work?		☐ Yes	☒ No
	iii) Irrigation systems?		☐ Yes	☒ No
d)	Evidence of sewers or storm drains:	Green		
	i) Restrooms or kitchen on site?		☐ Yes	☒ No
	ii) Gutter down spouts going into ground		☐ Yes	☒ No
	iii) Grates in ground in work area		☐ Yes	☒ No
e)	Evidence of telecommunication lines:	Orange		
	i) Fiber optic warning signs in areas?		☐ Yes	☒ No
	ii) Lines from cable boxes running into ground?		☐ Yes	☒ No
	iii) Conduits from power poles running into ground?		☐ Yes	☒ No
	iv) Aboveground boxes or housings in work area?		☐ Yes	☒ No
f)	Underground storage tanks:			
	i) Tank pit present?		☐ Yes	☒ No
	ii) Product lines running to dispensers/buildings?		☐ Yes	☒ No
	iii) Vent present away from tank pit?		☐ Yes	☒ No
g)	Proposed excavation markings in work area?	White	☐ Yes	☒ No
h)	Other: (Pink color lines)			
	i) Evidence of linear asphalt or concrete repair		☒ Yes	☐ No
	ii) Evidence of linear ground subsidence or change in vegetation?		☒ Yes	☐ No
	iii) Manholes or valve covers in work area?		☐ Yes	☒ No
	iv) Warning signs ("Call Before you Dig", etc) on or adjacent to site?		☐ Yes	☒ No
	v) Utility color markings not illustrated in this checklist?		☒ Yes	☐ No
i)	Aboveground lines in or near the work area:			
	i) < 50 kV within 10 ft of work area?		☐ Yes	☒ No
	ii) >50 - 200 kV within 15 ft of work area?		☐ Yes	☒ No
	iii) >200-350 kV within 20 ft of work area?		☐ Yes	☒ No
	iv) >350-500 kV within 25 ft of work area?		☐ Yes	☒ No
	v) >500-750 kV within 35 ft or work area?		☐ Yes	☒ No
	vi) >750-1000 kV within 45 ft of work area?		☐ Yes	☒ No

Comments:

h) Pink lines (2) at about 4-5' West from SB-1 at WWTP Area.

Do not initiate intrusive work if utilities are suspected to be present in area and are not located, markings are over 14 days old, or if clearance methods provide incomplete or conflicting information. Do not perform intrusive work within 30 inches of a utility marking without hand clearing.

Name and signature of person completing the checklist:

Name: Marianela Merced Burgos

Signature:

Date: 11-abril-16

BBL Caribe ARCADIS

Utilities and Structures Checklist

Project: RCRA RFI - USEPA
Project Number: BD0637164
Date: 11-abril-16
Work locations applicable to this clearance checklist:

WWTP-SB-2

Pre-Field Work

One Call or "811" notified 48-72 hours in advance of work? ☐ Yes ☑ No
Utility companies notified during the One Call process ☐ See attached ticket

List any other utilities requiring notification: ☐ None

Client provided utility maps or "as built" drawings showing utilities? ☐ Yes ☐ No

Field Work

Markings present: ☐ Paint ☐ Pin flags/stakes ☐ Other ☑ None

Subsurface Utility Lines of Evidence Used (3 Minimum):

☐ One Call/"811"
☐ Client Provided Maps/Drawings **OR** ☐ Maps/Drawings requested but not provided
☐ Client Clearance
☐ Interviews: Name(s)/Affiliation(s)

Did persons interviewed indicate depths of any utilities in the subsurface?
☐ Yes, depths provided:

☐ Did not know or refused to answer

Comments:

☐ Site Inspection
☑ GPR
☐ Air-Knife
☐ Hydro-Knife
☐ Public Records/Maps
☑ Radiofrequency
☐ Metal Detector
☑ Handauger
☐ Potholing
☐ Probing
☑ Private Locator: Name and Company: Geomatrotech, Inc.
☐ Marine Locator: Name and Company:
☐ Other:

Tips for Successful Utility Location:
1. No excessive turning or downward force of handaugers/shovels, etc.
2. No hammering- no pickaxes-no digging bars-no hurrying or shortcutting
3. Select alternate/backup locations for clearance
4. Utilities may run directly under asphalt/concrete or be > 5 ft depth
5. Be on site when utilizing private utility locators

TRACK

BBL Caribe ARCADIS

Site Inspection

During inspections look for the following ("YES" requires follow up investigation):

		Utility color codes		
a)	Natural gas line present (evidence of a gas meter)?	Yellow	☐ Yes	☑ No
b)	Evidence of subsurface electric lines :	Red		
	i) Conduits to ground from electric meter?		☐ Yes	☑ No
	ii) Overhead electric lines absent		☐ Yes	☑ No
	iii) Light poles, electric devices with no overhead lines?		☐ Yes	☑ No
c)	Evidence of water lines:	Blue		
	i) Water meter on site?		☐ Yes	☑ No
	ii) Fire hydrants in vicinity of work?		☐ Yes	☑ No
	iii) Irrigation systems?		☐ Yes	☑ No
d)	Evidence of sewers or storm drains:	Green		
	i) Restrooms or kitchen on site?		☐ Yes	☑ No
	ii) Gutter down spouts going into ground		☐ Yes	☑ No
	iii) Grates in ground in work area		☐ Yes	☑ No
e)	Evidence of telecommunication lines:	Orange		
	i) Fiber optic warning signs in areas?		☐ Yes	☑ No
	ii) Lines from cable boxes running into ground?		☐ Yes	☑ No
	iii) Conduits from power poles running into ground?		☐ Yes	☑ No
	iv) Aboveground boxes or housings in work area?		☐ Yes	☑ No
f)	Underground storage tanks:			
	i) Tank pit present?		☐ Yes	☑ No
	ii) Product lines running to dispensers/buildings?		☐ Yes	☑ No
	iii) Vent present away from tank pit?		☐ Yes	☑ No
g)	Proposed excavation markings in work area?	White	☐ Yes	☑ No
h)	Other:			
	i) Evidence of linear asphalt or concrete repair		☐ Yes	☑ No
	ii) Evidence of linear ground subsidence or change in vegetation?		☐ Yes	☑ No
	iii) Manholes or valve covers in work area?		☐ Yes	☑ No
	iv) Warning signs ("Call Before you Dig", etc) on or adjacent to site?		☐ Yes	☑ No
	v) Utility color markings not illustrated in this checklist?		☐ Yes	☑ No
i)	Aboveground lines in or near the work area:			
	i) < 50 kV within 10 ft of work area?		☐ Yes	☑ No
	ii) >50 - 200 kV within 15 ft of work area?		☐ Yes	☑ No
	iii) >200-350 kV within 20 ft of work area?		☐ Yes	☑ No
	iv) >350-500 kV within 25 ft of work area?		☐ Yes	☑ No
	v) >500-750 kV within 35 ft or work area?		☐ Yes	☑ No
	vi) >750-1000 kV within 45 ft of work area?		☐ Yes	☑ No

Comments:
Area was the former Waste Water treatment plant and was filled with soil. Boring area was cleared.

Do not initiate intrusive work if utilities are suspected to be present in area and are not located, markings are over 14 days old, or if clearance methods provide incomplete or conflicting information. Do not perform intrusive work within 30 inches of a utility marking without hand clearing.

Name and signature of person completing the checklist:

Name: Manuela Ulrado Buzzo
Signature:
Date: 11-abril-14

ARCADIS Design & Consultancy for natural and built assets

Site Specific Health and Safety Plan

Revision 13b, 3/9/2016

Project Name: RCRA RFI - USEPA PUMA

Project Number:	B0063764
Client Name:	Puma Energy Caribe, LLC
Date:	3/23/2016
HASP Expires	3/23/2017
Revision:	0

Approvals:

HASP Developer: Marianela Mercado-Burgos

Project Manager: Efraín Calderón

HASP Reviewer:

X Gisela Hdz

Signed by: gisela.hernandezrivera@arcadis-us.com

Diving HASP

(LHPS)

Emergency Information

Site Address: **Puma Energy Caribe, LLC Terminal**
Road # 28, Km 2.0, Luchetti Industrial Park,
Bayamón, PR 00965

Emergency Phone Numbers:

Emergency (fire, police, ambulance)		**911**
Emergency (facility specific, if applicable):		
	Hospital HIMA San Pablo	787-620-4747
Emergency Other (specify)		**911**
Client Contact	Brenda Toraño	787-966-7331
WorkCare (non-life-threatening injury/illness)		1-888-449-7787
Project H&S	Gisela Hernández	787-378-9430
Task Manager		
Project Manager	Efraín Calderón	787-397-2245
Corporate H&S Specialist	Sharon Lingle	864-331-9940
Corporate H&S Director	Denis Balcer	614-778-9171

Hospital Name and Address: **Hospital HIMA San Pablo**
70 Calle Santa Cruz
Bayamón, Puerto Rico
00959

Hospital Phone Number: **787-620-4747**

Incident Notification Process

1 Dial 911/Facility Emergency Number/WorkCare as applicable	
2 Contact PM/Supervisor	Efraín Calderón
3 Contact Corporate H&S	Denis Balcer
4 Contact Client	Brenda Toraño

Complete below, as applicable, or clear cell contents:

Location of Assembly Area(s): To be determined on Site, follow Site directions

Nearest AED location: To be determined on Site: office building
Nearest Storm Shelter: To be determined on Site: cars, canopy, offices

General Information

Site Type (select all applicable where work will be conducted):

- [x] Active
- [ ] Bridge
- [ ] Buildings
- [ ] Commercial
- [ ] Construction
- [ ] Military Installation
- [ ] Inactive Industrial
- [ ] Active Industrial
- [x] Landfill
- [ ] Marine
- [ ] Mining
- [ ] Parking Lot/Private Roadway
- [ ] Railroad
- [x] Remote Area
- [ ] Residential
- [ ] Retail
- [ ] Roadway (public, including right-of-way)
- [ ] Water Treatment Plant (former)
- [x] Unknown
- [ ] Security Risk Site/Location
- [ ] Utility
- [x] Other (specify): Storage and Distribution Center
- [x]

If a lone worker is used on the project, additional communication and emergency action planning for lone worker required.

Surrounding Area and Topography (select one):

- [ ] Surrounding area and topography are presented in the project work plan
- [ ] Surrounding area and topography (*briefly describe*):
- [x] **Topography varies approx. from 2- 40 ft amsl decreasing from south to north. The northern area includes a wetland. There are two creeks crossing the property visible at the wetland (Diego and Las Lajas creeks). Another creek (Sta. Catalina) is located at the east of the property.**

Simultaneous Operations (SimOps)

- [ ] Not applicable
- [ ] SimOps will exist on this project
- [ ] **Normal operations of client. Posibility of other contractors to be working on Site**
- [x]

Site Background (select one):

- [ ] Site background is presented in the project work plan
- [ ] Site background (*briefly describe)* :
- [ ] **The Site is the main hydrocarbon fuel storage of Puma Energy Caribe in the Puerto Rico dedicated to storage and distribution. Distribution include transportation of fuels via pipelines and trucks. Fuels include: Jet Fuel, Diesel, Gasoline, Ethanol, Propane and Butane Gas. The Site has been under federal and local environmental investigation including the monitoring of contaminants in soil and water.**
- [x]

Project Tasks
The following tasks are identified for this project:

Examples: "Drilling/soil sampling", "Surveying", "General Inspections", "Construction Management/Inspections"

1 **Soil Sampling**
2 **Well Installation**
3 **Utility Clearance**
4 **Groundwater Sampling/purging**
5 **Mobilization/Demobilization**
6 **Vegetation Clearance**

☑ Subcontractor H&S information is attached
☑ Utility clearance required.
☐ Journey Management Plan attached
☐ State specific H&S required:

☐ The following H&S Standards are attached:
Not applicable
Not applicable

Comments:

Roles and Responsibilities

	Name	*Role*	*Additional Responsibilities (Describe)*
1	Efraín Calderón	PM	
2	Antonio Perez	SSO	Field technician/Field Lead
3	Marianela Mercado Burgos	SSO	Geologist/Field Lead
4	Eliot Delgado	SSO	Field technician/Field Lead
5	Andres Colom	SSO	Field technician/Field Lead
6	Fernando Colom	SSO	Field technician/Field Lead

Training

All Arcadis employees are required to have the following training to be on site:	*Selected Arcadis employees are required to have the following additional training:*	Names or Numbers from above MM/ED/AP/FC/AC
H&S Program Orientation	Fire Extinguisher	
HAZCOM GHS/EAP	Benzene - General Awareness	
Defensive Driving - Smith On-Line		
Hazwoper 40 Hour		
Hazwoper 8-Hour Annual Refresher		
BBP (Bloodborne Pathogens)		
First Aid/CPR		
DOT HazMat #1	None	
None	None	
None	None	
None	None	
None	None	
None	None	
Client specific:		
API Work Safe		
Other:	Other:	
General Puma Terminal Orientation		

Task 2: Well Installation

Hazardous Activity #1

Field-Drilling - Mechanical method (drill rig, DPT, etc)

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III E, III F, III AD, III AN

Biological	3	Chemical	1	Driving	1	Electrical	1
Environmental	1	Gravity	1	Mechanical	1	Motion	1
Personal Safety	2	Pressure	1	Radiation	1	Sound	1

Overall Unmitigated Risk: High Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Engineering Controls (specify below) Admin. Controls (specify below) JSAs Inspections Secondary: Job Briefing/Site Awareness H&S Standards Cont./Emerg. Planning PPE (see HASP "PPE" section)

Enter Required Controls: Refer to list of considered controls as required. Use appropriate hearing protection, SWA.

Hazardous Activity #2

Field-Tools, hand - use of hammers, screwdrivers, wrenches, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III AD

Biological	-	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	L	Mechanical	-	Motion	M
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Engineering Controls (specify below) Inspections Secondary: H&S Standards Job Briefing/Site Awareness Admin. Controls (specify below) Specialized Equipment (specify below) Site AwarenessPPE (see HASP "PPE" section)

Enter Required Controls: Refer to list of considered controls as required. Use appropriate gloves and tools for task, SWA.

Hazardous Activity #3

Field - Well installation or Abandonment (all types)

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III F, III S, III AF

Biological	L	Chemical	L	Driving	-	Electrical	L
Environmental	L	Gravity	M	Mechanical	L	Motion	M
Personal Safety	L	Pressure	L	Radiation	-	Sound	L

Overall Unmitigated Risk: Medium Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Secondary: PPE (see HASP "PPE" section)

Enter Required Controls: Refer to list of considered controls as required. Use appropriate tools for task use dust mask when handling cement or other small particle materials, SWA.

Hazardous Activity #4

General-Pinch points - moving parts from doors, closures, rotating devices, falling objects, well covers, manholes, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III AF

Biological	-	Chemical	-	Driving	-	Electrical	-
Environmental	-	Gravity	L	Mechanical	-	Motion	M
Personal Safety	-	Pressure	M	Radiation	-	Sound	-

Overall Unmitigated Risk: Low Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Engineering Controls (specify below) Secondary: Admin. Controls (specify below) Job Briefing/Site Awareness Inspections PPE (see HASP "PPE" section)

Enter Required Controls: Refer to list of considered controls as required. Use appropriate gloves and tools for task, SWA.

Task 4:	Groundwater Sampling/purging

Hazardous Activity #1

Field-Measurement - water levels and well sounding

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III E, III F

Biological	-	Chemical	H	Driving	-	Electrical	-
Environmental	-	Gravity	L	Mechanical	-	Motion	M
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Low Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Secondary: Job Briefing/Site Awareness PPE (see HASP "PPE" section)

Enter Required Controls: Refer to list of considered controls as required. Use appropriate gloves, safety glasses and ergonomics, SWA.

Hazardous Activity #2

Chemical-Flammables/Combustibles - used or stored at a site

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III AG

Biological	-	Chemical	H	Driving	-	Electrical	-
Environmental	-	Gravity	M	Mechanical	-	Motion	M
Personal Safety	-	Pressure	M	Radiation	-	Sound	-

Overall Unmitigated Risk: High Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Engineering Controls (specify below) Secondary: Hazcom Training MSDS/SDS (see also HASP Hazcom/GHS section) Job Briefing/Site Awareness Cont./Emerg. Planning Admin. Controls (specify below) Specialized Equipment (specify below) Housekeeping PPE (see HASP "PPE" section)

Enter Required Controls: Refer to list of considered controls as required. Prohibited the use of gasoline cars/trucks at the Site, non smoking procedures, SWA.

Hazardous Activity #3

Field-Sampling - monitoring well sampling with electric, pneumatic or other non-manual pump

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III F, III AB, III AF

Biological	-	Chemical	L	Driving	-	Electrical	L
Environmental	-	Gravity	L	Mechanical	-	Motion	M
Personal Safety	-	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Low Mitigated Risk: Low if utilizing:

Controls that should be Considered: Primary: TRACK JSAs Engineering Controls (specify below) Inspections Secondary: Job Briefing/Site Awareness PPE (see HASP "PPE" section)

Enter Required Controls: Refer to list of considered controls as required. Use appropriate gloves, safety glasses and ergonomics, SWA.

Hazardous Activity #4

Field-Ambient environment - exposure heat, cold, sun, weather, etc

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low): Suggested FHSHB Ref: III I, III M

Biological	-	Chemical	-	Driving	M	Electrical	L
Environmental	L	Gravity	H	Mechanical	-	Motion	L
Personal Safety	M	Pressure	-	Radiation	-	Sound	-

Overall Unmitigated Risk: Medium Mitigated Risk: Medium if utilizing:

Controls that should be Considered: Primary: TRACK Field H&S Handbook (see ref. above) Secondary: H&S Standards Engineering Controls (specify below) Admin. Controls (specify below) Specialized Equipment (specify below) PPE (see HASP "PPE" section)

Enter Required Controls: Refer to list of considered controls as required. Take rest time as needed, hydrate properly, SWA.

Hazard Communication (HazCom)/Global Harmonization System (GHS)

☑ HAZCOM/GHS for this project is managed by the client or general contractor

List the chemicals anticipated to be used by Arcadis on this project per HazCom/GHS requirements.
(Modify quantities as needed)

	Preservatives	Qty
☐	Not applicable	
☑	Hydrochloric acid	<500 ml
☐	Nitric acid	<500 ml
☐	Sulfuric acid	<500 ml
☐	Sodium hydroxide	<500 ml
☐	Zinc acetate	<500 ml
☐	Ascorbic acid	<500 ml
☐	Acetic acid	<500 ml
☐	Isopropyl alcohol	< 4 gal.
☐	Formalin (<10%)	< 4 gal.
☐	Methanol	<500 ml
☐	Sodium bisulfate	<500 ml
☐		

	Decontamination	Qty
☐	Not applicable	
☑	Alconox	≤ 5 lbs
☐	Liquinox	≤ 1 gal
☐	Acetone	≤ 1 gal
☐	Methanol	≤ 1 gal
☐	Hexane	≤ 1 gal
☐	Isopropyl alcohol	≤ 4 gal
☐	Nitric acid	≤ 1 L
☐	Other:	
☐	_____	
	_____	
	_____	

	Calibration	Qty.
☐	Not applicable	
☐	Isobutylene/air	1 cyl
☑	Methane/air	1 cyl
☐	Pentane/air	1 cyl
☑	Hydrogen/air	1 cyl
☐	Propane/air	1 cyl
☐	Hydrogen sulfide/air	1 cyl
☐	Carbon monoxide/air	1 cyl
☑	pH standards (4,7,10)	≤ 1 gal
☐	Conductivity standards	≤ 1 gal
☐	Other:	
☑	_____	

	Fuels	Qty.
☐	Not applicable	
☐	Gasoline	≤ 5 gal
☑	Diesel	≤ 5 gal
☑	Kerosene	≤ 5 gal
☐	Propane	1 cyl
☐	Other:	
☑	Jet Fuel, Ethanol	

	Kits	Qty.
☐	Not applicable	
☑	Hach (specify):	1 kit
☐	DTECH (specify):	1 kit
☐	Other:	1 kit
☐	_____	
	_____	
	_____	

	Remediation	Qty.
	Not applicable	
☑	_____	
☐	_____	
☐	_____	
☐	_____	
☐	_____	

	Other:	Qty.
	Not applicable	
☐	Spray paint	≤ 6 cans
☑	WD-40	≤ 1 can
☐	Pipe cement	≤ 1 can
☐	Pipe primer	≤ 1 can
☐	Mineral spirits	≤ 1 gal
☐	_____	
☐	_____	

DOT(1):	Qty.
MOT eligible soils	
MOT eligible water	
MOT eligible solids	
MOT eligible liquids	
_____	
_____	
_____	

☐ Attach applicable Materials of Trade (MOT) generic shipping determination. SDS not generally applicable to this category.

Safety Data Sheets (SDSs) must be available to field staff. Indicate below how SDS information will be provided:

☐ Not applicable
☐ Printed copy in company vehicle
☐ Printed copy in the project trailer/office
☐ Printed copy attached
☐ Electronic copy on field computer
☑ Bulk quantities of the following materials will be stored: _____

☐ Contractor SDSs are not applicable
☐ Contractor SDSs are attached
☐ Contractor SDSs will be on site and located:
☐ _____

☐ Contact the project H&S contact for information in determining code and regulatory requirements associated with bulk storage of materials.

Site Control (*check all that apply*)

- ☐ Not applicable for this project.
- ☑ Site control protocols are addressed in JSA or other supporting document (attach)
- ☑ Maintain an exclusion zone of 5 ft. around the active work area
- ☐ Site control is integrated into the STAR Plan or TCP for the project
- ☐ Level C site control - refer to Level C Supplement attached
- ☐ Other (specify):

Decontamination (*check all that apply*)

- Not applicable for this project.
- ☐ Decontamination protocols are addressed in JSA or other governing document (attach)
- ☑ Wash hands and face prior to consuming food, drink or tobacco.
- ☑ Remove gloves and coveralls and contain, wash hands and face prior to consuming food,
- ☑ drink or tobacco. Ensure footwear is clean of site contaminants
- Respiratory protection- refer to the Level C supplement attached.
- ☐ Other (specify):
- ☐

Sanitation *(check all that apply)*

- Mobile operation with access to off-site restrooms and potable water
- ☐ Restroom facilities on site provided by client or other contractor
- ☑ Project to provide portable toilets (1 per 20 workers)
- ☐ Potable water available on site
- ☑ Project to provide potable water (assume 1 gal./person/day)
- ☑ Project requires running water (hot and cold, or tepid) with soap and paper towels
- ☐

Safety Briefings (*check all that apply*)

- Safety briefing required daily
- Safety briefing required twice a day
- ☑ Safety briefings required at the following frequency: _____
- ☐ Subcontractors to participate in Arcadis safety briefings
- ☐ Arcadis to participate in client/contractor safety briefings
- ☑ Other (specify):
- ☑
- ☐

Safety Equipment and Supplies

Safety equipment/supply requirements are addressed in the JSA or Permit for the task being performed. *If work is not performed under a JSA or Permit, the following safety equipment is required to be present on site in good condition (Check all that apply):*

- First aid kit
- Bloodborne pathogens kit
- Fire extinguisher
- ☑ Eyewash (ANSI compliant)
- ☐ Eyewash (bottle)
- ☑ Drinking water
- ☐ Other:
- ☑ **Flags, caution tape**

- Insect repellent
- Sunscreen
- Air horn
- ☑ Traffic cones
- ☑ 2-way radios
- ☐ Heat stress monitor
- ☑ _____
- ☑ _____

Attachments

Subcontractor Acknowledgement: Receipt of HASP Signature Form

ARCADIS claims no responsibility for the use of this HASP by others although subcontractors working at the site may use this HASP as a guidance document. In any event, ARCADIS does not guarantee the health and/or safety of any person entering this site. Strict adherence to the health and safety guidelines provided herein will reduce, but not eliminate, the potential for injury at this site. To this end, health and safety becomes the inherent responsibility of personnel working at the site.

Printed Name	Company	Signature	Date
William Rodriguez	GET		04/11/16
Hardy Rodriguez	GET		04/11/16
Jeffrey Morales Santiago	GET		04/11/16
Hector R. Babilonia	GET		04/12/16

Visitor Acknowledgement and Acceptance of HASP Signature Form

By signing below, I waive, release and discharge the owner of the site and ARCADIS and their employees from any future claims for bodily and personal injuries which may result from my presence at, entering, or leaving the site and in any way arising from or related to any and all known and unknown conditions on the site.

