

**FINAL
SITE INSPECTION REPORT
FORMER ANTOINE LAUNDRY
125 AVENIDA ISLA VERDE
CAROLINA, PUERTO RICO**

EPA ID No.: PRR000020396

EPA Contract No.: 68HE0222F0035
Document Control No.: SAT-V.6405.0321

July 2024

Prepared for:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Prepared by:

Weston Solutions, Inc.
Edison, New Jersey 08837

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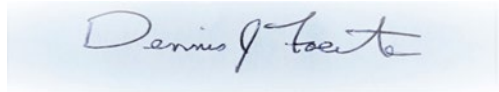
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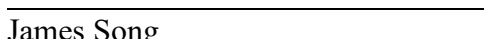
Dennis J. Foerter
Senior Project Scientist



Date 7/1/2024

Gerald V. Gilliland, P.G.
Site Assessment Team (SAT) Leader

APPROVED BY:



James Song
EPA Site Assessment Manager

Date 7/2/2024

SITE SUMMARY

The Former Antoine Laundry site is a former dry-cleaning facility located at 125 Avenida Isla Verde (Isla Verde Avenue) in Carolina, PR. **Figure 1** presents a Site Location Map. Aliases for the facility appear in various EPA databases as Antoine de Puerto Rico, Inc., Antoine de PR, and Narvaez Dry Cleaners [Ref. 2, p. 1, 3, p. 1, 4, p. 1, 5, p. 1, 6, p. 1, 7, pp. 2-3, 8, p. 1]. Records available in the Puerto Rico Department of State's Registry of Corporations and Entities indicate that Antoine de Puerto Rico, Inc., which formed in 1968 for the purpose of dry cleaning and related services, began using the Carolina facility location as its principal address in 1975. The Department of State canceled the certificate of incorporation for Antoine de Puerto Rico, Inc. in October 2016 due to non-filing in 2014 and 2015. The Registry of Corporations and Entities also lists the facility location for "Isla Narvaez Dry Cleaners Inc.", an active corporation formed in 2014 [Ref. 17, p. 2].

EPA's database information indicates that the North American Industry Classification System (NAICS) Code for the Antoine Laundry facility is 81232, "Drycleaning and Laundry Services [except Coin-Operated]", and that the facility utilized tetrachloroethylene (PCE) as a dry-cleaning solvent [Ref. 4, p. 2; 8, pp. 2-8]. The facility is classified on the EPA Enforcement and Compliance History Online (ECHO) Detailed Facility Report as an active Very Small Quantity Generator (VSQG) under Resource Conservation and Recovery Act (RCRA) Handler ID No. PRR000020396; however, the current RCRAInfo Facility Information search for that Handler ID does not list a handler type or waste code. Facility name "Antoine de Puerto Rico" is also listed in RCRAInfo Facility Information, with Handler ID No. PRR000012948 and an address of 4780 Isla Verde Ave, Carolina PR 00719; no handler type, waste code, or NAICS code is provided for the company at this other location. The search term "Narvaez Dry Cleaner" does not return any results for the site address. The EPA Envirofacts Multisystem Search reports numerous violations during state inspections between 1997 and 2003 [Ref. 8, pp. 4-7].

The facility also operated under Clean Air Act (CAA) Facility ID No. PR0000007203100052, originally under the name "Antoine de PR" and then under the name "Narvaez Dry Cleaners", for minor emissions of PCE [Ref. 5, p. 2]. EPA's Air Facility System (AFS) database indicates that the State most recently conducted an on-site compliance evaluation in June 2013 and reported the facility to be in violation [Ref. 8, pp. 4-7].

On February 8, 2022, WESTON Region 2 Site Assessment Team (SAT) performed reconnaissance activities at the site and vicinity. SAT observed that the facility was closed and for sale. Signage on the storefront confirmed the most recent name of the business as "Narvaez Dry Cleaners". There were indications that the facility recently closed, such as signs in the windows with COVID-19 precautions and laundry equipment still visible through the storefront windows. General housekeeping observed through the windows and fenced rear portion of the facility was poor and messy, with trash littered throughout. The Former Antoine Laundry site is situated in a shopping district, immediately surrounded by restaurants and commercial buildings. Directly across the street from the facility are numerous multi-unit, waterfront condominium buildings and hotels; the nearest is approximately 200 feet north of the facility [Ref. 2, pp. 1-5; 5, p. 5; 19, Figure 2].

On March 31, 2022, Region 2 SAT performed reconnaissance activities at the site and vicinity in support of the Preliminary Assessment (PA). From publicly accessible sidewalks and neighboring parking areas, SAT observed that the exterior portion of the site was completely paved with asphalt and concrete in good condition and that topography is generally flat. A storm drain was observed on the east side of the building, directly in front of the adjacent business [Ref. 9, pp. 2-3]. **Figure 2** presents a Site Map.