Name	Company	Reason for Visit	Date/Time On Site	Date/Time Off Site

Job Safety Analysis

General

JSA ID	10544	**Status**	(2) Review
Job Name	Environmental-Drilling, soil sampling, well installation	**Created Date**	1/22/2014
Task Description	Drilling and Soil Sampling	**Review Date**	3/15/2016
Working hours	7:30am – 3:00pm	**Auto Closed**	False

Client / Project

Client	TRAFIGURA (PUMA ENERGY CARIBE, LLC.)
Project Number	B0063764.0000
Project Name	RCRA RFI USEPA
PIC	ALONSO, JOHN C
Project Manager	CALDERON, EFRAIN

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Lebron, Rita	2/12/2014	1/22/2014	Calderon, Efrain	☑
HASP Reviewer	Hernandez, Alex	2/5/2014		Alvarez, James	☑
Reviewer	Mercado-Burgos, Marianela	3/15/2016	3/15/2016	Calderon, Efrain	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Utility Clearance	1	Potential to hit underground or aboveground utilities while drilling causing injury or equipment/utility damage	1. Complete utility clearance with a minimum of 3 lines of evidence. 2. Interview and involve site personnel.	ARCHSFS010
2	General drill rig operation	1	Temporary or permanent hearing loss due to excessive noise generated by rig operation or nearby activities.	1. Use hearing protection when drilling equipment is in use, if nearby activities requires its use or if deemed necessary. 2. ARCADIS defines excessive noise as any noise environment that requires speech levels above those used for normal conversation.	ARC HSIH008
		2	Burns due to hot surfaces on drill rig	1. Ensure drill rig has all machine guards and covers in place. 2. Follow caution labels and signs in the equipment. 3. Be careful handling split spoons, augers and other drill parts that may become hot during operation. 4. Wear leather work gloves. 5. Avoid placing hands or other body parts in the "line of fire"	
		3	Contact with Contaminants of Concern in soils.	Air monitoring should always be performed in accordance with the HASP, and the Air Monitoring JSA.	
		4	Trips and falls due to drilling equipment laying on the ground (i.e. augers, split spoons, decon equipment, coolers, etc). Slips and fall due to water from decon buckets, mud from drilling, rain.	1. Keep equipment and trash picked up, and stored away from the primary work area. 2. Be aware of wet areas, ensure firm footing.	
		5	Trips and falls due to drilling equipment laying on the ground (i.e. augers, split spoons, decon equipment,	1. Keep equipment and trash picked up, and stored away from the primary work area. 2. Be aware of wet areas, ensure firm	

			coolers, etc). Slips and fall due to water from decon buckets, mud from drilling, rain.	footing.	
3	Direct push drilling	1	Lacerations and crushing of fingers/body parts due to pinch points at the drill rods handled by workers.	1. Keep a minimum of 5 feet away from drill rig operation and moving parts. 2. Ensure equipment has all of the necessary guards and covers in place. 3. Keep hands and body parts away of the "line of fire"	
		2	Injury due to equipment trapping worker because working space is tight.	1. Do not put yourself between the rig and a fixed object. 2. Use Spotters or a tape measure to ensure clearances in tight areas. 3. Pre-plan equipment movement from one location to the next. 4. Leave enough work space, including side cabinets, and support vehicles.	
		3	Cuts and lacerations while cutting sampling sleeves to get soil for sample.	1. Driller must conduct the sleeves open, using sleeve holders for stability when cutting, and using the proper tool for this purpose (hook blade), change blade regularly. 2. Cut away from the body, ensure other personnel are not in danger when cutting. 3. Do the cutting on a sound, stable, obstructions free surface. 4. Wear cut ressistant gloves alone or in combination with other required gloves.	
4	Sample collection and processing	1	Injuries can result from pinch points on sampling equipment, and from breakage of sample containers.	1. Care should be taken when opening sampling equipment. 2. Look at empty containers before picking them up, and do not over-tighten container caps. 3. Use dividers/bubble wrap to store containers in the cooler so they do not break.	
		2	Lifting heavy coolers can cause back injuries	1. Use two people to move heavy coolers. Use proper lifting techniques.	
5	Monitoring well installation	1	Same hazards as in Step 2 with general drill rig operation	See step 2	
		2	Monitoring well construction materials can clutter the work area causing tripping hazards.	Well construction materials should be picked up during the well installation process.	
		3	Heavy lifting can cause muscle strains, and cutting open bags can cause lacerations.	Well construction materials are usually 50 lbs or greater. Team lift or use drill rig to hoist bags. Always use work gloves while cutting open bags.	
		4	Well pack material (i.e. sand, grout, bentonite) can become airborne and get in your eyes.	Wear safety glasses for protection from airborne sand and dust. Work upwind so potential clouds from the dust does not fall onto self.	
		5	Cutting the top of the well to size can cause jagged/sharp edges on the top of the well casing.	Wear gloves when working with the top of the well casing, and file any sharp jagged edges that resulted from cutting to size.	
6	Soil cutting and purge water management	1	Moving full drums can cause back injury, or pinching/crushing injury	Preferably have the drilling contractor move full drums with their equipment. If this is not practicable, use lift assist devices such as	

				drum dollys, lift gates, etc. Employ proper lifting techniques, and perform TRACK to identify pinch/crush points. Wear leather work gloves, and clear all walking and work areas of debris prior to moving a drum.	

PPE — Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Dermal Protection	long sleeve shirt/pants	Long pants required, long sleeve recommended	Required
Eye Protection	faceshield	If splashing hazards are foreseen	Recommended
	safety glasses		Required
Foot Protection	boots		Required
	rubber boots	If muddy	Recommended
	steel-toe boots		Required
Hand Protection	chemical resistant gloves (specify type)	nitrile	Required
	work gloves (specify type)	Leather; cut resistant	Required
Head Protection	hard hat		Required
Hearing Protection	ear plugs		Required
Miscellaneous PPE	traffic vest--Class II or III		Required
Respiratory Protection	dust mask		Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone	Only in allowed areas, never while driving	Required
	walkie talkie		Required
Decontamination	Decon supplies (specify type)	Alconox and water, others as per HASP	Required
Miscellaneous	fire extinguisher	20ABC	Required
	first aid kit	10 people construction	Required
	flashlight		Required
Personal	eye wash (specify type)		Required
	insect repellant		Recommended
	sunscreen		Recommended
	water/fluid replacement		Required
Traffic Control	barricades		Required
	traffic cones		Required

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Job Safety Analysis

General

JSA ID	10541	**Status**	(2) Review
Job Name	Environmental-Other	**Created Date**	1/21/2014
Task Description	Mobilization / Demobilization	**Review Date**	3/15/2016
Working hours	7:30am – 3:00pm	**Auto Closed**	False

Client / Project

Client	TRAFIGURA (PUMA ENERGY CARIBE, LLC)
Project Number	B0063764.0000
Project Name	RCRA RFI USEPA
PIC	ALONSO, JOHN C
Project Manager	CALDERON, EFRAIN

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Lebron, Rita	2/11/2014	1/22/2014	Calderon, Efrain	☑
HASP Reviewer	Hernandez, Alex	2/5/2014		Alvarez, James	☑
Reviewer	Mercado-Burgos, Marianela	3/15/2016	3/15/2016	Calderon, Efrain	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Conduct TRACK, Review Stop Work Authority and PUMA ENERGY general safety rules	1	L/NL (Accident / Incident)	1. Always conduct TRACK prior to start, during and after a task or job step. 2. All personnel have the right and responsability to use their Stop Work Authority if conditions or actions make working unsafe. 3. Remember PUMA Safety Rules and discuss them during the Safety Meeting.	ARC HSMS000
2	Drive to / from Site	1	Collisions while driving or parked	1. Review Trafic Control Plan. 2. Only authorized, Defensive-Driving trained personnel can drive. 3. Complete vehicle inspection prior to operating vehicle. Correct any abnormal situation or vehicle condition. Perform vehicle inspection in support trailer, parking lots or other low traffic areas. 4. No mobile phone use or conducting distracting tasks while driving. 5. Drive defensively, follow speed limits and traffic signs, periodically check mirrors, keep a safe distance from other cars and wear seatbelt. 6. Be knowledgeable and comply with	ARC HSGE024

prohibited inside Terminal

10 mph

				facility requirements. 7. Choose location that minimizes chance for vehicle to be struck by another vehicle.	
		2	Backing up hazards	1. Check clearances before entering vehicle. 2. Use spotter when backing, narrow spaces or when necessary.	
		3	Road and weather conditions (debris/animals in the road, poor road conditions, dark, wet, fog, etc.)	1. Keep eyes on the road. Scan road for debris. 2. Reduce speed 5 to 10 miles per hour less than the posted speed limit under less than ideal driving conditions.	
		4	Vehicle with mechanical/tire damage	1. Complete vehicle inspection prior to operating vehicle. 2. Have all required insurance (full coverage) for the drivers by the car rental company.	
		5	Distractions and Fatigue	1. No mobile phone use or conducting distracting tasks while driving. 2. Drive defensively, periodically check mirrors, keep a safe distance from other cars. 3. Recognize the signals and dangers of drowsiness. Pay attention to indicators of drowsiness including: frequent yawning, heavy eyes, and blurred vision. Stop driving if you have any of these.	
3	Driving on Site	1	Violation of facility requirements resulting in loss (personal or property)	1. Be knowledgeable and comply with facility requirements. 2. Adhere to facility velocity limits and site conditions.	ARC HSGE024
		2	Collisions while driving or parked	1. Drive defensively, periodically check mirrors, keep a safe distance from other cars and equipment, and wear seatbelt. 2. Do a walk-around the vehicle before moving to ensure area is free from equipment/property. 3. Look for changes due to construction activities, loading/unloading, traffic peak times, security, and others.	
		3	Hitting personnel	1. Communicate personnel and people in the area your intention of move the vehicle. 2. Do a walk-around the vehicle before moving to ensure no personnel is in the "line of fire".	
4	Demobilization from Site after finish work	1	Property loss Third party Loss/ Near Loss	1. Ensure wastes are disposed, labeled and staged in a proper manner. 2. Conduct all notifications, inventory and documentation. 3. Ensure overall area is left in clean, good condition.	ARC HSGE024

PPE	Personal Protective Equipment		
Type	**Personal Protective Equipment**	**Description**	**Required**
Dermal Protection	long sleeve shirt/pants	Long Pants required; Long sleeve shirt recommended	Required
Eye Protection	safety glasses		Required
Foot Protection	rubber boots	steel toed; if muddy	Recommended
	steel-toe boots		Required
Hand Protection	chemical resistant gloves (specify type)	nitrile	Required
	work gloves (specify type)	Based on task:leather; cut resistant	Required
Head Protection	hard hat		Required
Hearing Protection	ear plugs		Required

4. Ensure all tools, equipment and materials are gathered and stored.
5. Notify site representative of the work completion and any unusual condition observed during the activities or left in place.

Supplies			
Type	**Supply**	**Description**	**Required**
Communication Devices	mobile phone	Only at allowed area, not when driving	Required
	walkie talkie		Required
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
	flashlight		Recommended
Personal	eye wash (specify type)		Required
	insect repellant		Recommended
	sunscreen		Recommended
	water/fluid replacement		Required
Traffic Control	barricades		Required
	traffic cones		Required

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Job Safety Analysis

General

JSA ID	7609	**Status**	(2) Review
Job Name	Environmental-Air Monitoring	**Created Date**	6/5/2012
Task Description	Air monitoring activities	**Review Date**	3/15/2016
Working hours	7:30am – 3:00pm	**Auto Closed**	False

Client / Project

Client	TRAFIGURA (PUMA ENERGY CARIBE, LLC)
Project Number	B0063764.0000
Project Name	RCRA RFI USEPA
PIC	ALONSO, JOHN C
Project Manager	CALDERON, EFRAIN

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Cordero Castellanos, Carlos	2/5/2014	1/22/2014	Lebron, Rita	☑
Developer	Hernandez Rivera, Gisela	2/5/2014	1/22/2014	Lebron, Rita	☑
Developer	Lebron, Rita	2/5/2014	1/22/2014	Calderon, Efrain	☑
HASP Reviewer	Hernandez, Alex	2/5/2014		Alvarez, James	☑
Quality Reviewer	Day, Chris	7/30/2012	7/30/2012	Jones, Daniel	☑
Reviewer	Mercado-Burgos, Marianela	3/15/2016	3/15/2016	Calderon, Efrain	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Conduct Safety Meeting, TRACK and review Stop Work Authority and PUMA Energy General Safety Rules	1	L/NL (Accident / Incident)	• Always conduct a safety meeting in which scope of work, hazards associated and controls are discussed. • All personnel have the right and the responsibility to use their Stop Work Authority if conditions or actions make the working unsafe. • Ensure security issues, work for third parties, and/or evacuation routes are discussed as they may differ depending on location and daily conditions on the facility.	
2	Calibrate air monitoring equipment	1	Injury due to gas under pressure	• Ensure that tubing and connections between gas cylinders, regulators instrument and tubing are secure and damage/leak free. If damaged remove and replace. • Install and remove regulator valves away from face, body and other workers. Never leave the regulator installed in the cylinder when not in use.	
		2	Exposure to calibration gases (isobutylene, mixture five gases, benzene)	• Conduct calibration in a well-ventilated area	
		3	Malfunctioning meters or skipped steps resulting in inadequate personnel protection	• Make sure equipment is in proper working order and meets standards set by manufacturer. • Replace equipment when needed. • Follow operators manual.	
		4	Poor or inadequate record	• Document all calibration data and	

			keeping	note any deficiencies in the calibration or equipment readings. • Have second person verify results.	
3	Conduct periodic checks of equipment throughout the day (Isobutylene, mixed five gases and benzene)	1	Slips, trips, falls on uneven or slick surfaces or debris	• Watch your foot placement. Ensure all personnel are wearing proper PPE (e.g. steel toe boots). • Stay away from uneven surfaces, mud, standing water, oil, etc. • Practice good housekeeping, remove any miscellaneous debris.	
		2	Struck by equipment	• Find a safe location free of heavy equipment traffic and trip hazards and document monitoring levels. • Maintain eye contact with operators of equipment to communicate your intentions.Do not enter work zone until eye contact and intentions are clear with operator.	
		3	Potential exposure to onsite contaminants of concern (COC)	• Review action levels prior to mobilize to work area for testing. • Ensure monitoring equipment is operating properly to protect personnel from exposure to contaminants. • Have back up on hand. • When possible stay upwind or to side of potential source material. • If monitoring equipment presents a reading that causes concern - STOP WORK, evaluate the reading, and determine plan for continuation of work activities (i.e. test for benzene, implement engineering controls, evacuate work area, upgrade PPE, further investigation/air monitoring).	
		4	Noise hazards	• Wear hearing protection when monitoring in locations that require hearing protection.	
		5	Pinch points Laceration to hand from sampling glass tube	• Wear adequate hand protection, high visibility gloves/cut resistant as applicable. Keep hands out of potential pinch point locations, clasps of cases, etc. • Dispose of tube in safe location to prevent injuries to waste handlers	
		6	Fatigue and / or heat stress	• Implement work/rest schedule, seek for shelter and drink plenty of water. • Know symptoms of heat illnesses and recognize them on you or co-workers . Provide help and seek for medical assistance if necessary.	
		7	Loss time due to inadequate supply of equipment onsite	• Have additional equipment supplies (such as extra benzene tubes, MSA filters) readily available in case needed.	
		8	Damage or malfunction of equipment due to water (rain/sample), soil, debris, or other instrument contamination	• Ensure equipment is kept dry and clean during use. • Do not contaminate probe, filters, and/or lamp while sampling. Keep probe apart from sample and make sure instrument does not absorbs any media (soil, debris, water) • Keep a resealable bag available to	

				protect equipment from rain, mud, water or other substances. MAKE SURE equipment exhaust is not blocked by the bag.	
4	Documentation	1	Poor and/or incomplete records	• Document site activities, details of sampling equipment - models, usage, sampling areas/ descriptions, monitoring data, unusual conditions that may affect monitoring results. • Keep organize and file forms. • Record all calibrations and write down any malfunctions experienced with equipment.	
		2	Slips, trips, falls Body injury due to traffic	• Find a safe location free of heavy equipment traffic and trip hazards and document monitoring levels.	
5	Decontamination	1	Contact with COC	• Wipe down and clean monitoring equipment. • Dispose properly of all protective clothing and spent decontamination supplies before leaving the exclusion zone. • Remove any soil from boots before leaving the exclusion zone.	
6	Care and storage of air monitoring equipment	1	Equipment breakage / malfunction - including batteries and power supply	• Maintain integrity of dedicated systems. • Properly store all equipment. Ensure equipment is stored in a clean, dry, fresh, safe place. • Charge equipment nightly and as needed during the day. • Have extra batteries / power supply onsite. • Keep equipment clean. • Inspect equipment to verify it is operational. • Report any equipment issues to rental company for timely repair/replacement. • Replace the saturated filters and clean the bulb with the cleaning kit periodically.	

Hydrocarbon product potential

PPE **Personal Protective Equipment**

Type	Personal Protective Equipment	Description	Required
Dermal Protection	long sleeve shirt/pants		Required
Eye Protection	safety glasses		Required
Foot Protection	rubber boots	If muddy	Recommended
	steel-toe boots		Required
Hand Protection	chemical resistant gloves (specify type)	nitrile	Required
	work gloves (specify type)	leather work and cut resistant	Required
Head Protection	hard hat		Required
Hearing Protection	ear plugs	if working at noisy locations/activities	Required
Miscellaneous PPE	traffic vest--Class II or III		Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone	only at authorized areas; never while driving	Required
	walkie talkie	intrinsecally safe two way radio	Required

Decontamination	Decon supplies (specify type)	personal decontamination, waste receptacles	Required
Miscellaneous	fire extinguisher	as per task conducted	Required
	first aid kit	as per task conducted	Required
	flashlight		Required
Personal	eye wash (specify type)	bottle	Required
	insect repellant		Recommended
	sunscreen		Recommended
	water/fluid replacement		Required
Traffic Control	barricades	as per task conducted	Required
	traffic cones	as per task conducted	Required

Review Comments

Reviewer		Comments
Employee: **Role** **Review Type** **Completed Date**	Hernandez, Alex HASP Reviewer Revise 7/2/2012	to format
Employee: **Role** **Review Type** **Completed Date**	Hernandez, Alex HASP Reviewer Revise 7/11/2012	format (with 4 sight support)
Employee: **Role** **Review Type** **Completed Date**	Day, Chris Quality Reviewer NA 7/30/2012	JSA is concise and clear, and effectively communicates critical action awareness.

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Job Safety Analysis

General

JSA ID	10552	**Status**	(2) Review
Job Name	Environmental-Geophysical Survey	**Created Date**	1/22/2014
Task Description	Utility Locating	**Review Date**	3/15/2016
Working hours	7:30am – 3:00pm	**Auto Closed**	False

Client / Project

Client	TRAFIGURA (PUMA ENERGY CARIBE, LLC)
Project Number	B0063764.0000
Project Name	RCRA RFI USEPA
PIC	ALONSO, JOHN C
Project Manager	CALDERON, EFRAIN

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Lebron, Rita	2/12/2014	1/22/2014	Calderon, Efrain	☑
HASP Reviewer	Hernandez, Alex	2/5/2014		Alvarez, James	☑
Reviewer	Mercado-Burgos, Marianela	3/15/2016	3/15/2016	Calderon, Efrain	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Coordinate Subsurface Utility Survey Activities	1	Traffic HazardsSubsurface/overhead utilities, property damages	Complete Utility clearance Checklist Review site locations and survey specifications Call and coordinate with the Puerto Rico Public Service Commision (as required)	ARCHSFS019
2	Mobilization of equipment to survey area	1	Lifting hazards (heavy or bulky equipment)	Use TRACK to plan lifts and routes to work location. Use proper lifting techniques	
		2	Awkward body postions and twisting	Plan activity to avoid twisting of body or awkward body positions. Use buddy system or job roatation to reduce exposure to conditions that can not be avoided	
		3	Trip and fall hazards from uneven ground or restricted view when carrying equipment	Break loads down to manageable size that does not obstruct view of ground. Plan route and use TRACK, wear footwear with good tread and ankle support. Use buddy system for large or bulky items when carrying.	Uneven rocky vegetated surfaces.
3	Set up survey grid and control	1	Slip trip and fall hazards from wet, uneven ground or over vegetation.	Identify and remove or minimize trip hazards. Check for wet/slippery walking surface, pipes, equipment, open sumps, excavations, among others. Select the less dangerous access routes. Don't walk across barricaded, non-authorized areas.	
		2	Crush hazard or contact stress to hands/fingers from inserting pins or stakes.	Wear leather gloves when inseting pins, flaggng, or stakes into the ground. Do not hurry task if hammering.	
		3	Struck by hazards by vehicles if working in traffic area	Establish traffic control and wear a Class II traffic vest if in traffic area. Use vehicles to block work area when practical.	
		4	Repetitive stress from repeated bending or squatting during grid construction	Use job rotation when hazard exists, stretch before performing work activity. Use paint device that allows employee to stand up while spraying.	
		5	Chemical exposure from using spray paint	Stand up wind of paint spraying activities	
4	Performing survey	1	Slips trips and falls on wet, uneven or steep sloped surfaces	Identify and remove or minimize trip hazards. Check for wet/slippery walking surface, pipes, equipment, open sumps, excavations,	

				among others. Select the less dangerous access routes. Don't walk across barricaded, non-authorized areas.	
		2	Scrapes or cuts to hands, arms or legs from equipment or vegetation in area.	Wear leather or other suitabler gloves when perofroming survey, wear long pants, wear heavy long sleeve shirt if arm hazard exists.	
		3	Noise hazards from survey equipment using percussion devices	Wear hearing protection, keep uneccessary workers away from devices when activitated.	
		4	Ergonomic injury form improper or prolonged use of carried devices that are long or bulky	Use job rotation to reduce potential for injury. Implement prper lifting and body position practices.	
5	Demobilization and clean up	1	Muscle strain from removing pins or stakes	Use devices that maintain neutral body positions to remove pins when practical. Do not bend at waist wen removing.	
		2	Pinch hazards to fingers from equipment cases	Pinch hazards to fingers from equipment cases	
		3	Lifting hazards from demobilizing equipment from work area	Seek for help or mechanical devices when practical. Implement good lifting carrying techniques and proper body positioning practices	
		4	Slip, trip and falls carrying equipment that obstructs view or on wet or uneven surfaces.	Identify and remove or minimize trip hazards. Check for wet/slippery walking surface, pipes, equipment, open sumps, excavations, among others. Select the less dangerous access routes. Don't walk across barricaded, non-authorized areas.	

PPE — **Personal Protective Equipment**

Type	Personal Protective Equipment	Description	Required
Dermal Protection	long sleeve shirt/pants	Long pants required; long sleeve shirt recommended	Required
Eye Protection	safety glasses		Required
Foot Protection	rubber boots	if muddy	Required
	steel-toe boots		Required
Hand Protection	work gloves (specify type)	leather	Required
Head Protection	hard hat		Required
Hearing Protection	ear plugs	If noisy activities	Required
Miscellaneous PPE	traffic vest--Class II or III		Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone	only in allowed areas; never when driving	Required
	walkie talkie		Required
Miscellaneous	fire extinguisher	small size abc	Required
	first aid kit	10 people construction	Required
	flashlight		Required
Personal	eye wash (specify type)		Required
	insect repellant		Recommended
	sunscreen		Recommended

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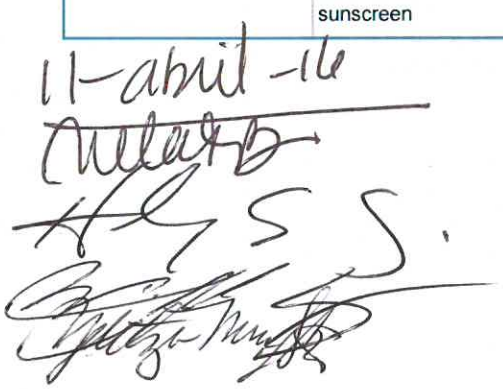

Job Safety Analysis

General

JSA ID	10553	**Status**	(2) Review
Job Name	Environmental-Soil sampling/well installation - manual	**Created Date**	1/23/2014
Task Description	Soil drilling and sampling using a hand auger	**Review Date**	3/15/2016
Working hours	7:30am – 3:00pm	**Auto Closed**	False

Client / Project

Client	TRAFIGURA (PUMA ENERGY CARIBE, LLC)
Project Number	B0063764.0000
Project Name	RCRA RFI USEPA
PIC	ALONSO, JOHN C
Project Manager	CALDERON, EFRAIN

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Mercado-Burgos, Marianela	2/13/2014	1/23/2014	Calderon, Efrain	☑
Reviewer	Lebron, Rita	2/13/2014	1/23/2014	Lebron, Rita	☑
HASP Reviewer	Hernandez, Alex	2/6/2014		Alvarez, James	☑
Reviewer	Mercado-Burgos, Marianela	3/15/2016	3/15/2016	Calderon, Efrain	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Augering set-up	1	Underground utilities could be encountered during hand augering	Follow the Utility Clearance HS Standard	Utility Clearance HS Standard ARCHSF019, JSA #10552
		2	Muscle fatigue can occur from lifting heavy equipment in and out of vehicle	Park as close as possible to the sample locations. Use lifting techniques outlined in the Field H&S Handbook	
		3	Slips/trips/falls could occur from uneven walking and working surfaces.	Carry equipment carefully, inspect work area prior to set-up. Mark uneven surfaces.	
		4	Pinch points	Disconnecting the bucket from the pole may be difficult to twist off. Use wrenches to make sure unexpected movements do not hurt you or others who are close to you. Wear leather gloves to protect your hands.	
2	Hand-auger clearance of drilling location	1	Muscle strains, overexertion, injuries from pulling/pushing when installing the boring, the auger from the hole, or forcing the auger on refusal.	Stretch muscles prior to beginning. Using firm grip on handle, slowly turn auger and progress downward in 6" increments. Slowly pull auger from hole, use legs to pull auger out of hole. If water is encountered, a suction will be created when trying to remove the auger. Ask for assistance from another worker if you can't remove safely on your own. Prevent body overexertion/bending by adjusting auger rods so working height is between the shoulders and mid-thigh. If refusal occurs, Stop Work. Verify borehole with flashlight	ARCHSFS019
		2	Hand strain and blisters could develop from prolonged hand augering	Select leather type work gloves or mechanics style gloves. If hot spots develop on hands (hot spots are where blisters start to form) readjust gloves or change to better padded glove. If blisters begin to form, stop work so as not to worsen blistering.	
		3	Utility damage could occur when trying to force an auger	If refusal occurs, Stop Work. Remove auger from hole and check hole with flashlight if	

especially when all material is present (rocks, concrete etc..

			forward if there is refusal.	possible. DO NOT use excessive force, utilities can be and have been damaged in this manner.	
		4	Fatigue can occur due to strenuous nature of hand augering activities, especially in hot/humid weather.	Take rest and hydration breaks as needed or switch out task with another employee.	
		5	Cuts / Lacerations	Do not use hammer towards another worker, hammer can slip and hurt you or other worker.	
		6	Electric shock after hitting electric line	Use augers with isolated handles/rods. Work over an isolating mat. Ensure utility checklist is completed, and that electric lines location have been discussed and identified.	
3	Decon Hand Auger	1	Exposure to COCs while deconing equipment.	Wear chemical protective gloves and wear safety glasses.	
		2	Cleaning solutions can splash while deconing equipment	Use PPE as outlined in the HASP and try to minimize splashing.	
		3	The end of the hand auger has sharp edges, and lacerations can occur	Use brush to scrub off soils and not hands. Do not reach into the bucket edges of the auger with your hand.	

PPE **Personal Protective Equipment**

Type	Personal Protective Equipment	Description	Required
Eye Protection	safety glasses		Required
Foot Protection	boots		Required
	steel-toe boots		Required
Hand Protection	chemical resistant gloves (specify type)	nitrile	Required
	work gloves (specify type)	leather	Required
Head Protection	hard hat		Required
Miscellaneous PPE	traffic vest--Class II or III		Required

Supplies

Type	Supply	Description	Required
Decontamination	Decon supplies (specify type)		Required
Miscellaneous	first aid kit		Required
Personal	eye wash (specify type)	bottle	Required

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PERMISO PARA TRABAJOS PELIGROSOS

SAPS-010
Rev. 1 Ago.07

PUMA ENERGY

Puma Energy Caribe LLC.

NUMERO 1219

ESTE PERMISO CUBRE UNICAMENTE EL AREA ESPECIFICA Y DEBERA MANTENERSE EN UN LUGAR VISIBLE EN EL LUGAR DE TRABAJO MIENTRAS SE DESARROLLE

DEPTO. Ambiental FECHA: 11-abril-14

AREA DE TRABAJO: WWTP

- [ ] MANIOBRAS PESADAS
- [ ] MATERIALES PELIGROSOS
- [ ] TUBERIAS CARGADAS
- [ ] EQUIPO ENERGIZADOS
- [ ] INSTALACION ELEC. PROVISIONAL
- [ ] TRABAJO DE EXCAVACION
- [x] OTRO TRABAJO PELIGROSO

DESCRIPCION DEL TRABAJO: muestreo de suelo usando handauger muestreo de suelo usando Direct Push instalacion de pozo (HSA), GPR

SOLICITANTE: Manuela Mercado Burgos PUESTO: Geólogo

SEÑALAR LAS PRECAUCIONES QUE DEBEN TOMARSE PARA LA REALIZACION DEL TRABAJO

MEDIDAS GENERALES	SI	N/A
1. SE SATISFACE SAPS-001 ENTRADA A ESPACIOS CONFINADOS		N/A
2. SE SATISFACE SAPS-009 BLOQUEO DE ENERGIAS PELIGROSAS		N/A
3. SE SATISFACE SAPS-002 TRABAJOS CALIENTES	N/A	
4. SE SATISFACE SAPS-003 TRABAJOS EN ALTURAS		N/A
5. SE CUMPLE CON ADMINISTRACION DE CAMBIOS		N/A
6. EJECUTANTE CALIFICADO, Y EN CONDICIONES FISICAS Y APROPIADAS	N/A	
7. EPP COMPLETO Y EN BUEN ESTADO	N/A	
8. HERRAMIENTAS COMPETAS Y EN BUEN ESTADO	N/A	
9. EQUIPO CON INSPECCION DE PRE-USO, SIN FALLAS CRITICAS	N/A	
10. PERSONAL AFECTADO NOTIFICADO DEL TRABAJO		N/A
11. AREA ACORDONADA Y/O SEÑALIZADA APROPIADAMENTE		N/A
12. PREVENCIONISTA ASIGNADO (FIRMA AL CALCE)		N/A

MANIOBRAS PESADAS	SI	N/A
a) CABLES, ESLINGAS/ESTROBOS, GANCHOS, PERNOS REVISADOS		N/A
b) GRUAS CON CAPACIDAD DEL DOBLE DE LA CARGA AL MENOS		N/A
c) ANGULO DE BRAZO DE GRUA NO EXCEDE LIMITE DE SEGURIDAD		N/A
d) PATAS DE GRUA APOYADAS SOBRE TERRENOS FIRMES		N/A
e) ESTRUCTURAS, PISOS, TECHOS OK PARA SOPORTAR LA CARGA		N/A
f) EQUIPOS DE SUJECION, TENSORES, CUERDAS, ADECUADOS		N/A
g) NINGUNA PERSONA PUEDE QUEDAR BAJO LA CARGA		N/A
h) OPERADOR ACREDITADO CON CREDENCIAL-LICENCIA		N/A

MANEJO NO RUTINARIO DE MATERIALES PELIGROSOS	SI	N/A
a) HOJA(S) DE DATOS DE SEGURIDAD DISPONIBLE(S)	N/A	
b) RIESGO DE TOXICIDAD/CORROSIVIDAD CONSIDERADOS		N/A
c) RIESGO DE IMPACTO AMBIENTAL CONSIDERADO		N/A
d) RIESGO DE INCENDIO O EXPLOSION CONSIDERADO		N/A
e) TRAYECTORIAS DE TUBERIAS/MANGUERAS ANALIZADAS	N/A	
f) RIESGO DE ELECTRICIDAD ESTATICA CONSIDERADO		N/A
g) CONDICIONES DE OPERACION /INCOMPATIBLES CONSIDERADOS	N/A	
h) ANALISIS DE OPERACION REALIZADO CON EJECUTANTE(S)	N/A	
i) TUBERIAS/ MANGUERAS PROBADAS A PRESION		N/A
j) PERSONAL ENTRENADO EN LA OPERACION		N/A

TRABAJOS SOBRE TUBERIAS CARGADAS	SI	N/A
a) MATERIAL PELIGROSO		N/A
b) ANALISIS DE OPERACION REALIZADO		N/A
c) EJECUTANTE(S) INVOLUCRADO(S) EN ANALISIS DE OPERACION		N/A
d) TUBERIA / EQUIPO A TEMPERATURA APROPIADA PARA INICIAR		N/A
e) ACCIONES DE PREPARACION DE EQUIPO / TUBERIA REALIZADAS:		N/A

DRENADO	DESPRESURIZADO	LAVADO	VAPORIZADO

OTROS TRABAJOS PELIGROSOS NO RUTINARIOS	SI	N/A
a) ANALISIS DE OPERACION REALIZADO	N/A	
b) EJECUTANTE(S) INVOLUCRADO(S) EN ANALISIS DE OPERACION	N/A	
c) MEDIDAS DE SEGURIDAD ESPECIFICAS:		

TRABAJOS SOBRE EQUIPOS ENERGIZADOS	SI	N/A
TENSION ABAJO DE 600 V (CONDUCTORES Y EQUIPO ADYACENTE)		N/A
EN ALTA TENSION (>600 V) NO SE AUTORIZA EL TRABAJO		

PROPORCIONE JUSTIFICACION DEL TRABAJO

a) REVISION DE AREAS ADYACENTES QUE PUEDEN CREAR RIESGOS			N/A
b) ALSLAMIENTOS REALIZADOS EN EL AREA			N/A
CONDUCTORES ADYADCENTES	GABINETE	PISO	EQ. HERRAM METALICOS

c) EPP DIELECTRICO: CASCO ☐ GUANTES ☐ CALZADO ☐

d) PUESTA A TIERRA (GABINETES, EQUIPOS DE MEDICION) N/A

INSTALACIONES ELECTRICAS PROVISIONALES	SI	N/A

PROPORCIONE JUSTIFICACION DE LA INSTALACION

AUTORIZACION PARA UN MAXIMO DE 30 DIAS

a) SIN INTERFERENCIA CON AREAS / EQUIPOS DE OPERACION		N/A
b) SIN INTERFERENCIA A CIRCULACION DE VEHICULOS/PEATONES		N/A
c) CABLE USO RUDO DE CAPACIDAD / SOPORTERIA ADECUADOS		N/A
d) CONDICIONES. AMBIENTALES (HUMEDAD, LLUVIA) APROPIADAS		N/A
e) TARJETA DE SEGURIDAD IEP LLENADA		N/A

EXCAVACIONES	SI	N/A
a) TIPO DE EXCAVACION:		N/A
MENOR (0.60-1.20m) ☐ MAYOR (1.20-6.00m) ☐ PROFUNDA (>6.00 m) ☐		
b) AUSENCIA DE RIESGOS EN SUBSUELO COMPROBADA		N/A
c) ADEMES PARA EVITAR DERRUMBES EN EL PROYECTO		N/A
d) INCLINACION DE LAS PAREDES DISEÑADA EN PROYECTO		N/A
e) ZONA PARA DEPOSITO DE MATERIAL EXCAVADO		N/A
f) PROYECTO DE INGENIERIA PARA EXCAVACIONES PROFUNDAS		N/A

SE HAN VERIFICADO LAS CONDICIONES DE ESTE PERMISO POR LO CUAL SE GARANTIZA QUE EL AREA HA SIDO INSPECCIONADA Y SE ENCUENTRA LIBRE DE RIESGO. SE CONCEDE EL PERMISO PARA TRABAJOS CALIENTES Y SE VERIFICA QUE EL(LOS) EJECUTOR(ES) ESTAN CALIFICADOS PARA ESTE TRABAJO, CONOCEN LOS RIESGOS Y CUENTAN CON EL EQUIPO DE PROTECCIÓN PERSONAL PARA REALIZAR EL TRABAJO.

ENTREGAR COPIA AL DEPARTAMENTO DE SEGURIDAD

HORA DE INICIO DEL TRABAJO: 07:30 HORA DE FINALIZACION:

PREVENCIONISTA	RESPONSABLE DE EJECUCION	RESPONSABLE OPERACCION

VERIFICACIONES DE SEGURIDAD DURANTE EL TRABAJO:

1a. VERIFICACION	2a. VERIFICACION	3a. VERIFICACION	VERIFICACION FINAL CONDICIONES DESPUES DEL TRABAJO
FIRMA	FIRMA	FIRMA	FIRMA

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PERMISO PARA TRABAJOS EN CALIENTE

PUMA ENERGY

Puma Energy Caribe LLC.

ESTE PERMISO CUBRE UNICAMENTE EL AREA ESPECIFICA Y DEBERA MANTENERSE EN UN LUGAR VISIBLE EN EL LUGAR DE TRABAJO MIENTRAS SE DESARROLLE

NUMERO 0052

DEPTO. Ambiental **FECHA:** 11-abril-16

AREA DE TRABAJO: WWTP

DESCRIPCION DEL TRABAJO: muestreo de suelo Direct Push Instalación de Pozo (HSA)

SOLDADURA	
CORTE	
GENERAR CHISPAS	
GENERAR FLAMA	
GENERAR CALOR	X

SOLICITANTE: Marianela Mercado Burgos **PUESTO:** Geologa

SEÑALAR LAS PRECAUCIONES QUE DEBEN TOMARSE PARA LA REALIZACION DEL TRABAJO

OXIACETILENO

1. LOS CILINDROS DE OXIACETILENO: VERTICALES, NO SUFREN RIESGO DE CAIDA	SI ☐	NO ☐	N/A ☑
2. MANOMETROS, MANGUERAS, BOQUILLAS DE OXIACETILENO EN BUEN ESTADO	SI ☐	NO ☐	N/A ☑
3. PRUEBA DE FUGAS A MANGUERAS CONEXIONES DE OXIACETILENO	SI ☐	NO ☐	N/A ☑

MAQUINA DE SOLDAR

4. CABLES Y PORTAELECTRODOS EN BUEN ESTADO, SIN EMPALMES	SI ☐	NO ☐	N/A ☑
5. MAQUINA DE SOLDAR CON CONEXION A TIERRA	SI ☐	NO ☐	N/A ☑
6. EXTENSIONES ELECTRICAS EN BUEN ESTADO, SIN EMPALMES	SI ☐	NO ☐	N/A ☑
7. SE EFECTUO INSPECCION DE PRE-USO A EQUIPO DE SOLDADURA Y OTROS EQUIPOS	SI ☐	NO ☐	N/A ☑
8. EL EQUIPO DE SOLDADURA NO OBSTRUYE PASILLOS	SI ☐	NO ☐	N/A ☑
9. SE SATISFACE EL PROC. SAPS-001 ENTRADA A ESPACIOS CONFINADOS	SI ☐	NO ☐	N/A ☑
10. SE SATISFACE EL PROC. SAPS-009 BLOQUEO DE ENERGIAS PELIGROSAS	SI ☐	NO ☐	N/A ☑
11. SE SATISFACE EL PROC. SAPS-003 TRABAJOS EN ALTURAS	SI ☐	NO ☐	N/A ☑
12. SE SATISFACE EL PROC. SAPS-004 ADMINISTRACION DE CAMBIOS	SI ☐	NO ☐	N/A ☑
13. SE SATISFACEN REQUISITOS DE OTROS PROCEDIMIENTOS DE SEGURIDAD Y CALIDAD	SI ☑	NO ☐	N/A ☐
14. EJECUTANTE CALIFICADO, EN CONDICIONES FISICAS Y APROPIADAS	SI ☑	NO ☐	N/A ☐
15. EL EPP ESTA COMPLETO Y EN BUEN ESTADO	SI ☑	NO ☐	N/A ☐
16. EL EXPLOSIMETRO INDICA CONDICIONES SEGURAS	SI ☑	NO ☐	N/A ☐
17 RESULTADO EXPLOSIMETRO 0 LEL 0 CO 0 H^2S 20.6 O^2	SI ☐	NO ☐	N/A ☐
18. REQUIERE MONITOREO DE GASES CONSTANTEMENTE	SI ☑	NO ☐	N/A ☐
19. COLOCACION DE SEÑALIZACION Y ACORDONAMIENTO DEL AREA	SI ☑	NO ☐	N/A ☐
20. NOTIFICACION AL PERSONAL DEL AREA	SI ☑	NO ☐	N/A ☐
21. SUSPENDER OPERACIONES DEL AREA MIENTRAS SE REALIZA EL TRABAJO	SI ☐	NO ☑	N/A ☐
22. COLOCACION DE EXTINGUIDORES AL ALCANCE PARA USO INMEDIATO	SI ☑	NO ☐	N/A ☐
23. PREPARAR UN HIDRANTE CONTRA INCENDIO PARA USO EN CASO DE EMERGENCIA	SI ☐	NO ☑	N/A ☐
24. RETIRAR COMBUSTIBLES E INFLAMABLES A MAS DE 50 PIES	SI ☑	NO ☐	N/A ☐
25. MANTENER MOJADO EL PISO, TUBERIAS O EQUIPOS BAJO EL TRABAJO CALIENTE	SI ☐	NO ☐	N/A ☑
26. CUBRIR CON LONA HUMEDA AREA DE TRABAJO Y EQUIPOS ADYACENTES	SI ☐	NO ☐	N/A ☑
27. MANTENER EXTRACTOR / VENTILADOR PARA DESALOJAR HUMOS O VENTILAR	SI ☐	NO ☐	N/A ☑
28. ASIGNAR A UN PREVENCIONISTA	SI ☐	NO ☑	N/A ☐

NOMBRE Y FIRMA DEL PREVENCIONISTA

SE HAN VERIFICADO LAS CONDICIONES DE ESTE PERMISO POR LO CUAL SE GARANTIZA QUE EL AREA HA SIDO INSPECCIONADA Y SE ENCUENTRA LIBRE DE RIESGO. SE CONCEDE EL PERMISO PARA TRABAJOS CALIENTES Y SE VERIFICA QUE EL(LOS) EJECUTOR(ES) ESTAN CALIFICADOS PARA ESTE TRABAJO, CONOCEN LOS RIESGOS Y CUENTAN CON EL EQUIPO DE PROTECCIÓN PERSONAL PARA REALIZAR EL TRABAJO. **ENTREGAR COPIA AL DEPARTAMENTO DE SEGURIDAD**

HORA DE INICIO DEL TRABAJO: 07:30 **HORA DE TERMINACION:**

RESPONSABLE DE EJECUCION DEL TRABAJO	RESPONSABLE OPERATIVO
Marianela Mercado Burgos	Raquel Velazquez
NOMBRE Y FIRMA	NOMBRE Y FIRMA

VERIFICACIONES DE SEGURIDAD DURANTE EL TRABAJO:

1a. VERIFICACION	2a. VERIFICACION	3a. VERIFICACION	VERIFICACION FINAL CONDICIONES DESPUES DEL TRABAJO
FIRMA	Raquel Velazquez FIRMA	FIRMA	Raquel Velazquez FIRMA

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PERMISO PARA TRABAJOS EN CALIENTE

PUMA ENERGY

Puma Energy Caribe LLC.

NUMERO 0053

ESTE PERMISO CUBRE UNICAMENTE EL AREA ESPECIFICA Y DEBERA MANTENERSE EN UN LUGAR VISIBLE EN EL LUGAR DE TRABAJO MIENTRAS SE DESARROLLE

DEPTO. Ambiental FECHA: 12-abril-16

AREA DE TRABAJO: WWTP

DESCRIPCION DEL TRABAJO: Barrenado, instalación de pozo, muestreo de suelo.

SOLDADURA	
CORTE	
GENERAR CHISPAS	
GENERAR FLAMA	
GENERAR CALOR	L

SOLICITANTE: Marianela Mercado Burgos PUESTO: Auxiliar

SEÑALAR LAS PRECAUCIONES QUE DEBEN TOMARSE PARA LA REALIZACION DEL TRABAJO

OXIACETILENO

1. LOS CILINDROS DE OXIACETILENO: VERTICALES, NO SUFREN RIESGO DE CAIDA — SI ☐ NO ☐ N/A ☐
2. MANOMETROS, MANGUERAS, BOQUILLAS DE OXIACETILENO EN BUEN ESTADO — SI ☐ NO ☐ N/A ☐
3. PRUEBA DE FUGAS A MANGUERAS CONEXIONES DE OXIACETILENO — SI ☐ NO ☐ N/A ☐

MAQUINA DE SOLDAR

4. CABLES Y PORTAELECTRODOS EN BUEN ESTADO, SIN EMPALMES — SI ☐ NO ☐ N/A ☐
5. MAQUINA DE SOLDAR CON CONEXION A TIERRA — SI ☐ NO ☐ N/A ☐
6. EXTENSIONES ELECTRICAS EN BUEN ESTADO, SIN EMPALMES — SI ☐ NO ☐ N/A ☐
7. SE EFECTUO INSPECCION DE PRE-USO A EQUIPO DE SOLDADURA Y OTROS EQUIPOS — SI ☐ NO ☐ N/A ☐
8. EL EQUIPO DE SOLDADURA NO OBSTRUYE PASILLOS — SI ☐ NO ☐ N/A ☐
9. SE SATISFACE EL PROC. SAPS-001 ENTRADA A ESPACIOS CONFINADOS — SI ☐ NO ☐ N/A ☐
10. SE SATISFACE EL PROC. SAPS-009 BLOQUEO DE ENERGIAS PELIGROSAS — SI ☐ NO ☐ N/A ☐
11. SE SATISFACE EL PROC. SAPS-003 TRABAJOS EN ALTURAS — SI ☐ NO ☐ N/A ☐
12. SE SATISFACE EL PROC. SAPS-004 ADMINISTRACION DE CAMBIOS — SI ☐ NO ☐ N/A ☐
13. SE SATISFACEN REQUISITOS DE OTROS PROCEDIMIENTOS DE SEGURIDAD Y CALIDAD — SI ☑ NO ☐ N/A ☐
14. EJECUTANTE CALIFICADO, EN CONDICIONES FISICAS Y APROPIADAS — SI ☑ NO ☐ N/A ☐
15. EL EPP ESTA COMPLETO Y EN BUEN ESTADO — SI ☑ NO ☐ N/A ☐
16. EL EXPLOSIMETRO INDICA CONDICIONES SEGURAS — SI ☑ NO ☐ N/A ☐
17. RESULTADO EXPLOSIMETRO 0 LEL 0 CO 0 H^2S 20.8 O^2 — SI ☑ NO ☐ N/A ☐
18. REQUIERE MONITOREO DE GASES CONSTANTEMENTE — SI ☑ NO ☐ N/A ☐
19. COLOCACION DE SEÑALIZACION Y ACORDONAMIENTO DEL AREA — SI ☐ NO ☐ N/A ☑
20. NOTIFICACION AL PERSONAL DEL AREA — SI ☐ NO ☐ N/A ☐
21. SUSPENDER OPERACIONES DEL AREA MIENTRAS SE REALIZA EL TRABAJO — SI ☐ NO ☐ N/A ☐
22. COLOCACION DE EXTINGUIDORES AL ALCANCE PARA USO INMEDIATO — SI ☑ NO ☐ N/A ☐
23. PREPARAR UN HIDRANTE CONTRA INCENDIO PARA USO EN CASO DE EMERGENCIA — SI ☐ NO ☐ N/A ☐
24. RETIRAR COMBUSTIBLES E INFLAMABLES A MAS DE 50 PIES — SI ☑ NO ☐ N/A ☐
25. MANTENER MOJADO EL PISO, TUBERIAS O EQUIPOS BAJO EL TRABAJO CALIENTE — SI ☐ NO ☐ N/A ☐
26. CUBRIR CON LONA HUMEDA AREA DE TRABAJO Y EQUIPOS ADYACENTES — SI ☐ NO ☐ N/A ☐
27. MANTENER EXTRACTOR / VENTILADOR PARA DESALOJAR HUMOS O VENTILAR — SI ☐ NO ☐ N/A ☐
28. ASIGNAR A UN PREVENCIONISTA — SI ☐ NO ☐ N/A ☑

NOMBRE Y FIRMA DEL PREVENCIONISTA

SE HAN VERIFICADO LAS CONDICIONES DE ESTE PERMISO POR LO CUAL SE GARANTIZA QUE EL AREA HA SIDO INSPECCIONADA Y SE ENCUENTRA LIBRE DE RIESGO. SE CONCEDE EL PERMISO PARA TRABAJOS CALIENTES Y SE VERIFICA QUE EL(LOS) EJECUTOR(ES) ESTAN CALIFICADOS PARA ESTE TRABAJO, CONOCEN LOS RIESGOS Y CUENTAN CON EL EQUIPO DE PROTECCIÓN PERSONAL PARA REALIZAR EL TRABAJO. ENTREGAR COPIA AL DEPARTAMENTO DE SEGURIDAD

HORA DE INICIO DEL TRABAJO: 0730 HORA DE TERMINACION: 14:20

RESPONSABLE DE EJECUCION DEL TRABAJO	RESPONSABLE OPERATIVO
Marianela Mercado Burgos	Brenda Torres
NOMBRE Y FIRMA	NOMBRE Y FIRMA

VERIFICACIONES DE SEGURIDAD DURANTE EL TRABAJO:

1a. VERIFICACION	2a. VERIFICACION	3a. VERIFICACION	VERIFICACION FINAL CONDICIONES DESPUES DEL TRABAJO
FIRMA	Miguel Villegas FIRMA	FIRMA	Miguel Villegas FIRMA

PERMISO PARA TRABAJOS PELIGROSOS

SAPS-010
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PUMA ENERGY

Puma Energy Caribe LLC.