From January 16-17, 2024, Region 2 SAT collected soil, groundwater, and soil gas samples as part of the Site Inspection (SI) evaluation of the Former Antoine Laundry site [Ref. 9, pp. 4-11]. Region 2 SAT collected a total of 16 soil samples (including one environmental duplicate), 6 groundwater samples (including one environmental duplicate), and 6 soil gas samples (including one environmental duplicate) using Geoprobe direct-push technology [Ref. 12, pp. 2-11]. During sampling activities, the site building was noted to be under construction [Ref. 9, p. 4]. **Figure 3** presents the Sample Location Map.

Region 2 SAT collected samples for background comparison from an area approximately 350 feet south-southeast of the Former Antoine Laundry facility. This location was considered to represent background conditions in the general area of the site because it is believed to be unaffected by the site-specific activities [Ref. 12, p. 8, Figure 3]. All soil and groundwater samples collected in support of the Former Antoine Laundry SI evaluation were analyzed for Organic Target Analyte List (TAL) Volatile Organic Compounds (VOCs) by a Contract Laboratory Program (CLP) laboratory. The soil gas samples were analyzed for Toxic Organic (TO)-15 VOCs by a WESTON-subcontracted laboratory [Ref. 12, p. 2].



Analytical results for soil samples collected in support of the Former Antoine Laundry SI document a contaminated soil source consisting of PCE at a maximum concentration of 60 ug/kg [Ref. 13, pp. 14-15, 20-21, 34-35]. Groundwater samples collected in support of the SI document an observed release to groundwater of PCE at a maximum concentration 2,200 ug/L [Ref. 14, pp. 7-18]. Soil gas samples collected in support of the SI indicate the following contaminants (maximum concentrations provided): PCE (470,000 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]), trichloroethene (TCE) ($1,100 \mu\text{g}/\text{m}^3$) and chloroform ($1,500 \mu\text{g}/\text{m}^3$) [Ref. 15, pp. 9-12]. Contaminants not known to be attributable to the former dry-cleaning operations were also detected in soil gas samples, including 1,3-butadiene ($600 \mu\text{g}/\text{m}^3$), n-butane ($2,000 \mu\text{g}/\text{m}^3$), and toluene ($17 \mu\text{g}/\text{m}^3$) [Ref. 15, pp. 9-10; 31, p. 1; 32, p. 1]. The January 2024 SI sampling results document an area of subsurface contamination (ASC) at the site. Contaminant Levels are shown in **Figure 4**; sample information and analytical data are presented in **Tables 1 through 4**, and the results are discussed in further detail in **Parts II and III**.

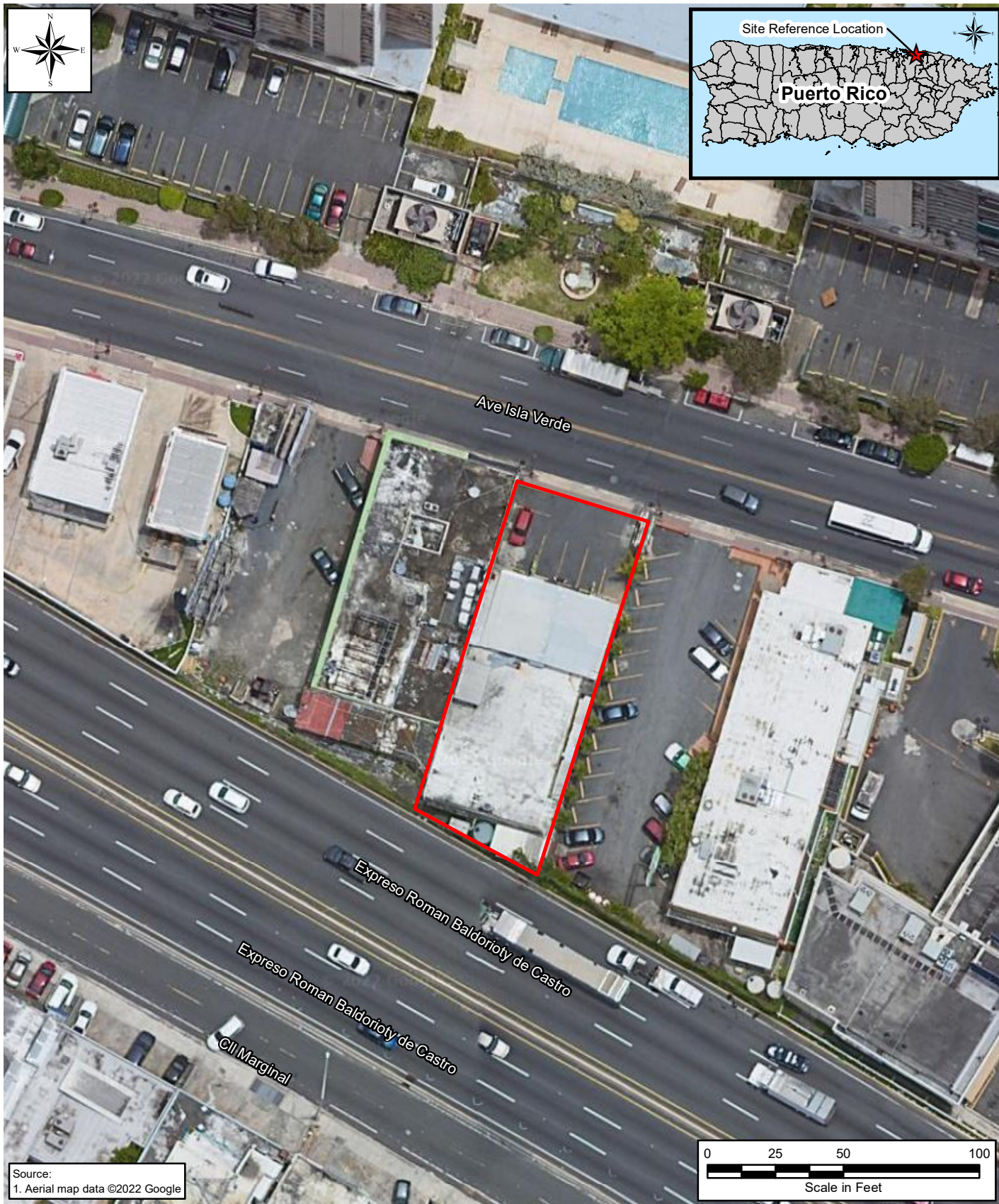
According to information obtained from the Puerto Rico Aqueduct and Sewer Authority (PRASA), there are a total of 43 current and former water-supply wells in the San Juan and Carolina metropolitan area [Ref. 19, Figure 5; 20, p. 1]. The wells are listed as decommissioned, contaminated, damaged, standby, or unknown [Ref. 19, Figure 5; 20, p. 1]. Specific information regarding the type of contamination or the reason the wells were decommissioned is unavailable [Ref. 20, p. 1]. In July 2022, PRASA indicated that standby wells within 4 miles of the site are used during droughts [Ref. 20, p. 1]. There are a total of six standby wells in San Juan [Ref. 20, p. 1]. Three of these wells (i.e., Hiram Bithorn 1, Las Américas, and Sorbona) are emergency wells