NUMERO 1220

ESTE PERMISO CUBRE UNICAMENTE EL AREA ESPECIFICA Y DEBERA MANTENERSE EN UN LUGAR VISIBLE EN EL LUGAR DE TRABAJO MIENTRAS SE DESARROLLE

DEPTO. Ambiental FECHA: 12 - abril - 14

AREA DE TRABAJO: WWTP

- [ ] MANIOBRAS PESADAS
- [ ] MATERIALES PELIGROSOS
- [ ] TUBERIAS CARGADAS
- [ ] EQUIPO ENERGIZADOS
- [ ] INSTALACION ELEC. PROVISIONAL
- [ ] TRABAJO DE EXCAVACION
- [ ] OTRO TRABAJO PELIGROSO

DESCRIPCION DEL TRABAJO: Barrenado, muestreo de suelo, pozo (instalaciones) muestreo handauger descontaminación de equipo.

SOLICITANTE: Marianela Mercado Burgos PUESTO: Geóloga

SEÑALAR LAS PRECAUCIONES QUE DEBEN TOMARSE PARA LA REALIZACION DEL TRABAJO

MEDIDAS GENERALES	SI	N/A
1. SE SATISFACE SAPS-001 ENTRADA A ESPACIOS CONFINADOS		
2. SE SATISFACE SAPS-009 BLOQUEO DE ENERGIAS PELIGROSAS		
3. SE SATISFACE SAPS-002 TRABAJOS CALIENTES		
4. SE SATISFACE SAPS-003 TRABAJOS EN ALTURAS		
5. SE CUMPLE CON ADMINISTRACION DE CAMBIOS		
6. EJECUTANTE CALIFICADO, Y EN CONDICIONES FISICAS Y APROPIADAS	✓	
7. EPP COMPLETO Y EN BUEN ESTADO	✓	
8. HERRAMIENTAS COMPETAS Y EN BUEN ESTADO	✓	
9. EQUIPO CON INSPECCION DE PRE-USO, SIN FALLAS CRITICAS	✓	
10. PERSONAL AFECTADO NOTIFICADO DEL TRABAJO		✓
11. AREA ACORDONADA Y/O SEÑALIZADA APROPIADAMENTE		✓
12. PREVENCIONISTA ASIGNADO (FIRMA AL CALCE)		

MANIOBRAS PESADAS	SI	N/A
a) CABLES, ESLINGAS/ESTROBOS, GANCHOS, PERNOS REVISADOS		
b) GRUAS CON CAPACIDAD DEL DOBLE DE LA CARGA AL MENOS		
c) ANGULO DE BRAZO DE GRUA NO EXCEDE LIMITE DE SEGURIDAD		
d) PATAS DE GRUA APOYADAS SOBRE TERRENOS FIRMES		
e) ESTRUCTURAS, PISOS, TECHOS OK PARA SOPORTAR LA CARGA		
f) EQUIPOS DE SUJECION, TENSORES, CUERDAS, ADECUADOS		
g) NINGUNA PERSONA PUEDE QUEDAR BAJO LA CARGA		
h) OPERADOR ACREDITADO CON CREDENCIAL-LICENCIA		

MANEJO NO RUTINARIO DE MATERIALES PELIGROSOS	SI	N/A
a) HOJA(S) DE DATOS DE SEGURIDAD DISPONIBLE(S)		
b) RIESGO DE TOXICIDAD/CORROSIVIDAD CONSIDERADOS		
c) RIESGO DE IMPACTO AMBIENTAL CONSIDERADO		
d) RIESGO DE INCENDIO O EXPLOSION CONSIDERADO		
e) TRAYECTORIAS DE TUBERIAS/MANGUERAS ANALIZADAS		
f) RIESGO DE ELECTRICIDAD ESTATICA CONSIDERADO		
g) CONDICIONES DE OPERACION /INCOMPATIBLES CONSIDERADOS		
h) ANALISIS DE OPERACION REALIZADO CON EJECUTANTE(S)		
i) TUBERIAS/ MANGUERAS PROBADAS A PRESION		
j) PERSONAL ENTRENADO EN LA OPERACION		

TRABAJOS SOBRE TUBERIAS CARGADAS	SI	N/A
a) MATERIAL PELIGROSO		
b) ANALISIS DE OPERACION REALIZADO		
c) EJECUTANTE(S) INVOLUCRADO(S) EN ANALISIS DE OPERACION		
d) TUBERIA / EQUIPO A TEMPERATURA APROPIADA PARA INICIAR		
e) ACCIONES DE PREPARACION DE EQUIPO / TUBERIA REALIZADAS:		

DRENADO	DESPRESURIZADO	LAVADO	VAPORIZADO

OTROS TRABAJOS PELIGROSOS NO RUTINARIOS	SI	N/A
a) ANALISIS DE OPERACION REALIZADO	✓	
b) EJECUTANTE(S) INVOLUCRADO(S) EN ANALISIS DE OPERACION	✓	
c) MEDIDAS DE SEGURIDAD ESPECIFICAS: PPE de acuerdo a la tarea a realizarse.		

TRABAJOS SOBRE EQUIPOS ENERGIZADOS	SI	N/A
TENSION ABAJO DE 600 V (CONDUCTORES Y EQUIPO ADYACENTE)		

EN ALTA TENSION (>600 V) NO SE AUTORIZA EL TRABAJO

PROPORCIONE JUSTIFICACION DEL TRABAJO

	SI	N/A
a) REVISION DE AREAS ADYACENTES QUE PUEDEN CREAR RIESGOS		
b) ALSLAMIENTOS REALIZADOS EN EL AREA		

CONDUCTORES ADYADCENTES	GABINETE	PISO	EQ. HERRAM METALICOS

c) EPP DIELECTRICO: CASCO ☐ GUANTES ☐ CALZADO ☐

d) PUESTA A TIERRA (GABINETES, EQUIPOS DE MEDICION) ☐ ☐

INSTALACIONES ELECTRICAS PROVISIONALES	SI	N/A

PROPORCIONE JUSTIFICACION DE LA INSTALACION

AUTORIZACION PARA UN MAXIMO DE 30 DIAS

	SI	N/A
a) SIN INTERFERENCIA CON AREAS / EQUIPOS DE OPERACION		
b) SIN INTERFERENCIA A CIRCULACION DE VEHICULOS/PEATONES		
c) CABLE USO RUDO DE CAPACIDAD / SOPORTERIA ADECUADOS		
d) CONDICIONES. AMBIENTALES (HUMEDAD, LLUVIA) APROPIADAS		
e) TARJETA DE SEGURIDAD IEP LLENADA		

EXCAVACIONES	SI	N/A
a) TIPO DE EXCAVACION: MENOR (0.60-1.20m) ☐ MAYOR (1.20-6.00m) ☐ PROFUNDA (>6.00 m) ☐		
b) AUSENCIA DE RIESGOS EN SUBSUELO COMPROBADA		
c) ADEMES PARA EVITAR DERRUMBES EN EL PROYECTO		
d) INCLINACION DE LAS PAREDES DISEÑADA EN PROYECTO		
e) ZONA PARA DEPOSITO DE MATERIAL EXCAVADO		
f) PROYECTO DE INGENIERIA PARA EXCAVACIONES PROFUNDAS		

SE HAN VERIFICADO LAS CONDICIONES DE ESTE PERMISO POR LO CUAL SE GARANTIZA QUE EL AREA HA SIDO INSPECCIONADA Y SE ENCUENTRA LIBRE DE RIESGO. SE CONCEDE EL PERMISO PARA TRABAJOS CALIENTES Y SE VERIFICA QUE EL(LOS) EJECUTOR(ES) ESTAN CALIFICADOS PARA ESTE TRABAJO, CONOCEN LOS RIESGOS Y CUENTAN CON EL EQUIPO DE PROTECCIÓN PERSONAL PARA REALIZAR EL TRABAJO.

ENTREGAR COPIA AL DEPARTAMENTO DE SEGURIDAD

HORA DE INICIO DEL TRABAJO: 0730 HORA DE FINALIZACION: 14:20

PREVENCIONISTA	RESPONSABLE DE EJECUCION	RESPONSABLE OPERACCION

VERIFICACIONES DE SEGURIDAD DURANTE EL TRABAJO:

1a. VERIFICACION	2a. VERIFICACION	3a. VERIFICACION	VERIFICACION FINAL CONDICIONES DESPUES DEL TRABAJO
FIRMA	FIRMA	FIRMA	FIRMA

BBL Caribe ARCADIS

Drill/Direct Push Type Rig Inspection Checklist

Site/Project Name: RCRA RFI USEPA / Puma Terminal Date: April 12, 16

Rig Inspector (Name/Company): Marianela Mercado Burgos / BBL Caribe

Rig Information:

Rig Type: ☐ Rotary Auger/Drilling Rig ☑ Direct Push Type (DPT)

Owner: Geoinnotech. Inc.

Year/Make: 1999

Model: 6610 DT

VIN #:

Mileage: N/A

Drill Hours: (if applicable) 3,114.9

(Inspector to mark columns below as appropriate)

Category	Inspection Items	Pass	Fail	N/A	Action Needed
Emergency Switches	Kill switches are located and accessible to workers on both sides of the rotating stem. **NOTE:** Location and number of switches depend on the rig manufacturer; please refer to owner's manual (DPT typically has one switch on control panel).	✓			
	Kill switches installed by the manufacturer are verified to be in operable condition and all workers are familiar with the location and operation of these switches. **NEVER BYPASS, DISABLE, OR REMOVE KILL DEVICES.**	✓			
Protective Guards	Drive shafts, belts, chain drives, and universal joints are guarded to prevent accidental insertion of hands, fingers, or tools.	✓			
	Pinch Points at equipment tools and materials are identified and marked.	✓			
	Hands are never placed on wrenches where they can get trapped between the wrench and the drill rig.	✓			
	Drilling rod strings not broken (or locked) by applying powered rotation to the drill with a wrench attached to it.	✓			
	Manual drilling rod string locking (or separation) is always done only after deenergizing the drill.	✓			
	Extension leverage (cheaters) used safely on wrenches to break drill rods only if mechanical devices are not available.	✓			
	Wrenches are always removed from rods before starting to drill.	✓			
	Long-handled shovel/tool is used to clear away cuttings; only when auger has stopped; never cleared with the hands.	✓			
Electrical Devices	Ground fall circuit interrupter (GFCI) installed in electrical facilities at all working areas.			✓	
	Electrical connections properly grounded.			✓	
	Electrical circuits in use provided with breakers and/or emergency shut-off switches.			✓	
	Insulating glover and/or mats used when subsurface clearance is advanced with hand tools.			✓	
	Weather proff extentions and connector used at exposed/open areas.			✓	

Category	Inspection Items	Pass	Fail	N/A	Action Needed
Cables	Cables on drill rig are free of kinks, frayed wires, birdcages, flat spots, grease, and worn or missing sections.	✓			
	Cables are terminated at the working end with a proper eye splice; either swaged, coupled, or using cable clamps.	✓			
	Cable clamps are installed with the saddle on the live or load side. Clamps are not alternated and are of the correct size and number for the cable size.	✓			
	Wire ropes are not allowed to bend around sharp edges without cushion material.	✓			
Pulleys	Pulleys are not to be bent, cracked, or broken.	✓			
	Pulleys operate smoothly and freely, without resistance.	✓			
Cable Winches	Motor is mounted in correct location and tightly secured to drill rig.	✓			
	Winch is capable of being placed in the free spool (unwind smoothly) and locked position correctly, demonstrating that the cable is suitable for lifting during drilling operations.	✓			
Safety Latches	Hooks installed on hoist cables are the safety type with a functional latch to prevent accidental separation.	✓			
	Safety latches are functional and completely span the entire throat of the hook and have positive action to close the throat except when manually displaced for connecting or disconnecting a load.	✓			
Flights/ Augers	Flights/Augers should not be bent, cracked, or broken. **NOTE:** Flights/Augers failing inspection must be removed from jobsite.	✓			
	Flights should be blunt to prevent the risks of cuts.	✓			
	Augers keys should not be bent, have any cracks/fractures, be excessively worn, or otherwise damaged.	✓			
	Auger bolt holes and threads should not be damaged.	✓			
	Inspect flights/augers for metal burrs. **NOTE:** Burrs must be filed to flat surface.	✓			
	Avoid stacking augers; all should lay flat on ground.	✓			
	Avoid manually lifting/moving augers. Should be lifted/moved with cable lines or, at a minimum, by two persons.	✓			
Drill String	Drill string should not be bent or have any cracks/fractures.	✓			
	Drill string connecting pins should not be bent, have any cracks/fractures, or be excessively worn.	✓			
Mast	Mast is free of bends, cracks, or broken sections.	✓			
	All mounting hardware (pins, bolts, etc.) should be in place.	✓			
	No moving of drill ring while mast is in vertical position.	✓			
	Maintenance/repairs to be performed on mast only in horizontal position.	✓			
Hammering Device	Hammer free of cracks, fatigue, or other signs of excessive wear.			✓	
	Hammer connections are secure.			✓	

Category	Inspection Items	Pass	Fail	N/A	Action Needed
Leveling Devices	Outriggers move in/out and up/down smoothly and freely while using controls on drill rig, with no hydraulic leaks.	✓			
	Outriggers are extended prior to and whenever the mast is raised off its cradle. Outriggers must maintain pressure to continuously support and stabilize the drill rig (even while unattended).	✓			
	Outriggers are properly supported on the ground surface to prevent settling into the soil (use of outrigger support pads).	✓			
Controls	Controls are intact, properly labeled, have freedom of movement, and have no loose wiring or connections.	✓			
	Controls are not blocked or locked into an operation position.	✓			
	Installed lights, signals, gauges, and alarms operate properly.	✓			
	Lockout/Tagout procedures implemented.	✓			
Lifting Devices	Slings, chokers, and lifting devices are inspected before using and are in proper working order. NOTE: Damaged units are to be labeled and removed from jobsite.	✓			
	Shackles/Clevises are in proper working order with pins/screws in place that is to be used while lifting.	✓			
	Cables and lifting devices are not operated erratically or with a jerking action to overcome resistance.	✓			
Hydraulic System	Hydraulic lines are secure, in good condition with no sign of excessive wear, and not leaking. **NOTE:** Check while pressurized.	✓			
	Hydraulic lines are not in a bent or pinched position causing additional fluid restrictions/pressures.	✓			
	Hydraulic oil reservoir has appropriate amount of oil and not leaking.	✓			
	Documentation available to confirm that pressure relief valve was checked during shop maintenance activity and noted on maintenance log.	✓			
Pump Lines (water, grout, etc.)	Suction/Discharge hoses, pipes, valves, and fittings are seccured and not leaking.	✓			
	High pressure hoses have a safety chain, cable, or strap at each end to prevent whipping in the event of a failure.	✓			
Fire Prevention	A fire extinguisher of appropriate size is located on drill rig and readily available/accesible for drilling crew (recommended 20 lb.).	✓			
	Documentation available to confirm that the drilling crew has received training on proper use of fire extinguishers.	✓			
Ladders	Drill rig has a permanently attached or proper portable ladder to be used for access to drilling platform.			✓	

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Category	Inspection Items	Pass	Fail	N/A	Action Needed
Tracks	Tracks on rig are not excessively worn and free of any debris or foreign material.	✓			
General	Drill rig meets regulations for transport on state/federal highways (inspection sticker, license plate, etc.).	✓			
	Documentation available to verify that rig was inspected prior to arriving at job sites.	✓			
	Does the rig size meet job requirements?	✓			
	Maintenance log available for previous three months to confirm proper maintenance/inspection.	✓			
Exhaust	Exhaust system should be free from defect and routes engine exhaust away from drill rig workers.	✓			
Fuels	Fuel stored in an approved and properly labeled container.	✓			
	Fuel transfer lines free from signs of excessive wear and not leaking.	✓			
	Refueling and transferring of fuel is performed in an approved area with sufficient containment to prevent spillage.	✓			
Exclusion/ Work Zones	The exclusion/work zone is centered over the borehole and the radius equal to or greater than the height of the mast (measured from ground level).	✓			
	The exclusion/work zone should be clear of tripping hazards.	✓			
	Workers maintain safe clearance from rotation auger.	✓			
	The rig/drill is always operated by qualified drillers and never left unattended.	✓			
	If drilling is done in an enclosed area, the exhaust fumes are vented from the work site.	✓			
	If drilling with air, the exhaust and cuttings are directed away from the workers.	✓			
	No drilling is performed in rainy weather and/or if lightning is expected.	✓			
	Water supply to mitigate sparking potential and dust control readily available, if necessary.	✓			
Overhead Obstructions	Except where electrical distribution and transmission lines have been de-energized and visibly grounded, drill rigs will be operated proximate to under, by, or near power lines in accordance with the following: * 50 KV or less - minimum clearance of 10 feet * 50 KV or greater - add 0.4 inches for every KV over 50 KV * If voltage is unknown, maintain at least 20 feet of clearance.	✓			
	While the rig is in transit, clearance from energized power lines will be maintained as follows: * Less than 50 KV - 4 feet * 50 thru 365 KV - 10 feet * 366 thru 720 KV - 16 feet	✓			
Rig Repairs	Repairs, when possible, are conducted offsite to reduce the risk of any onsite incidents.	✓			
Specialized PPE	When working at elevated heights, workers are to wear a fall restraining device attached in a manner to restrict fall to less than six feet.	✓			
	When working in wet/slippery conditions, all workers have a lug-type sole or similar slip resistant sole, on their safety footwear to prevent slipping.	✓			

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Recommended Spare Parts or Items to be Sent with Drill Crew

Drill Rig

Emergency Switch
Drive Coupling
Shear Pins/Keys (for drive coupling)
Pump Packing
Pump Hoses
Auger Bolts
Rod to Cap Pins
Cutter Head
Safety Latches, Hooks, Clamps
Split Spoon Cutter Head
Spill Kit (5 gal. bucket with oil dry and absorbent pads)

DPT Rig

Emergency Switch
Drive Caps
Cutter Head
Pull Cap
Liner Cutter
Rod to Cap Pins
Liner Holder (used while cutting)
Spill Kit (5 gal. bucket with oil dry and absorbent pads)

Hurricane 500 EL Vacuum

Check engine oil level on the dipstick: add 15W40 enginer oil as needed.	☐
Check blower oil. Two sight glasses should be 1/2 full. Add AMSOIL synthetic R&O	☐
Gear & Bearing ISO 220 (RCM) as needed.	☐
Check radiator water level. DANGER! Check only when the machine is cold.	
Verify that all safety pins, locks, support legs and structs are in place.	☐
Position desired container under dump door.	☐
Check machine for potential loose air hoses, hydraulic hoses and fasteners.	☐
Connect E-stop (Emergency Stop) button and cord; make sure button is pushed in.	☐
Start-up machine at idle speed: let it warm up approximately 5 minutes.	☐
Check air pressure gauge on instrument panel (at least 90 PSI).	☐
Engage the clutch lever (only at idle speed).	☐
Turn on bag house filter switch (up position).	☐
Turn on dump system switch (up position).	☐
Pull E-stop switch out; this should produce vacuum at vacuum inlet.	☐

Rig Inspector: Marianela Mercado Burgos Date: 12 abril - 16

Company: BBL Caribe

Drilling Contractor: Willian Rodriguez Date: 12/4/16

Company:

BBL Caribe ARCADIS

Drill/Direct Push Type Rig Inspection Checklist

Site/Project Name: Puma Terminal / RCRA RFI - USEPA Date: 11-abril-10

Rig Inspector (Name/Company): Marianela Mercado Burgos / BBL Caribe-Arcadis

Rig Information:

Rig Type: ☐ Rotary Auger/Drilling Rig ☑ Direct Push Type (DPT)

Owner: Gwenvirotech, Inc.

Year/Make: 1999

Model: 6610 DT

VIN #:

Mileage: N/A

Drill Hours: (if applicable) 3197.3

(Inspector to mark columns below as appropriate)

Category	Inspection Items	Pass	Fail	N/A	Action Needed
Emergency Switches	Kill switches are located and accessible to workers on both sides of the rotating stem. **NOTE:** Location and number of switches depend on the rig manufacturer; please refer to owner's manual (DPT typically has one switch on control panel).	✓			
	Kill switches installed by the manufacturer are verified to be in operable condition and all workers are familiar with the location and operation of these switches. **NEVER BYPASS, DISABLE, OR REMOVE KILL DEVICES.**	✓			
Protective Guards	Drive shafts, belts, chain drives, and universal joints are guarded to prevent accidental insertion of hands, fingers, or tools.	✓			
	Pinch Points at equipment tools and materials are identified and marked.	✓			
	Hands are never placed on wrenches where they can get trapped between the wrench and the drill rig.	✓			
	Drilling rod strings not broken (or locked) by applying powered rotation to the drill with a wrench attached to it.	✓			
	Manual drilling rod string locking (or separation) is always done only after deenergizing the drill.	✓			
	Extension leverage (cheaters) used safely on wrenches to break drill rods only if mechanical devices are not available.	✓			
	Wrenches are always removed from rods before starting to drill.	✓			
	Long-handled shovel/tool is used to clear away cuttings; only when auger has stopped; never cleared with the hands.	✓			
Electrical Devices	Ground fall circuit interrupter (GFCI) installed in electrical facilities at all working areas.			✓	
	Electrical connections properly grounded.			✓	
	Electrical circuits in use provided with breakers and/or emergency shut-off switches.			✓	
	Insulating glover and/or mats used when subsurface clearance is advanced with hand tools.			✓	
	Weather proff extentions and connector used at exposed/open areas.			✓	

Category	Inspection Items	Pass	Fail	N/A	Action Needed
Cables	Cables on drill rig are free of kinks, frayed wires, birdcages, flat spots, grease, and worn or missing sections.	✓			
	Cables are terminated at the working end with a proper eye splice; either swaged, coupled, or using cable clamps.	✓			
	Cable clamps are installed with the saddle on the live or load side. Clamps are not alternated and are of the correct size and number for the cable size.	✓			
	Wire ropes are not allowed to bend around sharp edges without cushion material.	✓			
Pulleys	Pulleys are not to be bent, cracked, or broken.	✓			
	Pulleys operate smoothly and freely, without resistance.	✓			
Cable Winches	Motor is mounted in correct location and tightly secured to drill rig.	✓			
	Winch is capable of being placed in the free spool (unwind smoothly) and locked position correctly, demonstrating that the cable is suitable for lifting during drilling operations.	✓			
Safety Latches	Hooks installed on hoist cables are the safety type with a functional latch to prevent accidental separation.	✓			
	Safety latches are functional and completely span the entire throat of the hook and have positive action to close the throat except when manually displaced for connecting or disconnecting a load.	✓			
Flights/ Augers	Flights/Augers should not be bent, cracked, or broken. **NOTE:** Flights/Augers failing inspection must be removed from jobsite.	✓			
	Flights should be blunt to prevent the risks of cuts.	✓			
	Augers keys should not be bent, have any cracks/fractures, be excessively worn, or otherwise damaged.	✓			
	Auger bolt holes and threads should not be damaged.	✓			
	Inspect flights/augers for metal burrs. **NOTE:** Burrs must be filed to flat surface.	✓			
	Avoid stacking augers; all should lay flat on ground.	✓			
	Avoid manually lifting/moving augers. Should be lifted/moved with cable lines or, at a minimum, by two persons.	✓			
Drill String	Drill string should not be bent or have any cracks/fractures.	✓			
	Drill string connecting pins should not be bent, have any cracks/fractures, or be excessively worn.	✓			
Mast	Mast is free of bends, cracks, or broken sections.	✓			
	All mounting hardware (pins, bolts, etc.) should be in place.	✓			
	No moving of drill ring while mast is in vertical position.	✓			
	Maintenance/repairs to be performed on mast only in horizontal position.	✓			
Hammering Device	Hammer free of cracks, fatigue, or other signs of excessive wear.			✓	
	Hammer connections are secure.			✓	

Category	Inspection Items	Pass	Fail	N/A	Action Needed
Leveling Devices	Outriggers move in/out and up/down smoothly and freely while using controls on drill rig, with no hydraulic leaks.	✓			
	Outriggers are extended prior to and whenever the mast is raised off its cradle. Outriggers must maintain pressure to continuously support and stabilize the drill rig (even while unattended).	✓			
	Outriggers are properly supported on the ground surface to prevent settling into the soil (use of outrigger support pads).	✓			
Controls	Controls are intact, properly labeled, have freedom of movement, and have no loose wiring or connections.	✓			
	Controls are not blocked or locked into an operation position.	✓			
	Installed lights, signals, gauges, and alarms operate properly.	✓			
	Lockout/Tagout procedures implemented.	✓			
Lifting Devices	Slings, chokers, and lifting devices are inspected before using and are in proper working order. NOTE: Damaged units are to be labeled and removed from jobsite.	✓			
	Shackles/Clevises are in proper working order with pins/screws in place that is to be used while lifting.	✓			
	Cables and lifting devices are not operated erratically or with a jerking action to overcome resistance.	✓			
Hydraulic System	Hydraulic lines are secure, in good condition with no sign of excessive wear, and not leaking. **NOTE:** Check while pressurized.	✓			
	Hydraulic lines are not in a bent or pinched position causing additional fluid restrictions/pressures.	✓			
	Hydraulic oil reservoir has appropriate amount of oil and not leaking.	✓			
	Documentation available to confirm that pressure relief valve was checked during shop maintenance activity and noted on maintenance log.	✓			
Pump Lines (water, grout, etc.)	Suction/Discharge hoses, pipes, valves, and fittings are seccured and not leaking.	✓			
	High pressure hoses have a safety chain, cable, or strap at each end to prevent whipping in the event of a failure.	✓			
Fire Prevention	A fire extinguisher of appropriate size is located on drill rig and readily available/accesible for drilling crew (recommended 20 lb.).	✓			
	Documentation available to confirm that the drilling crew has received training on proper use of fire extinguishers.	✓			
Ladders	Drill rig has a permanently attached or proper portable ladder to be used for access to drilling platform.			✓	

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Category	Inspection Items	Pass	Fail	N/A	Action Needed
Tracks	Tracks on rig are not excessively worn and free of any debris or foreign material.	✓			
General	Drill rig meets regulations for transport on state/federal highways (inspection sticker, license plate, etc.).	✓			
	Documentation available to verify that rig was inspected prior to arriving at job sites.	✓			
	Does the rig size meet job requirements?	✓			
	Maintenance log available for previous three months to confirm proper maintenance/inspection.	✓			
Exhaust	Exhaust system should be free from defect and routes engine exhaust away from drill rig workers.	✓			
Fuels	Fuel stored in an approved and properly labeled container.	✓			
	Fuel transfer lines free from signs of excessive wear and not leaking.	✓			
	Refueling and transferring of fuel is performed in an approved area with sufficient containment to prevent spillage.	✓			
Exclusion/ Work Zones	The exclusion/work zone is centered over the borehole and the radius equal to or greater than the height of the mast (measured from ground level).	✓			
	The exclusion/work zone should be clear of tripping hazards.	✓			
	Workers maintain safe clearance from rotation auger.	✓			
	The rig/drill is always operated by qualified drillers and never left unattended.	✓			
	If drilling is done in an enclosed area, the exhaust fumes are vented from the work site.	✓			
	If drilling with air, the exhaust and cuttings are directed away from the workers.	✓			
	No drilling is performed in rainy weather and/or if lightning is expected.	✓			
	Water supply to mitigate sparking potential and dust control readily available, if necessary.	✓			
Overhead Obstructions	Except where electrical distribution and transmission lines have been de-energized and visibly grounded, drill rigs will be operated proximate to under, by, or near power lines in accordance with the following: * 50 KV or less - minimum clearance of 10 feet * 50 KV or greater - add 0.4 inches for every KV over 50 KV * If voltage is unknown, maintain at least 20 feet of clearance.	✓			
	While the rig is in transit, clearance from energized power lines will be maintained as follows: * Less than 50 KV - 4 feet * 50 thru 365 KV - 10 feet * 366 thru 720 KV - 16 feet	✓			
Rig Repairs	Repairs, when possible, are conducted offsite to reduce the risk of any onsite incidents.	✓			
Specialized PPE	When working at elevated heights, workers are to wear a fall restraining device attached in a manner to restrict fall to less than six feet.	✓			
	When working in wet/slippery conditions, all workers have a lug-type sole or similar slip resistant sole, on their safety footwear to prevent slipping.	✓			

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Recommended Spare Parts or Items to be Sent with Drill Crew

Drill Rig

Emergency Switch
Drive Coupling
Shear Pins/Keys (for drive coupling)
Pump Packing
Pump Hoses
Auger Bolts
Rod to Cap Pins
Cutter Head
Safety Latches, Hooks, Clamps
Split Spoon Cutter Head
Spill Kit (5 gal. bucket with oil dry and absorbent pads)

DPT Rig

Emergency Switch
Drive Caps
Cutter Head
Pull Cap
Liner Cutter
Rod to Cap Pins
Liner Holder (used while cutting)
Spill Kit (5 gal. bucket with oil dry and absorbent pads)

Hurricane 500 EL Vacuum

Check engine oil level on the dipstick: add 15W40 enginer oil as needed.	☐
Check blower oil. Two sight glasses should be 1/2 full. Add AMSOIL synthetic R&O	☐
Gear & Bearing ISO 220 (RCM) as needed.	☐
Check radiator water level. DANGER! Check only when the machine is cold.	
Verify that all safety pins, locks, support legs and structs are in place.	☐
Position desired container under dump door.	☐
Check machine for potential loose air hoses, hydraulic hoses and fasteners.	☐
Connect E-stop (Emergency Stop) button and cord; make sure button is pushed in.	☐
Start-up machine at idle speed: let it warm up approximately 5 minutes.	☐
Check air pressure gauge on instrument panel (at least 90 PSI).	☐
Engage the clutch lever (only at idle speed).	☐
Turn on bag house filter switch (up position).	☐
Turn on dump system switch (up position).	☐
Pull E-stop switch out; this should produce vacuum at vacuum inlet.	☐

Rig Inspector: Marianela Mercado Burgos Date: 11-abril-16

Company: BBL Caribe

Drilling Contractor: Williss Rodriguez Date: 11/04/16

Company:

BBL Caribe ARCADIS

Drill/Direct Push Type Rig Inspection Checklist

Site/Project Name: Puma Terminal / RCRA RFI USEPA Date: 13-abril-16

Rig Inspector (Name/Company): Mariana Mercado Bump / BBL Caribe

Rig Information:

Rig Type: ☐ Rotary Auger/Drilling Rig ☑ Direct Push Type (DPT)

Owner: Geoenvirotech, Inc.

Year/Make: 1999

Model: 6610 DT

VIN #:

Mileage: NA

Drill Hours: (if applicable) 3199.8

(Inspector to mark columns below as appropriate)

Category	Inspection Items	Pass	Fail	N/A	Action Needed
Emergency Switches	Kill switches are located and accessible to workers on both sides of the rotating stem. **NOTE:** Location and number of switches depend on the rig manufacturer; please refer to owner's manual (DPT typically has one switch on control panel).	✓			
	Kill switches installed by the manufacturer are verified to be in operable condition and all workers are familiar with the location and operation of these switches. **NEVER BYPASS, DISABLE, OR REMOVE KILL DEVICES.**	✓			
Protective Guards	Drive shafts, belts, chain drives, and universal joints are guarded to prevent accidental insertion of hands, fingers, or tools.	✓			
	Pinch Points at equipment tools and materials are identified and marked.	✓			
	Hands are never placed on wrenches where they can get trapped between the wrench and the drill rig.	✓			
	Drilling rod strings not broken (or locked) by applying powered rotation to the drill with a wrench attached to it.	✓			
	Manual drilling rod string locking (or separation) is always done only after deenergizing the drill.	✓			
	Extension leverage (cheaters) used safely on wrenches to break drill rods only if mechanical devices are not available.	✓			
	Wrenches are always removed from rods before starting to drill.	✓			
	Long-handled shovel/tool is used to clear away cuttings; only when auger has stopped; never cleared with the hands.	✓			
Electrical Devices	Ground fall circuit interrupter (GFCI) installed in electrical facilities at all working areas.			✓	
	Electrical connections properly grounded.			✓	
	Electrical circuits in use provided with breakers and/or emergency shut-off switches.			✓	
	Insulating glover and/or mats used when subsurface clearance is advanced with hand tools.			✓	
	Weather proff extentions and connector used at exposed/open areas.			✓	

Category	Inspection Items	Pass	Fail	N/A	Action Needed
Cables	Cables on drill rig are free of kinks, frayed wires, birdcages, flat spots, grease, and worn or missing sections.	✓			
	Cables are terminated at the working end with a proper eye splice; either swaged, coupled, or using cable clamps.	✓			
	Cable clamps are installed with the saddle on the live or load side. Clamps are not alternated and are of the correct size and number for the cable size.	✓			
	Wire ropes are not allowed to bend around sharp edges without cushion material.	✓			
Pulleys	Pulleys are not to be bent, cracked, or broken.	✓			
	Pulleys operate smoothly and freely, without resistance.	✓			
Cable Winches	Motor is mounted in correct location and tightly secured to drill rig.	✓			
	Winch is capable of being placed in the free spool (unwind smoothly) and locked position correctly, demonstrating that the cable is suitable for lifting during drilling operations.	✓			
Safety Latches	Hooks installed on hoist cables are the safety type with a functional latch to prevent accidental separation.	✓			
	Safety latches are functional and completely span the entire throat of the hook and have positive action to close the throat except when manually displaced for connecting or disconnecting a load.	✓			
Flights/ Augers	Flights/Augers should not be bent, cracked, or broken. **NOTE:** Flights/Augers failing inspection must be removed from jobsite.	✓			
	Flights should be blunt to prevent the risks of cuts.	✓			
	Augers keys should not be bent, have any cracks/fractures, be excessively worn, or otherwise damaged.	✓			
	Auger bolt holes and threads should not be damaged.	✓			
	Inspect flights/augers for metal burrs. **NOTE:** Burrs must be filed to flat surface.	✓			
	Avoid stacking augers; all should lay flat on ground.	✓			
	Avoid manually lifting/moving augers. Should be lifted/moved with cable lines or, at a minimum, by two persons.	✓			
Drill String	Drill string should not be bent or have any cracks/fractures.	✓			
	Drill string connecting pins should not be bent, have any cracks/fractures, or be excessively worn.	✓			
Mast	Mast is free of bends, cracks, or broken sections.	✓			
	All mounting hardware (pins, bolts, etc.) should be in place.	✓			
	No moving of drill ring while mast is in vertical position.	✓			
	Maintenance/repairs to be performed on mast only in horizontal position.	✓			
Hammering Device	Hammer free of cracks, fatigue, or other signs of excessive wear.			✓	
	Hammer connections are secure.			✓	

Category	Inspection Items	Pass	Fail	N/A	Action Needed
Leveling Devices	Outriggers move in/out and up/down smoothly and freely while using controls on drill rig, with no hydraulic leaks.	✓			
	Outriggers are extended prior to and whenever the mast is raised off its cradle. Outriggers must maintain pressure to continuously support and stabilize the drill rig (even while unattended).	✓			
	Outriggers are properly supported on the ground surface to prevent settling into the soil (use of outrigger support pads).	✓			
Controls	Controls are intact, properly labeled, have freedom of movement, and have no loose wiring or connections.	✓			
	Controls are not blocked or locked into an operation position.	✓			
	Installed lights, signals, gauges, and alarms operate properly.	✓			
	Lockout/Tagout procedures implemented.	✓			
Lifting Devices	Slings, chokers, and lifting devices are inspected before using and are in proper working order. NOTE: Damaged units are to be labeled and removed from jobsite.	✓			
	Shackles/Clevises are in proper working order with pins/screws in place that is to be used while lifting.	✓			
	Cables and lifting devices are not operated erratically or with a jerking action to overcome resistance.	✓			
Hydraulic System	Hydraulic lines are secure, in good condition with no sign of excessive wear, and not leaking. **NOTE:** Check while pressurized.	✓			
	Hydraulic lines are not in a bent or pinched position causing additional fluid restrictions/pressures.	✓			
	Hydraulic oil reservoir has appropriate amount of oil and not leaking.	✓			
	Documentation available to confirm that pressure relief valve was checked during shop maintenance activity and noted on maintenance log.	✓			
Pump Lines (water, grout, etc.)	Suction/Discharge hoses, pipes, valves, and fittings are seccured and not leaking.	✓			
	High pressure hoses have a safety chain, cable, or strap at each end to prevent whipping in the event of a failure.	✓			
Fire Prevention	A fire extinguisher of appropriate size is located on drill rig and readily available/accesible for drilling crew (recommended 20 lb.).	✓			
	Documentation available to confirm that the drilling crew has received training on proper use of fire extinguishers.	✓			
Ladders	Drill rig has a permanently attached or proper portable ladder to be used for access to drilling platform.			✓	

BBL Caribe ARCADIS

Category	Inspection Items	Pass	Fail	N/A	Action Needed
Tracks	Tracks on rig are not excessively worn and free of any debris or foreign material.	✓			
General	Drill rig meets regulations for transport on state/federal highways (inspection sticker, license plate, etc.).	✓			
	Documentation available to verify that rig was inspected prior to arriving at job sites.	✓			
	Does the rig size meet job requirements?	✓			
	Maintenance log available for previous three months to confirm proper maintenance/inspection.	✓			
Exhaust	Exhaust system should be free from defect and routes engine exhaust away from drill rig workers.	✓			
Fuels	Fuel stored in an approved and properly labeled container.	✓			
	Fuel transfer lines free from signs of excessive wear and not leaking.	✓			
	Refueling and transferring of fuel is performed in an approved area with sufficient containment to prevent spillage.	✓			
Exclusion/ Work Zones	The exclusion/work zone is centered over the borehole and the radius equal to or greater than the height of the mast (measured from ground level).	✓			
	The exclusion/work zone should be clear of tripping hazards.	✓			
	Workers maintain safe clearance from rotation auger.	✓			
	The rig/drill is always operated by qualified drillers and never left unattended.	✓			
	If drilling is done in an enclosed area, the exhaust fumes are vented from the work site.	✓			
	If drilling with air, the exhaust and cuttings are directed away from the workers.	✓			
	No drilling is performed in rainy weather and/or if lightning is expected.	✓			
	Water supply to mitigate sparking potential and dust control readily available, if necessary.	✓			
Overhead Obstructions	Except where electrical distribution and transmission lines have been de-energized and visibly grounded, drill rigs will be operated proximate to under, by, or near power lines in accordance with the following: * 50 KV or less - minimum clearance of 10 feet * 50 KV or greater - add 0.4 inches for every KV over 50 KV * If voltage is unknown, maintain at least 20 feet of clearance.	✓			
	While the rig is in transit, clearance from energized power lines will be maintained as follows: * Less than 50 KV - 4 feet * 50 thru 365 KV - 10 feet * 366 thru 720 KV - 16 feet	✓			
Rig Repairs	Repairs, when possible, are conducted offsite to reduce the risk of any onsite incidents.	✓			
Specialized PPE	When working at elevated heights, workers are to wear a fall restraining device attached in a manner to restrict fall to less than six feet.	✓			
	When working in wet/slippery conditions, all workers have a lug-type sole or similar slip resistant sole, on their safety footwear to prevent slipping.	✓			

BBL Caribe ARCADIS

Recommended Spare Parts or Items to be Sent with Drill Crew

Drill Rig

Emergency Switch
Drive Coupling
Shear Pins/Keys (for drive coupling)
Pump Packing
Pump Hoses
Auger Bolts
Rod to Cap Pins
Cutter Head
Safety Latches, Hooks, Clamps
Split Spoon Cutter Head
Spill Kit (5 gal. bucket with oil dry and absorbent pads)

DPT Rig

Emergency Switch
Drive Caps
Cutter Head
Pull Cap
Liner Cutter
Rod to Cap Pins
Liner Holder (used while cutting)
Spill Kit (5 gal. bucket with oil dry and absorbent pads)

Hurricane 500 EL Vacuum

Check engine oil level on the dipstick: add 15W40 enginer oil as needed.	☐
Check blower oil. Two sight glasses should be 1/2 full. Add AMSOIL synthetic R&O	☐
Gear & Bearing ISO 220 (RCM) as needed.	☐
Check radiator water level. DANGER! Check only when the machine is cold.	
Verify that all safety pins, locks, support legs and structs are in place.	☐
Position desired container under dump door.	☐
Check machine for potential loose air hoses, hydraulic hoses and fasteners.	☐
Connect E-stop (Emergency Stop) button and cord; make sure button is pushed in.	☐
Start-up machine at idle speed: let it warm up approximately 5 minutes.	☐
Check air pressure gauge on instrument panel (at least 90 PSI).	☐
Engage the clutch lever (only at idle speed).	☐
Turn on bag house filter switch (up position).	☐
Turn on dump system switch (up position).	☐
Pull E-stop switch out; this should produce vacuum at vacuum inlet.	☐

Rig Inspector: Mariangela Mercado Burgos Date: April 13, 16

Company: BBL Caribe

Drilling Contractor: William Rodriguez Date: 13-abril-16

Company: GET

BBL Caribe ARCADIS

Document Control Number:TGM - BB037764 - 11/4/14
TGM + *project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year*

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: RCRA RFI - USEPA		**Project Location:** Puma Terminal (CWTP)	
Date: 4 abril/14	**Time:** 08:30	**Conducted by:** UMB	**Signature/Title:** Ayudante geologist
Client: Puma Energy		**Client Contact:** Raquel Vargas	**Subcontractor companies:** GET.

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 Barrenado suelo
2 Post-Pozo
3 Barrenado HA (suelo)
4 Aire - monitoreo
5 gpr
6

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☐ If there are none, write "None" here:

If yes, describe them here: Calor, superficies calosas

How will they be controlled? Hidratandnos, PPE (sunshade)

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☑ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☑ Other permit	general

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☑ JSAs or procedures are available?	☑ Field teams to "dirty" JSAs, as needed?	☑ All equipment checked & OK?
☑ Staff has appropriate PPE?	☑ Staff knows Emergency Plan (EAP)?	☑ Staff knows gathering points?

Comments:

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☑ Gravity (i.e., ladder, scaffold, trips) (L M H)	☑ Motion (i.e., traffic, moving water) (L M H)	☑ Mechanical (i.e., augers, motors) (L M H)
☑ Electrical (i.e., utilities, lightning) (L M H)	☑ Pressure (i.e., gas cylinders, wells) (L M H)	☑ Environment (i.e., heat, cold, ice) (L M H)
☑ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☑ Radiation (i.e., alpha, sun, laser) (L M H)
☑ Sound (i.e., machinery, generators) (L M H)	☐ Personal (i.e. alone, night, not fit) (L M H)	☑ Driving (i.e., car, ATV, boat, dozer) (L M H)

grep noble

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

☒ **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - *(See statements below)*		
☐ Elimination	☐ Substitution	☐ Isolation
☑ Engineering controls	☐ Administrative controls	☑ Monitoring
☑ General PPE Usage	☑ Hearing Conservation	☐ Respiratory Protection
☑ Personal Hygiene	☐ Exposure Guidelines	☑ Decon Procedures
☑ Emergency Action Plan (EAP)	☐ Fall Protection	☐ Work Zones/Site Control
☐ JSA to be developed/used ***(specify)***	☐ TIP conducted ***(specify job/JSA)***	☐ Traffic Control
☐	☐	☐ Other ***(specify)***
☐	☐	☐

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Mariangela Mercado Burgos / Aecom / Client	0840		Yes
Gabriel Ismael Hernandez / GET	0841		Yes
Will Rodriguez / GET			

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will, in turn, notify Corp H&S at 1.720.344.3844.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify Corp H&S at 1.720.344.3844 and then Corp Legal at 1.720.344.3756.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify Corp Legal at 1.678.373.9556 and Corp H&S at 1.720.344.3500

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- ☐ Lessons learned and best practices learned today:
- ☐ Incidents that occurred today:
- ☑ Any Stop Work interventions today? rain (2 times ~30 min each)
- ☐ Corrective/Preventive Actions needed for future work:
- ☐ Any other H&S issues:

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

BBL Caribe ARCADIS

Document Control Number: TGM - BBL63764 - 12/4/16

TGM + *project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year*

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: RCRA RFI - USEPA		**Project Location:** Puma Terminal (WWTP)	
Date: 12/4/16	**Time:** 0800	**Conducted by:** LMB	**Signature/Title:** LMB / Geologist
Client: Puma Energy Caribe	**Client Contact:** Brenda Lozano / Raquel Velazquez	**Subcontractor companies:** Geotech	

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 Muestreo Suelo con barrenadora inst. Pozo
2 Muestreo direct push
3 Conducir
4 pad y botardos
5 supervisar
6

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☐ If there are none, write "None" here:

If yes, describe them here: Uso de herramientas de mano y rotosas

How will they be controlled? Hidratacion, PPE (botas), buddy system

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☑ Hot Work	0053
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☑ Other permit (gen)	1220

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☑ JSAs or procedures are available?	☑ Field teams to "dirty" JSAs, as needed?	☑ If deviations, notify PM & client
☑ Staff has appropriate PPE?	☑ Staff knows Emergency Plan (EAP)?	☑ All equipment checked & OK?
		☑ Staff knows gathering points?

Comments:

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☑ Gravity (i.e., ladder, scaffold, trips) (L M H)	☑ Motion (i.e., traffic, moving water) (L M H)	☑ Mechanical (i.e., augers, motors) (L M H)	
☐ Electrical (i.e., utilities, lightning) (L M H)	☑ Pressure (i.e., gas cylinders, wells) (L M H)	☐ Environment (i.e., heat, cold, ice) (L M H)	
☑ Chemical (i.e., fuel, acid, paint) (L M H)	☑ Biological (i.e., ticks, poison ivy) (L M H) Zika	☐ Radiation (i.e., alpha, sun, laser) (L M H)	
☑ Sound (i.e., machinery, generators) (L M H)	☐ Personal (i.e. alone, night, not fit) (L M H)	☐ Driving (i.e. car, ATV, boat, dozer) (L M H)	

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Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)

[ ] Elimination	[ ] Substitution	[ ] Isolation
[✓] Engineering controls	[✓] Administrative controls	[✓] Monitoring
[✓] General PPE Usage	[ ] Hearing Conservation	[ ] Respiratory Protection
[✓] Personal Hygiene	[ ] Exposure Guidelines	[✓] Decon Procedures
[✓] Emergency Action Plan (EAP)	[ ] Fall Protection	[ ] Work Zones/Site Control
[✓] JSA to be developed/used ***(specify)***	[ ] TIP conducted ***(specify job/JSA)***	[ ] Traffic Control
[ ]	[ ]	[ ] Other ***(specify)***
[ ]	[ ]	[ ]

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Hector R Bobadilla / GET			Yes
William Rodriguez / GET			Yes
Marianela Mercado Burgos / BBL Cambe			Yes

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will, in turn, notify Corp H&S at 1.720.344.3844.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify Corp H&S at 1.720.344.3844 and then Corp Legal at 1.720.344.3756.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify Corp Legal at 1.678.373.9556 and Corp H&S at 1.720.344.3500

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: Tomamos Charla Seguridad de Prime (requerido)
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

BBL Caribe ARCADIS

Document Control Number: TGM - BW63764-13/4/14

TGM + *project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year*

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: RCRA RFI - USEPA			**Project Location:** Terminal Punta (WWTP)
Date: 13/abril/16	**Time:** 0800	**Conducted by:** MMB	**Signature/Title:** Geologist
Client: Puma Energy Caribe		**Client Contact:** Raquel Velazquez / Brenda Tirado	**Subcontractor companies:** Geotecnia Tech, Inc.

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 Pad + boladas
2 Muestreo suelos drenaje conducir
3 supervisar
5 Caminar por Area M caminos pocos
6 preparar reporte

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☑ If there are none, write "None" here: ____

If yes, describe them here: Areas llenas de vegetacion, calor, humedad, area resbalosa

How will they be controlled? Buddy system, hidratacion, walkie talkie, toma descanso

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☐ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☑ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☑ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☑ JSAs or procedures are available?	☑ Field teams to "dirty" JSAs, as needed?	☑ If deviations, notify PM & client
☑ Staff has appropriate PPE?	☑ Staff knows Emergency Plan (EAP)?	☑ All equipment checked & OK?
		☑ Staff knows gathering points?

Comments: ____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☑ Gravity (i.e., ladder, scaffold, trips) (L M H)	☑ Motion (i.e. traffic, moving water) (L M H)	☑ Mechanical (i.e. augers, motors) (L M H)
☐ Electrical (i.e., utilities, lightning) (L M H)	☑ Pressure (i.e., gas cylinders, wells) (L M H)	☑ Environment (i.e., heat, cold, ice) (L M H)
☑ Chemical (i.e., fuel, acid, paint) (L M H)	☐ Biological (i.e., ticks, poison ivy) (L M H)	☑ Radiation (i.e., alpha, sun, laser) (L M H)
☐ Sound (i.e., machinery, generators) (L M H)	☐ Personal (i.e. alone, night, not fit) (L M H)	☑ Driving (i.e. car, ATV, boat, dozer) (L M H)

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JSAs, and other control processes. Discuss and document any additional control processes.

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - (*See statements below*)
- [ ] Elimination
- [x] Engineering controls
- [x] General PPE Usage
- [x] Personal Hygiene
- [x] Emergency Action Plan (EAP)
- [ ] JSA to be developed/used ***(specify)***
- [ ] Substitution
- [ ] Administrative controls
- [x] Hearing Conservation
- [ ] Exposure Guidelines
- [ ] Fall Protection
- [ ] TIP conducted ***(specify job/JSA)***
- [ ] Isolation
- [x] Monitoring
- [ ] Respiratory Protection
- [x] Decon Procedures
- [ ] Work Zones/Site Control
- [ ] Traffic Control
- [ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the HASP
Marianela Mercado Burgos / ABR Caribe			Yes
William Rodriguez / GET			Yes

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will, in turn, notify Corp H&S at 1.720.344.3844.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify Corp H&S at 1.720.344.3844 and then Corp Legal at 1.720.344.3756.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify Corp Legal at 1.678.373.9556 and Corp H&S at 1.720.344.3500

Visitor Name/Co - not involved in work

	In	Out
	In	Out
	In	Out
	In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

BBL Caribe ARCADIS

Motor Vehicle Inspection Form

Project Name and Number:	Project Location:	Vehicle Make/Model/Lic #:
RCRA RFI USEPA / B00637764	Punta Terminal	Hyundai Tucson

Date	11-abril-16	12-abril-16	13-abril-16		
Vehicle Operator	MMB	MMB	MMB		
Daily Odometer Reading	7014	7029	7051		

Inspection:

Daily	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A	Acceptable	Deficient	N/A
Tires – condition/tread	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Tires – air pressure	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Jack/spare tire	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Light Switch	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Headlights	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Tail Lights	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Brake lights	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Turn signals	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
All glass and mirrors	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Windshield wipers	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Fuel	☒F ☐¾ ☐ ½	☐¼ ☐E	☐	☒F ☐¾ ☐ ½	☐¼ ☐E	☐	☐ F ☐¾ ☐ ½	☐¼ ☐E	☐	☐ F ☐¾ ☐ ½	☐¼ ☐E	☐	☐ F ☐¾ ☐ ½	☐¼ ☐E	☐
Parking brake	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Horn	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Steering wheel play	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Brakes	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Body damage	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Under vehicle – Leaks/obstructions	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Reverse warning	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Prepared for weather	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐
Overall vehicle cleanliness	☒	☐	☐	☒	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐

Weekly	Acceptable	Deficient	N/A
Engine oil	☒	☐	☐
Coolant level	☒	☐	☐
Transmission oil level	☒	☐	☐
Brake fluid level	☒	☐	☐
Hydraulic oil	☒	☐	☐
Battery	☒	☐	☐
Belts/hoses	☒	☐	☐
Miscellaneous vehicle performance	☒	☐	☐

Trip Planning		
JMP signed by all operators?	☐ Yes	☐ No
JMP located on site?	☐ Yes	☐ No
Modifications documented and approved?	☐ Yes	☐ No
Basic H&S supplies/equipment	☐ First aid kit ☐ Fire extinguisher ☐ Reflective safety vest ☐ Camera ☐ Roadside warning equipment (flare, flag, etc.) ☐ Flashlight	

If "deficient" is noted (other than fuel), please explain below and include what corrective action was taken and the date it was taken.

Waste & Container Description Table

Site Name	Puma Terminal	**Project Name**	RCRA RFI-USEPA
Physical Address	Luchetti Ind. Park **Zip Code**	**Project Number**	B00 63764
EPA ID #		**Arcadis PM**	E. Calderon
Containers Location *(specific area)*	At former WWTP area	**Date**	From To (mm/dd/yyyy)

Container Nomenclature	Container ID (1,2,3...)	Type of Waste	Container Type DR=Drum DUMP=Dumpster BAG=Bag	Container Material	Container Size	Description										
						SOIL				GROUNDWATER					CONTAINER INFO	
						Level	*Odor*	*State*	*Color*	*Level*	*Odor*	*State*	*Color*	*Turbidity*	*Condition*	*Label Information*
	DM 1	☒ Soil ☐ Groundwater ☐ Decon Water ☐ GW +Decon	☒ DR ☐ DUMP ☐ BAG	☒ Metal ☐ Plastic	☒ 55 gls ☐ 20 yd³ ☐ 25 yd³ ☐ Other	☒ Full ☐ 3/4 ☐ Half ☐ 1/4	☒ Y ☐ N	☒ Wet ☐ Dry	☒ Brown ☐ Light Br ☐ Br/Red ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Sheen ☐ Double Face ☐ None	☐ Brown ☐ Light Br ☐ Gray ☐ Clear	☐ Y ☐ N	☒ Good ☐ Rusted ☐ Dented	Suelo de Barrenos Puma Terminal WWTP
	DM 2	☒ Soil ☐ Groundwater ☐ Decon Water ☐ GW +Decon	☒ DR ☐ DUMP ☐ BAG	☒ Metal ☐ Plastic	☒ 55 gls ☐ 20 yd³ ☐ 25 yd³ ☐ Other	☒ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☒ N	☒ Wet ☐ Dry	☒ Brown ☐ Light Br ☐ Br/Red ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Sheen ☐ Double Face ☐ None	☐ Brown ☐ Light Br ☐ Gray ☐ Clear	☐ Y ☐ N	☒ Good ☐ Rusted ☐ Dented	Suelo de barrenos Puma Terminal WWTP
		☐ Soil ☐ Groundwater ☐ Decon Water ☐ GW +Decon	☐ DR ☐ DUMP ☐ BAG	☐ Metal ☐ Plastic	☐ 55 gls ☐ 20 yd³ ☐ 25 yd³ ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Wet ☐ Dry	☐ Brown ☐ Light Br ☐ Br/Red ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Sheen ☐ Double Face ☐ None	☐ Brown ☐ Light Br ☐ Gray ☐ Clear	☐ Y ☐ N	☐ Good ☐ Rusted ☐ Dented	
		☐ Soil ☐ Groundwater ☐ Decon Water ☐ GW +Decon	☐ DR ☐ DUMP ☐ BAG	☐ Metal ☐ Plastic	☐ 55 gls ☐ 20 yd³ ☐ 25 yd³ ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Wet ☐ Dry	☐ Brown ☐ Light Br ☐ Br/Red ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Sheen ☐ Double Face ☐ None	☐ Brown ☐ Light Br ☐ Gray ☐ Clear	☐ Y ☐ N	☐ Good ☐ Rusted ☐ Dented	
		☐ Soil ☐ Groundwater ☐ Decon Water ☐ GW +Decon	☐ DR ☐ DUMP ☐ BAG	☐ Metal ☐ Plastic	☐ 55 gls ☐ 20 yd³ ☐ 25 yd³ ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Wet ☐ Dry	☐ Brown ☐ Light Br ☐ Br/Red ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Sheen ☐ Double Face ☐ None	☐ Brown ☐ Light Br ☐ Gray ☐ Clear	☐ Y ☐ N	☐ Good ☐ Rusted ☐ Dented	
		☐ Soil ☐ Groundwater ☐ Decon Water ☐ GW +Decon	☐ DR ☐ DUMP ☐ BAG	☐ Metal ☐ Plastic	☐ 55 gls ☐ 20 yd³ ☐ 25 yd³ ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Wet ☐ Dry	☐ Brown ☐ Light Br ☐ Br/Red ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Sheen ☐ Double Face ☐ None	☐ Brown ☐ Light Br ☐ Gray ☐ Clear	☐ Y ☐ N	☐ Good ☐ Rusted ☐ Dented	
		☐ Soil ☐ Groundwater ☐ Decon Water ☐ GW +Decon	☐ DR ☐ DUMP ☐ BAG	☐ Metal ☐ Plastic	☐ 55 gls ☐ 20 yd³ ☐ 25 yd³ ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Wet ☐ Dry	☐ Brown ☐ Light Br ☐ Br/Red ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Sheen ☐ Double Face ☐ None	☐ Brown ☐ Light Br ☐ Gray ☐ Clear	☐ Y ☐ N	☐ Good ☐ Rusted ☐ Dented	
		☐ Soil ☐ Groundwater ☐ Decon Water ☐ GW +Decon	☐ DR ☐ DUMP ☐ BAG	☐ Metal ☐ Plastic	☐ 55 gls ☐ 20 yd³ ☐ 25 yd³ ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Wet ☐ Dry	☐ Brown ☐ Light Br ☐ Br/Red ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Sheen ☐ Double Face ☐ None	☐ Brown ☐ Light Br ☐ Gray ☐ Clear	☐ Y ☐ N	☐ Good ☐ Rusted ☐ Dented	
		☐ Soil ☐ Groundwater ☐ Decon Water ☐ GW +Decon	☐ DR ☐ DUMP ☐ BAG	☐ Metal ☐ Plastic	☐ 55 gls ☐ 20 yd³ ☐ 25 yd³ ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Wet ☐ Dry	☐ Brown ☐ Light Br ☐ Br/Red ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Sheen ☐ Double Face ☐ None	☐ Brown ☐ Light Br ☐ Gray ☐ Clear	☐ Y ☐ N	☐ Good ☐ Rusted ☐ Dented	
		☐ Soil ☐ Groundwater ☐ Decon Water ☐ GW +Decon	☐ DR ☐ DUMP ☐ BAG	☐ Metal ☐ Plastic	☐ 55 gls ☐ 20 yd³ ☐ 25 yd³ ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Wet ☐ Dry	☐ Brown ☐ Light Br ☐ Br/Red ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Sheen ☐ Double Face ☐ None	☐ Brown ☐ Light Br ☐ Gray ☐ Clear	☐ Y ☐ N	☐ Good ☐ Rusted ☐ Dented	
		☐ Soil ☐ Groundwater ☐ Decon Water ☐ GW +Decon	☐ DR ☐ DUMP ☐ BAG	☐ Metal ☐ Plastic	☐ 55 gls ☐ 20 yd³ ☐ 25 yd³ ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Wet ☐ Dry	☐ Brown ☐ Light Br ☐ Br/Red ☐ Other	☐ Full ☐ 3/4 ☐ Half ☐ 1/4	☐ Y ☐ N	☐ Sheen ☐ Double Face ☐ None	☐ Brown ☐ Light Br ☐ Gray ☐ Clear	☐ Y ☐ N	☐ Good ☐ Rusted ☐ Dented	

APPENDIX D

Laboratory Analytical Results

Pace Analytical Services, Inc.
1000 Riverbend Blvd - Suite F
St. Rose, LA 70087
(504)469-0333

April 27, 2016

Efrain Calderon
BBL Caribe Engineering P.S.C.
48 City View Plaza1, Suite 401
Road 16, Km. 1.2
Guaynabo, PR 00968

RE: Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Dear Efrain Calderon:
Enclosed are the analytical results for sample(s) received by the laboratory on April 13, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Juan Redondo
juan.redondo@pacelabs.com
Project Manager

Enclosures

cc: Sharon Colon
Abner Hernandez
Marianela Mercado-Burgos

Pace Analytical Services, Inc.
1000 Riverbend Blvd - Suite F
St. Rose, LA 70087
(504)469-0333

CERTIFICATIONS

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

New Orleans Certification IDs

California Env. Lab Accreditation Program Branch: 11277CA
Florida Department of Health (NELAC): E87595
Illinois Environmental Protection Agency: 0025721
Kansas Department of Health and Environment (NELAC): E-10266
Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006
Pennsylvania Dept. of Env Protection (NELAC): 68-04202
Texas Commission on Env. Quality (NELAC): T104704405-09-TX
U.S. Dept. of Agriculture Foreign Soil Import: P330-10-00119

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1000 Riverbend Blvd - Suite F
St. Rose, LA 70087
(504)469-0333

SAMPLE SUMMARY

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2035121001	**EB-041116**	Water	04/11/16 09:20	04/13/16 13:30
2035121002	**WWTP-SB-1-2-3**	Solid	04/11/16 10:10	04/13/16 13:30
2035121003	**DUP 1**	Solid	04/11/16 00:00	04/13/16 13:30
2035121004	**FB-041116**	Water	04/11/16 10:30	04/13/16 13:30
2035121005	**TB041116**	Water	04/11/16 10:30	04/13/16 13:30
2035121006	**EB-041216**	Water	04/12/16 08:25	04/13/16 13:30
2035121007	**WWTP-SB-2-4-5**	Solid	04/12/16 08:51	04/13/16 13:30
2035121008	**FB-041216**	Water	04/12/16 09:35	04/13/16 13:30
2035121009	**EB-041316**	Water	04/13/16 10:15	04/13/16 13:30
2035121010	**FB-041316**	Water	04/13/16 11:30	04/13/16 13:30
2035121011	**FOL-1-16**	Solid	04/13/16 10:37	04/13/16 13:30
2035121012	**FOL-2-16**	Solid	04/13/16 11:15	04/13/16 13:30

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SAMPLE ANALYTE COUNT

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2035121001	**EB-041116**	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N
2035121002	**WWTP-SB-1-2-3**	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N
2035121003	**DUP 1**	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N
2035121004	**FB-041116**	EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N
2035121005	**TB041116**	EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N
2035121006	**EB-041216**	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N
2035121007	**WWTP-SB-2-4-5**	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N
2035121008	**FB-041216**	EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N
2035121009	**EB-041316**	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N
2035121010	**FB-041316**	EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N
2035121011	**FOL-1-16**	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N
2035121012	**FOL-2-16**	EPA 8015B Modified	JG1	4	PASI-N
		EPA 8015/8021	MHM	2	PASI-N
		EPA 8260	RMP	10	PASI-N

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PROJECT NARRATIVE

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Method: **EPA 8015B Modified**
Description: 8015M DRO/ORO Organics
Client: BBL Caribe / Arcadis PR
Date: April 27, 2016

General Information:
8 samples were analyzed for EPA 8015B Modified. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

The samples were prepared in accordance with EPA 3535 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/8727

S0: Surrogate recovery outside laboratory control limits.

- WWTP-SB-1-2-3 (Lab ID: 2035121002)
  - n-Pentacosane (S)

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

- DUP 1 (Lab ID: 2035121003)
  - n-Pentacosane (S)
  - o-Terphenyl (S)
- MS (Lab ID: 218361)
  - n-Pentacosane (S)
  - o-Terphenyl (S)
- MSD (Lab ID: 218362)
  - n-Pentacosane (S)
  - o-Terphenyl (S)
- WWTP-SB-1-2-3 (Lab ID: 2035121002)
  - o-Terphenyl (S)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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PROJECT NARRATIVE

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Method: **EPA 8015B Modified**
Description: 8015M DRO/ORO Organics
Client: BBL Caribe / Arcadis PR
Date: April 27, 2016

QC Batch: OEXT/8686

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 217090)
  - Diesel Range Organic (C10-C28)

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: OEXT/8686

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

Batch Comments:

The LCS yielded elevated recovery due to a large non-diesel peak that eluted in the diesel range. There were no hits in any of the associated samples, nor was this peak present in any of the other runs. The LCS recovery for diesel fell within the acceptance range, with the area contributed by the contaminant eliminated from the calculation. The results were therefore accepted without further corrective action.

- QC Batch: GCSV / 6291

Analyte Comments:

QC Batch: OEXT/8727

D4: Sample was diluted due to the presence of high levels of target analytes.

- WWTP-SB-1-2-3 (Lab ID: 2035121002)
  - o-Terphenyl (S)

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PROJECT NARRATIVE

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Method: **EPA 8015/8021**
Description: 8021 GCV BTEX, MTBE, GRO Med L
Client: BBL Caribe / Arcadis PR
Date: April 27, 2016

General Information:
5 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 5035A/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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(504)469-0333

PROJECT NARRATIVE

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Method: **EPA 8015/8021**
Description: 8021 GCV BTEX, MTBE, GRO
Client: BBL Caribe / Arcadis PR
Date: April 27, 2016

General Information:
7 samples were analyzed for EPA 8015/8021. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: GCV/2743

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Method: **EPA 8260**
Description: 8260 MSV 5035 Low Level
Client: BBL Caribe / Arcadis PR
Date: April 27, 2016

General Information:
5 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 5035/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: MSV/4736

S0: Surrogate recovery outside laboratory control limits.
- MSD (Lab ID: 217034)
  - 4-Bromofluorobenzene (S)

S2: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).
- WWTP-SB-1-2-3 (Lab ID: 2035121002)
  - 4-Bromofluorobenzene (S)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/4736

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2035121002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 217033)

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(504)469-0333

PROJECT NARRATIVE

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Method: **EPA 8260**
Description: 8260 MSV 5035 Low Level
Client: BBL Caribe / Arcadis PR
Date: April 27, 2016

QC Batch: MSV/4736

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 2035121002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- Ethylbenzene
- m&p-Xylene
- o-Xylene

- MSD (Lab ID: 217034)
  - Ethylbenzene
  - m&p-Xylene
  - o-Xylene

Additional Comments:

Pace Analytical Services, Inc.
1000 Riverbend Blvd - Suite F
St. Rose, LA 70087
(504)469-0333

PROJECT NARRATIVE

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Method: **EPA 8260**
Description: 8260 MSV
Client: BBL Caribe / Arcadis PR
Date: April 27, 2016

General Information:
7 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/4725

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Sample: EB-041116 **Lab ID: 2035121001** Collected: 04/11/16 09:20 Received: 04/13/16 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015M DRO/ORO Organics	Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	ug/L	250	1	04/18/16 08:52	04/22/16 18:41		L3
Oil Range Organics (>C28-C40)	ND	ug/L	500	1	04/18/16 08:52	04/22/16 18:41		
Surrogates								
n-Pentacosane (S)	46	%.	16-137	1	04/18/16 08:52	04/22/16 18:41	629-99-2	
o-Terphenyl (S)	54	%.	10-121	1	04/18/16 08:52	04/22/16 18:41	84-15-1	
8021 GCV BTEX, MTBE, GRO	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		04/15/16 16:43		
Surrogates								
4-Bromofluorobenzene (S)	105	%.	44-148	1		04/15/16 16:43	460-00-4	
8260 MSV	Analytical Method: EPA 8260							
Benzene	ND	ug/L	5.0	1		04/15/16 10:49	71-43-2	
Ethanol	ND	ug/L	500	1		04/15/16 10:49	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		04/15/16 10:49	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/15/16 10:49	1634-04-4	
Toluene	ND	ug/L	5.0	1		04/15/16 10:49	108-88-3	
m&p-Xylene	ND	ug/L	10.0	1		04/15/16 10:49	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		04/15/16 10:49	95-47-6	
Surrogates								
Toluene-d8 (S)	98	%.	70-123	1		04/15/16 10:49	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	62-134	1		04/15/16 10:49	460-00-4	
Dibromofluoromethane (S)	104	%.	64-130	1		04/15/16 10:49	1868-53-7	

Sample: WWTP-SB-1-2-3 **Lab ID: 2035121002** Collected: 04/11/16 10:10 Received: 04/13/16 13:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015M DRO/ORO Organics	Analytical Method: EPA 8015B Modified Preparation Method: EPA 3546							
Diesel Range Organic (C10-C28)	**3240000**	ug/kg	47800	5	04/21/16 11:25	04/26/16 12:27		
Oil Range Organics (>C28-C40)	**664000**	ug/kg	239000	5	04/21/16 11:25	04/26/16 12:27		
Surrogates								
o-Terphenyl (S)	1660	%.	16-127	5	04/21/16 11:25	04/26/16 12:27	84-15-1	D4,S5
n-Pentacosane (S)	957	%.	16-147	5	04/21/16 11:25	04/26/16 12:27	629-99-2	S0
8021 GCV BTEX, MTBE, GRO Med L	Analytical Method: EPA 8015/8021 Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	**15500**	ug/kg	2340	1	04/18/16 09:00	04/18/16 16:12		
Surrogates								
4-Bromofluorobenzene (S)	111	%.	44-148	1	04/18/16 09:00	04/18/16 16:12	460-00-4	
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	ND	ug/kg	5.0	1	04/16/16 11:00	04/16/16 12:59	71-43-2	
Ethanol	ND	ug/kg	499	1	04/16/16 11:00	04/16/16 12:59	64-17-5	
Ethylbenzene	ND	ug/kg	5.0	1	04/16/16 11:00	04/16/16 12:59	100-41-4	M1
Methyl-tert-butyl ether	ND	ug/kg	5.0	1	04/16/16 11:00	04/16/16 12:59	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Sample: WWTP-SB-1-2-3 **Lab ID: 2035121002** Collected: 04/11/16 10:10 Received: 04/13/16 13:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Toluene	ND	ug/kg	5.0	1	04/16/16 11:00	04/16/16 12:59	108-88-3	
m&p-Xylene	**13.1**	ug/kg	10	1	04/16/16 11:00	04/16/16 12:59	179601-23-1	M1
o-Xylene	**7.5**	ug/kg	5.0	1	04/16/16 11:00	04/16/16 12:59	95-47-6	M1
Surrogates								
Toluene-d8 (S)	111	%.	70-123	1	04/16/16 11:00	04/16/16 12:59	2037-26-5	
4-Bromofluorobenzene (S)	139	%.	62-134	1	04/16/16 11:00	04/16/16 12:59	460-00-4	S2
Dibromofluoromethane (S)	107	%.	64-130	1	04/16/16 11:00	04/16/16 12:59	1868-53-7	

Sample: DUP 1 **Lab ID: 2035121003** Collected: 04/11/16 00:00 Received: 04/13/16 13:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015M DRO/ORO Organics	Analytical Method: EPA 8015B Modified Preparation Method: EPA 3546							
Diesel Range Organic (C10-C28)	**146000**	ug/kg	9330	1	04/21/16 11:25	04/22/16 19:37		
Oil Range Organics (>C28-C40)	**120000**	ug/kg	46600	1	04/21/16 11:25	04/22/16 19:37		
Surrogates								
o-Terphenyl (S)	137	%.	16-127	1	04/21/16 11:25	04/22/16 19:37	84-15-1	S5
n-Pentacosane (S)	206	%.	16-147	1	04/21/16 11:25	04/22/16 19:37	629-99-2	S5
8021 GCV BTEX, MTBE, GRO Med L	Analytical Method: EPA 8015/8021 Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	ug/kg	2200	1	04/18/16 09:00	04/18/16 16:40		
Surrogates								
4-Bromofluorobenzene (S)	101	%.	44-148	1	04/18/16 09:00	04/18/16 16:40	460-00-4	
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	ND	ug/kg	5.2	1	04/16/16 11:00	04/16/16 13:50	71-43-2	
Ethanol	ND	ug/kg	515	1	04/16/16 11:00	04/16/16 13:50	64-17-5	
Ethylbenzene	ND	ug/kg	5.2	1	04/16/16 11:00	04/16/16 13:50	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	5.2	1	04/16/16 11:00	04/16/16 13:50	1634-04-4	
Toluene	ND	ug/kg	5.2	1	04/16/16 11:00	04/16/16 13:50	108-88-3	
m&p-Xylene	ND	ug/kg	10.3	1	04/16/16 11:00	04/16/16 13:50	179601-23-1	
o-Xylene	ND	ug/kg	5.2	1	04/16/16 11:00	04/16/16 13:50	95-47-6	
Surrogates								
Toluene-d8 (S)	100	%.	70-123	1	04/16/16 11:00	04/16/16 13:50	2037-26-5	
4-Bromofluorobenzene (S)	110	%.	62-134	1	04/16/16 11:00	04/16/16 13:50	460-00-4	
Dibromofluoromethane (S)	100	%.	64-130	1	04/16/16 11:00	04/16/16 13:50	1868-53-7	

Sample: FB-041116 **Lab ID: 2035121004** Collected: 04/11/16 10:30 Received: 04/13/16 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV BTEX, MTBE, GRO	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		04/15/16 17:10		

REPORT OF LABORATORY ANALYSIS

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(504)469-0333

ANALYTICAL RESULTS

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Sample: FB-041116 **Lab ID: 2035121004** Collected: 04/11/16 10:30 Received: 04/13/16 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV BTEX, MTBE, GRO	Analytical Method: EPA 8015/8021							
Surrogates								
4-Bromofluorobenzene (S)	103	%.	44-148	1		04/15/16 17:10	460-00-4	
8260 MSV	Analytical Method: EPA 8260							
Benzene	ND	ug/L	5.0	1		04/15/16 11:07	71-43-2	
Ethanol	ND	ug/L	500	1		04/15/16 11:07	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		04/15/16 11:07	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/15/16 11:07	1634-04-4	
Toluene	ND	ug/L	5.0	1		04/15/16 11:07	108-88-3	
m&p-Xylene	ND	ug/L	10.0	1		04/15/16 11:07	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		04/15/16 11:07	95-47-6	
Surrogates								
Toluene-d8 (S)	100	%.	70-123	1		04/15/16 11:07	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	62-134	1		04/15/16 11:07	460-00-4	
Dibromofluoromethane (S)	108	%.	64-130	1		04/15/16 11:07	1868-53-7	

Sample: TB041116 **Lab ID: 2035121005** Collected: 04/11/16 10:30 Received: 04/13/16 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV BTEX, MTBE, GRO	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		04/15/16 17:38		
Surrogates								
4-Bromofluorobenzene (S)	105	%.	44-148	1		04/15/16 17:38	460-00-4	
8260 MSV	Analytical Method: EPA 8260							
Benzene	ND	ug/L	5.0	1		04/15/16 11:24	71-43-2	
Ethanol	ND	ug/L	500	1		04/15/16 11:24	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		04/15/16 11:24	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/15/16 11:24	1634-04-4	
Toluene	ND	ug/L	5.0	1		04/15/16 11:24	108-88-3	
m&p-Xylene	ND	ug/L	10.0	1		04/15/16 11:24	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		04/15/16 11:24	95-47-6	
Surrogates								
Toluene-d8 (S)	100	%.	70-123	1		04/15/16 11:24	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	62-134	1		04/15/16 11:24	460-00-4	
Dibromofluoromethane (S)	108	%.	64-130	1		04/15/16 11:24	1868-53-7	

Sample: EB-041216 **Lab ID: 2035121006** Collected: 04/12/16 08:25 Received: 04/13/16 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015M DRO/ORO Organics	Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	ug/L	250	1	04/18/16 08:52	04/22/16 19:09		L3
Oil Range Organics (>C28-C40)	ND	ug/L	500	1	04/18/16 08:52	04/22/16 19:09		

REPORT OF LABORATORY ANALYSIS

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St. Rose, LA 70087
(504)469-0333

ANALYTICAL RESULTS

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Sample: EB-041216 **Lab ID: 2035121006** Collected: 04/12/16 08:25 Received: 04/13/16 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015M DRO/ORO Organics	Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Surrogates								
n-Pentacosane (S)	41	%.	16-137	1	04/18/16 08:52	04/22/16 19:09	629-99-2	
o-Terphenyl (S)	51	%.	10-121	1	04/18/16 08:52	04/22/16 19:09	84-15-1	
8021 GCV BTEX, MTBE, GRO	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		04/15/16 18:05		
Surrogates								
4-Bromofluorobenzene (S)	104	%.	44-148	1		04/15/16 18:05	460-00-4	
8260 MSV	Analytical Method: EPA 8260							
Benzene	ND	ug/L	5.0	1		04/15/16 11:41	71-43-2	
Ethanol	ND	ug/L	500	1		04/15/16 11:41	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		04/15/16 11:41	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/15/16 11:41	1634-04-4	
Toluene	ND	ug/L	5.0	1		04/15/16 11:41	108-88-3	
m&p-Xylene	ND	ug/L	10.0	1		04/15/16 11:41	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		04/15/16 11:41	95-47-6	
Surrogates								
Toluene-d8 (S)	99	%.	70-123	1		04/15/16 11:41	2037-26-5	
4-Bromofluorobenzene (S)	95	%.	62-134	1		04/15/16 11:41	460-00-4	
Dibromofluoromethane (S)	109	%.	64-130	1		04/15/16 11:41	1868-53-7	

Sample: WWTP-SB-2-4-5 **Lab ID: 2035121007** Collected: 04/12/16 08:51 Received: 04/13/16 13:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015M DRO/ORO Organics	Analytical Method: EPA 8015B Modified Preparation Method: EPA 3546							
Diesel Range Organic (C10-C28)	**31000**	ug/kg	9510	1	04/21/16 11:25	04/22/16 18:41		
Oil Range Organics (>C28-C40)	ND	ug/kg	47600	1	04/21/16 11:25	04/22/16 18:41		
Surrogates								
o-Terphenyl (S)	108	%.	16-127	1	04/21/16 11:25	04/22/16 18:41	84-15-1	
n-Pentacosane (S)	80	%.	16-147	1	04/21/16 11:25	04/22/16 18:41	629-99-2	
8021 GCV BTEX, MTBE, GRO Med L	Analytical Method: EPA 8015/8021 Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	ug/kg	2290	1	04/18/16 09:00	04/18/16 17:07		
Surrogates								
4-Bromofluorobenzene (S)	101	%.	44-148	1	04/18/16 09:00	04/18/16 17:07	460-00-4	
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	ND	ug/kg	5.3	1	04/16/16 11:00	04/16/16 14:07	71-43-2	
Ethanol	ND	ug/kg	531	1	04/16/16 11:00	04/16/16 14:07	64-17-5	
Ethylbenzene	ND	ug/kg	5.3	1	04/16/16 11:00	04/16/16 14:07	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	5.3	1	04/16/16 11:00	04/16/16 14:07	1634-04-4	
Toluene	ND	ug/kg	5.3	1	04/16/16 11:00	04/16/16 14:07	108-88-3	
m&p-Xylene	ND	ug/kg	10.6	1	04/16/16 11:00	04/16/16 14:07	179601-23-1	

REPORT OF LABORATORY ANALYSIS

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St. Rose, LA 70087
(504)469-0333

ANALYTICAL RESULTS

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Sample: WWTP-SB-2-4-5 **Lab ID: 2035121007** Collected: 04/12/16 08:51 Received: 04/13/16 13:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
o-Xylene	ND	ug/kg	5.3	1	04/16/16 11:00	04/16/16 14:07	95-47-6	
Surrogates								
Toluene-d8 (S)	93	%.	70-123	1	04/16/16 11:00	04/16/16 14:07	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	62-134	1	04/16/16 11:00	04/16/16 14:07	460-00-4	
Dibromofluoromethane (S)	104	%.	64-130	1	04/16/16 11:00	04/16/16 14:07	1868-53-7	

Sample: FB-041216 **Lab ID: 2035121008** Collected: 04/12/16 09:35 Received: 04/13/16 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV BTEX, MTBE, GRO	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		04/15/16 18:32		
Surrogates								
4-Bromofluorobenzene (S)	103	%.	44-148	1		04/15/16 18:32	460-00-4	
8260 MSV	Analytical Method: EPA 8260							
Benzene	ND	ug/L	5.0	1		04/15/16 11:58	71-43-2	
Ethanol	ND	ug/L	500	1		04/15/16 11:58	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		04/15/16 11:58	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/15/16 11:58	1634-04-4	
Toluene	ND	ug/L	5.0	1		04/15/16 11:58	108-88-3	
m&p-Xylene	ND	ug/L	10.0	1		04/15/16 11:58	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		04/15/16 11:58	95-47-6	
Surrogates								
Toluene-d8 (S)	99	%.	70-123	1		04/15/16 11:58	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	62-134	1		04/15/16 11:58	460-00-4	
Dibromofluoromethane (S)	105	%.	64-130	1		04/15/16 11:58	1868-53-7	

Sample: EB-041316 **Lab ID: 2035121009** Collected: 04/13/16 10:15 Received: 04/13/16 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015M DRO/ORO Organics	Analytical Method: EPA 8015B Modified Preparation Method: EPA 3535							
Diesel Range Organic (C10-C28)	ND	ug/L	250	1	04/18/16 08:52	04/22/16 19:37		L3
Oil Range Organics (>C28-C40)	ND	ug/L	500	1	04/18/16 08:52	04/22/16 19:37		
Surrogates								
n-Pentacosane (S)	37	%.	16-137	1	04/18/16 08:52	04/22/16 19:37	629-99-2	
o-Terphenyl (S)	46	%.	10-121	1	04/18/16 08:52	04/22/16 19:37	84-15-1	
8021 GCV BTEX, MTBE, GRO	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		04/15/16 18:59		
Surrogates								
4-Bromofluorobenzene (S)	104	%.	44-148	1		04/15/16 18:59	460-00-4	

REPORT OF LABORATORY ANALYSIS

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(504)469-0333

ANALYTICAL RESULTS

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Sample: EB-041316 **Lab ID: 2035121009** Collected: 04/13/16 10:15 Received: 04/13/16 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260							
Benzene	ND	ug/L	5.0	1		04/15/16 12:15	71-43-2	
Ethanol	ND	ug/L	500	1		04/15/16 12:15	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		04/15/16 12:15	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/15/16 12:15	1634-04-4	
Toluene	ND	ug/L	5.0	1		04/15/16 12:15	108-88-3	
m&p-Xylene	ND	ug/L	10.0	1		04/15/16 12:15	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		04/15/16 12:15	95-47-6	
Surrogates								
Toluene-d8 (S)	99	%.	70-123	1		04/15/16 12:15	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	62-134	1		04/15/16 12:15	460-00-4	
Dibromofluoromethane (S)	107	%.	64-130	1		04/15/16 12:15	1868-53-7	

Sample: FB-041316 **Lab ID: 2035121010** Collected: 04/13/16 11:30 Received: 04/13/16 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV BTEX, MTBE, GRO	Analytical Method: EPA 8015/8021							
Gasoline Range Organics	ND	ug/L	50.0	1		04/15/16 21:40		
Surrogates								
4-Bromofluorobenzene (S)	106	%.	44-148	1		04/15/16 21:40	460-00-4	
8260 MSV	Analytical Method: EPA 8260							
Benzene	ND	ug/L	5.0	1		04/15/16 12:32	71-43-2	
Ethanol	ND	ug/L	500	1		04/15/16 12:32	64-17-5	
Ethylbenzene	ND	ug/L	5.0	1		04/15/16 12:32	100-41-4	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/15/16 12:32	1634-04-4	
Toluene	ND	ug/L	5.0	1		04/15/16 12:32	108-88-3	
m&p-Xylene	ND	ug/L	10.0	1		04/15/16 12:32	179601-23-1	
o-Xylene	ND	ug/L	5.0	1		04/15/16 12:32	95-47-6	
Surrogates								
Toluene-d8 (S)	99	%.	70-123	1		04/15/16 12:32	2037-26-5	
4-Bromofluorobenzene (S)	95	%.	62-134	1		04/15/16 12:32	460-00-4	
Dibromofluoromethane (S)	107	%.	64-130	1		04/15/16 12:32	1868-53-7	

Sample: FOL-1-16 **Lab ID: 2035121011** Collected: 04/13/16 10:37 Received: 04/13/16 13:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015M DRO/ORO Organics	Analytical Method: EPA 8015B Modified Preparation Method: EPA 3546							
Diesel Range Organic (C10-C28)	**11500**	ug/kg	9140	1	04/21/16 11:25	04/21/16 19:07		
Oil Range Organics (>C28-C40)	ND	ug/kg	45700	1	04/21/16 11:25	04/21/16 19:07		
Surrogates								
o-Terphenyl (S)	56	%.	16-127	1	04/21/16 11:25	04/21/16 19:07	84-15-1	
n-Pentacosane (S)	58	%.	16-147	1	04/21/16 11:25	04/21/16 19:07	629-99-2	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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St. Rose, LA 70087
(504)469-0333

ANALYTICAL RESULTS

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Sample: FOL-1-16 **Lab ID: 2035121011** Collected: 04/13/16 10:37 Received: 04/13/16 13:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8021 GCV BTEX, MTBE, GRO Med L	Analytical Method: EPA 8015/8021 Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	**19200**	ug/kg	2330	1	04/18/16 09:00	04/18/16 17:35		
Surrogates								
4-Bromofluorobenzene (S)	119	%.	44-148	1	04/18/16 09:00	04/18/16 17:35	460-00-4	
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	ND	ug/kg	5.6	1	04/16/16 11:00	04/16/16 14:24	71-43-2	
Ethanol	ND	ug/kg	556	1	04/16/16 11:00	04/16/16 14:24	64-17-5	
Ethylbenzene	ND	ug/kg	5.6	1	04/16/16 11:00	04/16/16 14:24	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	5.6	1	04/16/16 11:00	04/16/16 14:24	1634-04-4	
Toluene	ND	ug/kg	5.6	1	04/16/16 11:00	04/16/16 14:24	108-88-3	
m&p-Xylene	ND	ug/kg	11.1	1	04/16/16 11:00	04/16/16 14:24	179601-23-1	
o-Xylene	ND	ug/kg	5.6	1	04/16/16 11:00	04/16/16 14:24	95-47-6	
Surrogates								
Toluene-d8 (S)	97	%.	70-123	1	04/16/16 11:00	04/16/16 14:24	2037-26-5	
4-Bromofluorobenzene (S)	99	%.	62-134	1	04/16/16 11:00	04/16/16 14:24	460-00-4	
Dibromofluoromethane (S)	104	%.	64-130	1	04/16/16 11:00	04/16/16 14:24	1868-53-7	

Sample: FOL-2-16 **Lab ID: 2035121012** Collected: 04/13/16 11:15 Received: 04/13/16 13:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015M DRO/ORO Organics	Analytical Method: EPA 8015B Modified Preparation Method: EPA 3546							
Diesel Range Organic (C10-C28)	ND	ug/kg	9640	1	04/21/16 11:25	04/21/16 17:43		
Oil Range Organics (>C28-C40)	ND	ug/kg	48200	1	04/21/16 11:25	04/21/16 17:43		
Surrogates								
o-Terphenyl (S)	74	%.	16-127	1	04/21/16 11:25	04/21/16 17:43	84-15-1	
n-Pentacosane (S)	72	%.	16-147	1	04/21/16 11:25	04/21/16 17:43	629-99-2	
8021 GCV BTEX, MTBE, GRO Med L	Analytical Method: EPA 8015/8021 Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	**22200**	ug/kg	2360	1	04/18/16 09:00	04/18/16 18:03		
Surrogates								
4-Bromofluorobenzene (S)	122	%.	44-148	1	04/18/16 09:00	04/18/16 18:03	460-00-4	
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Benzene	ND	ug/kg	5.4	1	04/16/16 11:00	04/16/16 14:41	71-43-2	
Ethanol	ND	ug/kg	540	1	04/16/16 11:00	04/16/16 14:41	64-17-5	
Ethylbenzene	ND	ug/kg	5.4	1	04/16/16 11:00	04/16/16 14:41	100-41-4	
Methyl-tert-butyl ether	ND	ug/kg	5.4	1	04/16/16 11:00	04/16/16 14:41	1634-04-4	
Toluene	ND	ug/kg	5.4	1	04/16/16 11:00	04/16/16 14:41	108-88-3	
m&p-Xylene	ND	ug/kg	10.8	1	04/16/16 11:00	04/16/16 14:41	179601-23-1	
o-Xylene	ND	ug/kg	5.4	1	04/16/16 11:00	04/16/16 14:41	95-47-6	
Surrogates								
Toluene-d8 (S)	95	%.	70-123	1	04/16/16 11:00	04/16/16 14:41	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	62-134	1	04/16/16 11:00	04/16/16 14:41	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Sample: FOL-2-16 **Lab ID: 2035121012** Collected: 04/13/16 11:15 Received: 04/13/16 13:30 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Surrogates								
Dibromofluoromethane (S)	106	%.	64-130	1	04/16/16 11:00	04/16/16 14:41	1868-53-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

QC Batch: GCV/2740 Analysis Method: EPA 8015/8021
QC Batch Method: EPA 5035A/5030B Analysis Description: 8021 BTEX, MTBE, GRO Medium Level Soil
Associated Lab Samples: 2035121002, 2035121003, 2035121007, 2035121011, 2035121012

METHOD BLANK: 216404 Matrix: Solid
Associated Lab Samples: 2035121002, 2035121003, 2035121007, 2035121011, 2035121012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/kg	ND	2500	04/18/16 11:16	
4-Bromofluorobenzene (S)	%.	100	44-148	04/18/16 11:16	

LABORATORY CONTROL SAMPLE: 216405

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/kg	25000	20100	80	61-136	
4-Bromofluorobenzene (S)	%.			105	44-148	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 216406 216407

Parameter	Units	2034871003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	ug/kg	ND	23900	24600	19300	19400	76	75	15-147	0	20	
4-Bromofluorobenzene (S)	%.						102	103	44-148			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

QC Batch: GCV/2743 Analysis Method: EPA 8015/8021
QC Batch Method: EPA 8015/8021 Analysis Description: 8021 W GCV BTEX , MTBE, GRO
Associated Lab Samples: 2035121001, 2035121004, 2035121005, 2035121006, 2035121008, 2035121009, 2035121010

METHOD BLANK: 216710 Matrix: Water
Associated Lab Samples: 2035121001, 2035121004, 2035121005, 2035121006, 2035121008, 2035121009, 2035121010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	50.0	04/15/16 10:26	
4-Bromofluorobenzene (S)	%.	102	44-148	04/15/16 10:26	

LABORATORY CONTROL SAMPLE: 216711

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	500	448	90	61-136	
4-Bromofluorobenzene (S)	%.			106	44-148	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

QC Batch: MSV/4736 Analysis Method: EPA 8260
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV 5035 Low Level
Associated Lab Samples: 2035121002, 2035121003, 2035121007, 2035121011, 2035121012

METHOD BLANK: 217031 Matrix: Solid
Associated Lab Samples: 2035121002, 2035121003, 2035121007, 2035121011, 2035121012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/kg	ND	5.0	04/16/16 12:08	
Ethanol	ug/kg	ND	500	04/16/16 12:08	
Ethylbenzene	ug/kg	ND	5.0	04/16/16 12:08	
m&p-Xylene	ug/kg	ND	10.0	04/16/16 12:08	
Methyl-tert-butyl ether	ug/kg	ND	5.0	04/16/16 12:08	
o-Xylene	ug/kg	ND	5.0	04/16/16 12:08	
Toluene	ug/kg	ND	5.0	04/16/16 12:08	
4-Bromofluorobenzene (S)	%.	95	62-134	04/16/16 12:08	
Dibromofluoromethane (S)	%.	105	64-130	04/16/16 12:08	
Toluene-d8 (S)	%.	98	70-123	04/16/16 12:08	

LABORATORY CONTROL SAMPLE: 217032

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	50	50.5	101	68-129	
Ethylbenzene	ug/kg	50	49.1	98	73-129	
m&p-Xylene	ug/kg	100	98.5	98	71-132	
Methyl-tert-butyl ether	ug/kg	50	49.8	100	51-155	
o-Xylene	ug/kg	50	50.1	100	69-129	
Toluene	ug/kg	50	48.4	97	70-130	
4-Bromofluorobenzene (S)	%.			99	62-134	
Dibromofluoromethane (S)	%.			100	64-130	
Toluene-d8 (S)	%.			98	70-123	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 217033 217034

Parameter	Units	2035121002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/kg	ND	49.6	51.4	44.1	44.2	88	85	60-138	0	20	
Ethylbenzene	ug/kg	ND	49.6	51.4	31.3	30.2	55	51	66-136	3	20	M1
m&p-Xylene	ug/kg	13.1	99.2	103	64.5	60.6	52	46	64-138	6	20	M1
Methyl-tert-butyl ether	ug/kg	ND	49.6	51.4	41.6	40.8	79	74	48-164	2	20	
o-Xylene	ug/kg	7.5	49.6	51.4	31.3	29.2	48	42	63-136	7	20	M1
Toluene	ug/kg	ND	49.6	51.4	36.9	36.2	70	66	62-137	2	20	
4-Bromofluorobenzene (S)	%.						129	142	62-134			S0
Dibromofluoromethane (S)	%.						101	104	64-130			
Toluene-d8 (S)	%.						108	109	70-123			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

QC Batch: MSV/4725 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 2035121001, 2035121004, 2035121005, 2035121006, 2035121008, 2035121009, 2035121010

METHOD BLANK: 216629 Matrix: Water
Associated Lab Samples: 2035121001, 2035121004, 2035121005, 2035121006, 2035121008, 2035121009, 2035121010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	5.0	04/15/16 10:15	
Ethanol	ug/L	ND	500	04/15/16 10:15	
Ethylbenzene	ug/L	ND	5.0	04/15/16 10:15	
m&p-Xylene	ug/L	ND	10.0	04/15/16 10:15	
Methyl-tert-butyl ether	ug/L	ND	5.0	04/15/16 10:15	
o-Xylene	ug/L	ND	5.0	04/15/16 10:15	
Toluene	ug/L	ND	5.0	04/15/16 10:15	
4-Bromofluorobenzene (S)	%.	96	62-134	04/15/16 10:15	
Dibromofluoromethane (S)	%.	107	64-130	04/15/16 10:15	
Toluene-d8 (S)	%.	99	70-123	04/15/16 10:15	

LABORATORY CONTROL SAMPLE: 216630

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	50	48.8	98	68-129	
Ethylbenzene	ug/L	50	47.0	94	73-129	
m&p-Xylene	ug/L	100	95.1	95	71-132	
Methyl-tert-butyl ether	ug/L	50	47.6	95	51-155	
o-Xylene	ug/L	50	48.6	97	69-129	
Toluene	ug/L	50	46.3	93	70-130	
4-Bromofluorobenzene (S)	%.			99	62-134	
Dibromofluoromethane (S)	%.			98	64-130	
Toluene-d8 (S)	%.			97	70-123	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

QC Batch: OEXT/8727 Analysis Method: EPA 8015B Modified
QC Batch Method: EPA 3546 Analysis Description: EPA 8015 ORO
Associated Lab Samples: 2035121002, 2035121003, 2035121007, 2035121011, 2035121012

METHOD BLANK: 218359 Matrix: Solid
Associated Lab Samples: 2035121002, 2035121003, 2035121007, 2035121011, 2035121012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	ug/kg	ND	10000	04/21/16 14:56	
Oil Range Organics (>C28-C40)	ug/kg	ND	50000	04/21/16 14:56	
n-Pentacosane (S)	%.	74	16-147	04/21/16 14:56	
o-Terphenyl (S)	%.	73	16-127	04/21/16 14:56	

LABORATORY CONTROL SAMPLE: 218360

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	ug/kg	40000	29900	75	34-125	
n-Pentacosane (S)	%.			78	16-147	
o-Terphenyl (S)	%.			83	16-127	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 218361 218362

Parameter	Units	2035121002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Range Organic (C10-C28)	ug/kg	3240000	39600	39300	2880000	2790000	-896	-1130	10-163	3	20	
n-Pentacosane (S)	%.						786	399	16-147			S5
o-Terphenyl (S)	%.						881	681	16-127			S5

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

QC Batch: OEXT/8686 Analysis Method: EPA 8015B Modified
QC Batch Method: EPA 3535 Analysis Description: EPA 8015 ORO
Associated Lab Samples: 2035121001, 2035121006, 2035121009

METHOD BLANK: 217089 Matrix: Water
Associated Lab Samples: 2035121001, 2035121006, 2035121009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organic (C10-C28)	ug/L	ND	250	04/22/16 17:45	
Oil Range Organics (>C28-C40)	ug/L	ND	500	04/22/16 17:45	
n-Pentacosane (S)	%.	62	16-137	04/22/16 17:45	
o-Terphenyl (S)	%.	73	10-121	04/22/16 17:45	

LABORATORY CONTROL SAMPLE: 217090

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Range Organic (C10-C28)	ug/L	400	840	210	10-115	L0
n-Pentacosane (S)	%.			64	16-137	
o-Terphenyl (S)	%.			86	10-121	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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TNI - The Nelac Institute

LABORATORIES

PASI-N	Pace Analytical Services - New Orleans

BATCH QUALIFIERS

Batch: MSV/4725

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: GCV/2743

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: GCSV/6291

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
[1]	The LCS yielded elevated recovery due to a large non-diesel peak that eluted in the diesel range. There were no hits in any of the associated samples, nor was this peak present in any of the other runs. The LCS recovery for diesel fell within the acceptance range, with the area contributed by the contaminant eliminated from the calculation. The results were therefore accepted without further corrective action.

ANALYTE QUALIFIERS

D4	Sample was diluted due to the presence of high levels of target analytes.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S0	Surrogate recovery outside laboratory control limits.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

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QUALIFIERS

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

ANALYTE QUALIFIERS

S5 Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RCRA RFI-USEPA
Pace Project No.: 2035121

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2035121002	**WWTP-SB-1-2-3**	EPA 3546	OEXT/8727	EPA 8015B Modified	GCSV/6303
2035121003	**DUP 1**	EPA 3546	OEXT/8727	EPA 8015B Modified	GCSV/6303
2035121007	**WWTP-SB-2-4-5**	EPA 3546	OEXT/8727	EPA 8015B Modified	GCSV/6303
2035121011	**FOL-1-16**	EPA 3546	OEXT/8727	EPA 8015B Modified	GCSV/6303
2035121012	**FOL-2-16**	EPA 3546	OEXT/8727	EPA 8015B Modified	GCSV/6303
2035121001	**EB-041116**	EPA 3535	OEXT/8686	EPA 8015B Modified	GCSV/6291
2035121006	**EB-041216**	EPA 3535	OEXT/8686	EPA 8015B Modified	GCSV/6291
2035121009	**EB-041316**	EPA 3535	OEXT/8686	EPA 8015B Modified	GCSV/6291
2035121002	**WWTP-SB-1-2-3**	EPA 5035A/5030B	GCV/2740	EPA 8015/8021	GCV/2748
2035121003	**DUP 1**	EPA 5035A/5030B	GCV/2740	EPA 8015/8021	GCV/2748
2035121007	**WWTP-SB-2-4-5**	EPA 5035A/5030B	GCV/2740	EPA 8015/8021	GCV/2748
2035121011	**FOL-1-16**	EPA 5035A/5030B	GCV/2740	EPA 8015/8021	GCV/2748
2035121012	**FOL-2-16**	EPA 5035A/5030B	GCV/2740	EPA 8015/8021	GCV/2748
2035121001	**EB-041116**	EPA 8015/8021	GCV/2743		
2035121004	**FB-041116**	EPA 8015/8021	GCV/2743		
2035121005	**TB041116**	EPA 8015/8021	GCV/2743		
2035121006	**EB-041216**	EPA 8015/8021	GCV/2743		
2035121008	**FB-041216**	EPA 8015/8021	GCV/2743		
2035121009	**EB-041316**	EPA 8015/8021	GCV/2743		
2035121010	**FB-041316**	EPA 8015/8021	GCV/2743		
2035121002	**WWTP-SB-1-2-3**	EPA 5035/5030B	MSV/4736	EPA 8260	MSV/4737
2035121003	**DUP 1**	EPA 5035/5030B	MSV/4736	EPA 8260	MSV/4737
2035121007	**WWTP-SB-2-4-5**	EPA 5035/5030B	MSV/4736	EPA 8260	MSV/4737
2035121011	**FOL-1-16**	EPA 5035/5030B	MSV/4736	EPA 8260	MSV/4737
2035121012	**FOL-2-16**	EPA 5035/5030B	MSV/4736	EPA 8260	MSV/4737
2035121001	**EB-041116**	EPA 8260	MSV/4725		
2035121004	**FB-041116**	EPA 8260	MSV/4725		
2035121005	**TB041116**	EPA 8260	MSV/4725		
2035121006	**EB-041216**	EPA 8260	MSV/4725		
2035121008	**FB-041216**	EPA 8260	MSV/4725		
2035121009	**EB-041316**	EPA 8260	MSV/4725		
2035121010	**FB-041316**	EPA 8260	MSV/4725		

Pace Analyt
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WO# : 2035121

2035121

CHAIN-OF-CUSTODY / Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

196673

Section A Required Client Information:

Company: BBL Caribe / Arcadis
Address: Carr 165, Km 1.2, Guaynabo PR
City View Plaza I Ste 401
Email To: Efrain.calderon@arcadis.com
Phone: 787-774-4000 Fax:
Requested Due Date/TAT:

Report To: Efrain Calderon
Copy To: PR
Purchase Order No.:
Project Name: RCRA RFI - USEPA
Project Number: B0163764

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #: 6468

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☑ RCRA ☐ OTHER

Site Location STATE: Terminal PR. Puma

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	BTEX	Ethanol	TPH GRO	MTBE	TPH DRO	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	EB-041116	WT	G			4/11/16	0920		5	2			3					Y	✓	✓	✓	✓	✓		2035121
2	WWTP-SB-1-2-3	SL	G			4/11/16	1010		2	2								Y	✓	✓	✓	✓	✓		
3	DUP 1	SL	G			4/11/16	0000		2	2								Y	✓	✓	✓	✓	✓		
4	FB-041116	WT	G			4/11/16	1030		3				3					Y	✓	✓	✓				
5	TB-041116	WT	G			4/11/16	0000		3				3					Y	✓	✓					
6	EB-041216	WT	G			4/12/16	0825		5	2			3					Y	✓	✓	✓	✓	✓		
7	WWTP-SB-2-4-5	SL	G			4/12/16	0851		2	2								Y	✓	✓	✓	✓	✓		
8	FB-041216	WT	G			4/12/16	0935		3				3					Y	✓	✓					
9	EB-041316	WT	G			4/13/16	1015		5	2			3					Y	✓	✓	✓	✓	✓		
10	FB-041316	WT	G			4/13/16	1130		3				3					Y	✓	✓					
11	FOL-1-16	SL	G			4/13/16	1037		2	2								Y	✓	✓	✓	✓	✓		
12	FOL-2-16	SL	G			4/13/16	1115		2	2								Y	✓	✓	✓	✓	✓		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Level IV requested by customer	[signature] / BBL Caribe	4/15/16	13:30	[signature] / Pace	4-15-16	13:30				
	[signature]	4-13-16	17:00	Fed Ex						
	Fed Ex	4-14-16	845	[signature] Pace	4-14-16	845	2.0	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Marianela Llerandi Burgos
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical

Urb. Jardines de Guaynabo
Calle Mrginal Blq A-10
Guaynabo, PR 00969

Sample Condition Upon Receipt

WO# : 2035121

PM: JAR1 Due Date: 04/27/16
CLIENT: 98-ARCADISPR

Project #:

Courier: ☐ Pace Courier ☐ Hired Courier ☐ Fed X ☐ UPS ☐ DHL ☐ USPS ☑ Customer ☐ Other

Custody Seal on Cooler/Box Present: [see COC] **Custody Seals intact:** ☐Yes ☐No

Therometer Used: ☑ Therm Fisher IR 4 ☐ Therm Fisher IR 6 ☐ Therm Fisher IR 7

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Date and Initials of person examining contents: 4-13-16

Cooler Temperature: [see COC] Temp should be above freezing to 6°C

Temp must be measured from Temperature blank when present

			Comments:
Temperature Blank Present"?	☐Yes	☑No ☐N/A	1
Chain of Custody Present:	☑Yes	☐No ☐N/A	2
Chain of Custody Complete:	☑Yes	☐No ☐N/A	3
Chain of Custody Relinquished:	☑Yes	☐No ☐N/A	4
Sampler Name & Signature on COC:	☑Yes	☐No ☐N/A	5
Samples Arrived within Hold Time:	☑Yes	☐No ☐N/A	6
Sufficient Volume:	☑Yes	☐No ☐N/A	7
Correct Containers Used:	☑Yes	☐No ☐N/A	8
Filtered vol. Rec. for Diss. tests	☐Yes	☐No ☑N/A	9
Sample Labels match COC:	☑Yes	☐No ☐N/A	10
All containers received within manafacture's precautionary and/or expiration dates.	☑Yes	☐No ☐N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	☐Yes	☐No ☑N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	☐Yes	☐No ☑N/A	13 If No, was preserative added? ☐Yes ☐No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	☐Yes	☐No ☑N/A	14
Trip Blank Present:	☐Yes	☑No	15

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Pace Analytical

1000 Riverbend. Blvd., Suite F
St. Rose, LA 70087

Sample Condition Upon Receipt

Project #: 20

Courier: ☐ Pace Courier ☐ Hired Courier ☑ Fed X ☐ UPS ☐ DHL ☐ USPS ☐ Customer ☐ Other

Custody Seal on Cooler/Box Present: [see COC] **Custody Seals intact:** ☑Yes ☐No

Therometer Used: ☐ Therm Fisher IR 5 ☐ Therm Fisher IR 6 ☑ Therm Fisher IR 7

Type of Ice: (Wet) Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4-14-16 tms

Temp must be measured from Temperature blank when present

		Comments:
Temperature Blank Present"?	☐Yes ☐No ☑N/A	1
Chain of Custody Present:	☑Yes ☐No ☐N/A	2
Chain of Custody Complete:	☑Yes ☐No ☐N/A	3
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	4
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	5
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	6
Sufficient Volume:	☑Yes ☐No ☐N/A	7
Correct Containers Used:	☑Yes ☐No ☐N/A	8
Filtered vol. Rec. for Diss. tests	☐Yes ☐No ☑N/A	9
Sample Labels match COC:	☑Yes ☐No ☐N/A	10
All containers received within manafacture's precautionary and/or expiration dates.	☑Yes ☐No ☐N/A	11
All containers needing chemical preservation have been checked (except VOA, coliform, & O&G).	☐Yes ☐No ☑N/A	12
All containers preservation checked found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	13 If No, was preserative added? ☐Yes ☐No If added record lot no.: HNO3 _____ H2SO4 _____
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	14
Trip Blank Present:	☑Yes ☐No	15

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

1000 Riverbend Blvd. Suite F
St. Rose, LA 70087
(504) 469-0333

SAMPLE ACKNOWLEDGMENT

Samples Submitted By: BBL Caribe / Arcadis PR
Client Project ID: PUMA TERMINAL MW SAMPLING
Client PO#: None

Pace Project Manager: Juan Redondo
Phone (787)720-0319
juan.redondo@pacelabs.com
Pace Analytical Project ID: 2038768
Samples Received: June 24, 2016 02:21 PM
Estimated Completion: July 11, 2016

CC: Abner Hernandez,Efrain Calderon,Marianela Mercado-Burgos,Sharon Colon

Customer Sample ID	Pace Analytical Lab ID	Matrix	Date/Time Collected	Method
EB-062416	2038768001	Water	06/24/16 07:35	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic Deliverable Package Level 4
88A	2038768002	Water	06/24/16 09:00	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic
18D	2038768003	Water	06/24/16 10:37	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic
P-120	2038768004	Water	06/24/16 12:30	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic
FB-062416	2038768005	Water	06/24/16 12:35	8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles
EB-062316	2038768006	Water	06/23/16 12:00	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic
98A	2038768007	Water	06/23/16 13:10	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic

Please contact your project manager if you recognize any discrepancy in this form or have any questions about your project.

Thank you for choosing Pace Analytical Services, Inc.

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(504) 469-0333

SAMPLE ACKNOWLEDGMENT

Customer Sample ID	Pace Analytical Lab ID	Matrix	Date/Time Collected	Method
99A	2038768008	Water	06/23/16 14:32	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic
FB-062316	2038768009	Water	06/23/16 14:40	8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles
TRIP BLANK -062316	2038768010	Water	06/23/16 00:00	8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles
TRIP BLANK -062416	2038768011	Water	06/24/16 00:00	8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles

Please contact your project manager if you recognize any discrepancy in this form or have any questions about your project.

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(504) 469-0333

SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
EB-062416	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L

Please contact your project manager if you recognize any discrepancy in this form or have any questions about your project.

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1000 Riverbend Blvd. Suite F
St. Rose, LA 70087
(504) 469-0333

SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L
88A	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L

Please contact your project manager if you recognize any discrepancy in this form or have any questions about your project.

Thank you for choosing Pace Analytical Services, Inc.

1000 Riverbend Blvd. Suite F
St. Rose, LA 70087
(504) 469-0333

SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L
18D	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L

Please contact your project manager if you recognize any discrepancy in this form or have any questions about your project.

Thank you for choosing Pace Analytical Services, Inc.

1000 Riverbend Blvd. Suite F
St. Rose, LA 70087
(504) 469-0333

SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L
P-120	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L

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(504) 469-0333

SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L

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SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L
FB-062416	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L

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SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
EB-062316	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L

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Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L
98A	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L

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SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L
99A	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L

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SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L

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SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
FB-062316	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
TRIP BLANK -062316	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L

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SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
TRIP BLANK -062416	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L

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SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L

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SAMPLE ACKNOWLEDGMENT

Samples Submitted By: BBL Caribe / Arcadis PR
Client Project ID: PUMA TERMINAL MW SAMPLING
Client PO#: None

Pace Project Manager: Juan Redondo
Phone (787)720-0319
juan.redondo@pacelabs.com
Pace Analytical Project ID: 2038800
Samples Received: June 27, 2016 02:22 PM
Estimated Completion: July 12, 2016

CC: Abner Hernandez,Efrain Calderon,Marianela Mercado-Burgos,Sharon Colon

Customer Sample ID	Pace Analytical Lab ID	Matrix	Date/Time Collected	Method
EB-062716	2038800001	Water	06/27/16 07:44	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic
TRIP BLANK	2038800002	Water	06/27/16 00:00	8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles
AD-4	2038800003	Water	06/27/16 10:28	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic
AD-3	2038800004	Water	06/27/16 11:37	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic
57-A	2038800005	Water	06/27/16 12:42	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic
AD-1	2038800006	Water	06/27/16 13:38	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles 8270 MSSV Semivolatile Organic
FB-062716	2038800007	Water	06/27/16 13:42	8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles
33A	2038800008	Water	06/27/16 09:01	6020 ICPMS Metals Vanadium, Chromium, Arsenic, Lead 7470 Mercury 8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MS Volatiles

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Customer Sample ID	Pace Analytical Lab ID	Matrix	Date/Time Collected	Method
				8270 MSSV Semivolatile Organic

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SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
EB-062716	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L

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Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L
TRIP BLANK	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L

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SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
AD-4	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L

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Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L
AD-3	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L

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SAMPLE ACKNOWLEDGMENT

Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L
57-A	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L

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Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L

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Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L
AD-1	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L

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Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L
FB-062716	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L

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Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
33A	6020 MET ICPMS	Vanadium	0.005	mg/L
		Chromium	0.001	mg/L
		Arsenic	0.001	mg/L
		Lead	0.001	mg/L
	7470 Mercury	Mercury	0.2	ug/L
	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	0.5	mg/L
		Diesel Range Organic (C10-C28)	0.25	mg/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV Low Level	Acetone	4	ug/L
		Benzene	0.5	ug/L
		Bromodichloromethane	0.5	ug/L
		Bromoform	0.5	ug/L
		Bromomethane	0.5	ug/L
		2-Butanone (MEK)	2	ug/L
		Carbon disulfide	1	ug/L
		Carbon tetrachloride	0.5	ug/L
		Chlorobenzene	0.5	ug/L
		Chloroethane	0.5	ug/L
		Chloroform	0.5	ug/L
		Chloromethane	0.5	ug/L
		1,2-Dibromo-3-chloropropane	2	ug/L
		Dibromochloromethane	0.5	ug/L
		1,2-Dibromoethane (EDB)	1	ug/L
		Dichlorodifluoromethane	1	ug/L
		1,1-Dichloroethane	0.5	ug/L
		1,2-Dichloroethane	0.5	ug/L
		1,1-Dichloroethene	0.5	ug/L
		cis-1,2-Dichloroethene	1	ug/L
		trans-1,2-Dichloroethene	0.5	ug/L
		1,2-Dichloropropane	0.5	ug/L
		cis-1,3-Dichloropropene	0.5	ug/L
		trans-1,3-Dichloropropene	0.5	ug/L
		Ethylbenzene	0.5	ug/L
		2-Hexanone	1	ug/L
		Isopropylbenzene (Cumene)	1	ug/L

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Customer Sample ID	Method	Compound	Reporting Limit	Units
		Methylene Chloride	0.5	ug/L
		4-Methyl-2-pentanone (MIBK)	1	ug/L
		Methyl-tert-butyl ether	0.5	ug/L
		Styrene	1	ug/L
		1,1,2,2-Tetrachloroethane	0.5	ug/L
		Tetrachloroethene	0.5	ug/L
		Toluene	0.5	ug/L
		1,1,1-Trichloroethane	0.5	ug/L
		1,1,2-Trichloroethane	0.5	ug/L
		Trichloroethene	0.5	ug/L
		Trichlorofluoromethane	0.5	ug/L
		Vinyl chloride	0.5	ug/L
		m&p-Xylene	2	ug/L
		o-Xylene	1	ug/L
		Methyl acetate	2	ug/L
		tert-Butyl Alcohol	200	ug/L
		Ethanol	500	ug/L
	8270 MSSV PAH by SIM SEP	Naphthalene	0.0001	mg/L
		Acenaphthene	0.0001	mg/L
		Fluorene	0.0001	mg/L
		Phenanthrene	0.0001	mg/L
		Anthracene	0.0001	mg/L
		Fluoranthene	0.0001	mg/L
		Pyrene	0.0001	mg/L
		Benzo(a)anthracene	0.0001	mg/L
		Chrysene	0.0001	mg/L
		Benzo(b)fluoranthene	0.0001	mg/L
		Benzo(k)fluoranthene	0.0001	mg/L
		Benzo(a)pyrene	0.0001	mg/L
		Benzo(g,h,i)perylene	0.0001	mg/L

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Samples Submitted By: BBL Caribe / Arcadis PR
Client Project ID: RCRA RFI-USEPA
Client PO#: None

Pace Project Manager: Juan Redondo
Phone (787)720-0319
juan.redondo@pacelabs.com
Pace Analytical Project ID: 2035121
Samples Received: April 13, 2016 01:30 PM
Estimated Completion: April 27, 2016

CC: Abner Hernandez,Efrain Calderon,Marianela Mercado-Burgos,Sharon Colon

Customer Sample ID	Pace Analytical Lab ID	Matrix	Date/Time Collected	Method
EB-041116	2035121001	Water	04/11/16 09:20	8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MSV
WWTP-SB-1-2-3	2035121002	Solid	04/11/16 10:10	8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO Med L 8260 MSV 5035 Prep
DUP 1	2035121003	Solid	04/11/16 00:00	8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO Med L 8260 MSV 5035 Prep
FB-041116	2035121004	Water	04/11/16 10:30	8021 GCV BTEX, MTBE, GRO 8260 MSV
TB041116	2035121005	Water	04/11/16 10:30	8021 GCV BTEX, MTBE, GRO 8260 MSV
EB-041216	2035121006	Water	04/12/16 08:25	8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MSV
WWTP-SB-2-4-5	2035121007	Solid	04/12/16 08:51	8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO Med L 8260 MSV 5035 Prep
FB-041216	2035121008	Water	04/12/16 09:35	8021 GCV BTEX, MTBE, GRO 8260 MSV
EB-041316	2035121009	Water	04/13/16 10:15	8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO 8260 MSV
FB-041316	2035121010	Water	04/13/16 11:30	8021 GCV BTEX, MTBE, GRO 8260 MSV
FOL-1-16	2035121011	Solid	04/13/16 10:37	8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO Med L 8260 MSV 5035 Prep
FOL-2-16	2035121012	Solid	04/13/16 11:15	8015M DRO/ORO Organics 8021 GCV BTEX, MTBE, GRO Med L 8260 MSV 5035 Prep

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Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
EB-041116	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	500	ug/L
		Diesel Range Organic (C10-C28)	250	ug/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV	Benzene	5	ug/L
		Toluene	5	ug/L
		Ethylbenzene	5	ug/L
		m&p-Xylene	10	ug/L
		o-Xylene	5	ug/L
		Methyl-tert-butyl ether	5	ug/L
		Ethanol	500	ug/L
WWTP-SB-1-2-3	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	50000	ug/kg
		Diesel Range Organic (C10-C28)	10000	ug/kg
	8021 GCV BTEX, MTBE, GRO Med L	Gasoline Range Organics	2500	ug/kg
	8260 MSV 5035 Low Level	Benzene	5	ug/kg
		Toluene	5	ug/kg
		Ethylbenzene	5	ug/kg
		m&p-Xylene	10	ug/kg
		o-Xylene	5	ug/kg
		Methyl-tert-butyl ether	5	ug/kg
		Ethanol	500	ug/kg
DUP 1	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	50000	ug/kg
		Diesel Range Organic (C10-C28)	10000	ug/kg
	8021 GCV BTEX, MTBE, GRO Med L	Gasoline Range Organics	2500	ug/kg
	8260 MSV 5035 Low Level	Benzene	5	ug/kg
		Toluene	5	ug/kg
		Ethylbenzene	5	ug/kg
		m&p-Xylene	10	ug/kg
		o-Xylene	5	ug/kg
		Methyl-tert-butyl ether	5	ug/kg
		Ethanol	500	ug/kg
FB-041116	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV	Benzene	5	ug/L
		Toluene	5	ug/L
		Ethylbenzene	5	ug/L
		m&p-Xylene	10	ug/L
		o-Xylene	5	ug/L
		Methyl-tert-butyl ether	5	ug/L
		Ethanol	500	ug/L
TB041116	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV	Benzene	5	ug/L
		Toluene	5	ug/L
		Ethylbenzene	5	ug/L
		m&p-Xylene	10	ug/L
		o-Xylene	5	ug/L
		Methyl-tert-butyl ether	5	ug/L
		Ethanol	500	ug/L
EB-041216	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	500	ug/L
		Diesel Range Organic (C10-C28)	250	ug/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV	Benzene	5	ug/L

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Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Toluene	5	ug/L
		Ethylbenzene	5	ug/L
		m&p-Xylene	10	ug/L
		o-Xylene	5	ug/L
		Methyl-tert-butyl ether	5	ug/L
		Ethanol	500	ug/L
WWTP-SB-2-4-5	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	50000	ug/kg
		Diesel Range Organic (C10-C28)	10000	ug/kg
	8021 GCV BTEX, MTBE, GRO Med L	Gasoline Range Organics	2500	ug/kg
	8260 MSV 5035 Low Level	Benzene	5	ug/kg
		Toluene	5	ug/kg
		Ethylbenzene	5	ug/kg
		m&p-Xylene	10	ug/kg
		o-Xylene	5	ug/kg
		Methyl-tert-butyl ether	5	ug/kg
		Ethanol	500	ug/kg
FB-041216	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV	Benzene	5	ug/L
		Toluene	5	ug/L
		Ethylbenzene	5	ug/L
		m&p-Xylene	10	ug/L
		o-Xylene	5	ug/L
		Methyl-tert-butyl ether	5	ug/L
		Ethanol	500	ug/L
EB-041316	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	500	ug/L
		Diesel Range Organic (C10-C28)	250	ug/L
	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV	Benzene	5	ug/L
		Toluene	5	ug/L
		Ethylbenzene	5	ug/L
		m&p-Xylene	10	ug/L
		o-Xylene	5	ug/L
		Methyl-tert-butyl ether	5	ug/L
		Ethanol	500	ug/L
FB-041316	8021 GCV BTEX, MTBE, GRO	Gasoline Range Organics	50	ug/L
	8260 MSV	Benzene	5	ug/L
		Toluene	5	ug/L
		Ethylbenzene	5	ug/L
		m&p-Xylene	10	ug/L
		o-Xylene	5	ug/L
		Methyl-tert-butyl ether	5	ug/L
		Ethanol	500	ug/L
FOL-1-16	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	50000	ug/kg
		Diesel Range Organic (C10-C28)	10000	ug/kg
	8021 GCV BTEX, MTBE, GRO Med L	Gasoline Range Organics	2500	ug/kg
	8260 MSV 5035 Low Level	Benzene	5	ug/kg
		Toluene	5	ug/kg
		Ethylbenzene	5	ug/kg
		m&p-Xylene	10	ug/kg
		o-Xylene	5	ug/kg

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Analyte List

Customer Sample ID	Method	Compound	Reporting Limit	Units
		Methyl-tert-butyl ether	5	ug/kg
		Ethanol	500	ug/kg
FOL-2-16	8015M DRO/ORO Organics	Oil Range Organics (>C28-C40)	50000	ug/kg
		Diesel Range Organic (C10-C28)	10000	ug/kg
	8021 GCV BTEX, MTBE, GRO Med L	Gasoline Range Organics	2500	ug/kg
	8260 MSV 5035 Low Level	Benzene	5	ug/kg
		Toluene	5	ug/kg
		Ethylbenzene	5	ug/kg
		m&p-Xylene	10	ug/kg
		o-Xylene	5	ug/kg
		Methyl-tert-butyl ether	5	ug/kg
		Ethanol	500	ug/kg

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Arcadis Caribe, PSC

48 City View Plaza 1

Suite 401

Rd 165 Km 1.2

Guaynabo, Puerto Rico 00968

Tel 787 777 4000

Fax 787 777 8086

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