of the Metropolitano System (PWSID # PR0002591); only Hiram Bithorn and Sorbona are located within 4 miles of the Former Antoine Laundry site [Ref. 19, Figure 5; 20, p. 1]. PRASA confirmed that Hiram Bithorn 1, Las Américas, and Sorbona contribute water to the Metropolitano System [Ref. 20, p. 1]. Hiram Bithorn 1 is located approximately 3.5 miles southwest of the site and Sorbona is located approximately 3.8 miles southwest of the site [Ref. 19, Figure 5]. The total apportioned population of the Hiram Bithorn and Sorbona wells is 15,486 [Ref. 19, Figure 5; 20, p. 1]. Information regarding the use of the other standby wells in the San Juan and Carolina metropolitan area is unavailable [Ref. 20, p. 1].

As discussed above, the site is located in the urbanized northern portion of Carolina. Based on comparison to the EPA regional screening level (RSL) and the maximum contaminant level (MCL), the concentrations of PCE in soil (60 $\mu\text{g}/\text{kg}$), groundwater (2,200 $\mu\text{g}/\text{L}$), and soil gas (470,000 $\mu\text{g}/\text{m}^3$), Region 2 SAT is evaluating targets within a minimum distance of 200 feet from the site for potential exposure in the Subsurface Intrusion component. Contamination is found in soil at a depth of 1 foot below ground surface (bgs), in groundwater at depths of 5.72 to 6.96 feet bgs, and in soil gas between 0.25 and 4 feet bgs. Regularly occupied structures within 200 feet consist of restaurants, commercial buildings, and multi-unit, waterfront condominium buildings and hotels [Ref. 18, pp. 1-2]. Approximately 1,109 people reside within 0.25 mile of the site [Ref. 11, pp. 1-2].



<p>LEGEND:</p> <p> Site Reference Location</p> <p>Lat: +18.443850° Long: -66.028243°</p>	<p>TITLE:</p> <p>SITE LOCATION MAP FORMER ANTOINE LAUNDRY 125 AVE ISLA VERDE, CAROLINA, PR</p>		
<p>PROJECT:</p> <p>Former Antoine Laundry PASI</p>			
<p>CLIENT NAME:</p> <p>EPA</p>		<p>DATE:</p> <p>November 2023</p>	<p>FIGURE #:</p> <p>1</p>



LEGEND:

Approximate Site Boundary

PROJECT:

Former Antoine Laundry PASI

CLIENT NAME:

EPA

TITLE:

SITE MAP
FORMER ANTOINE LAUNDRY
125 AVE ISLA VERDE, CAROLINA, PR

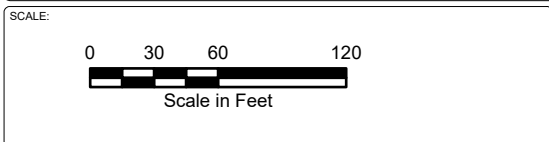
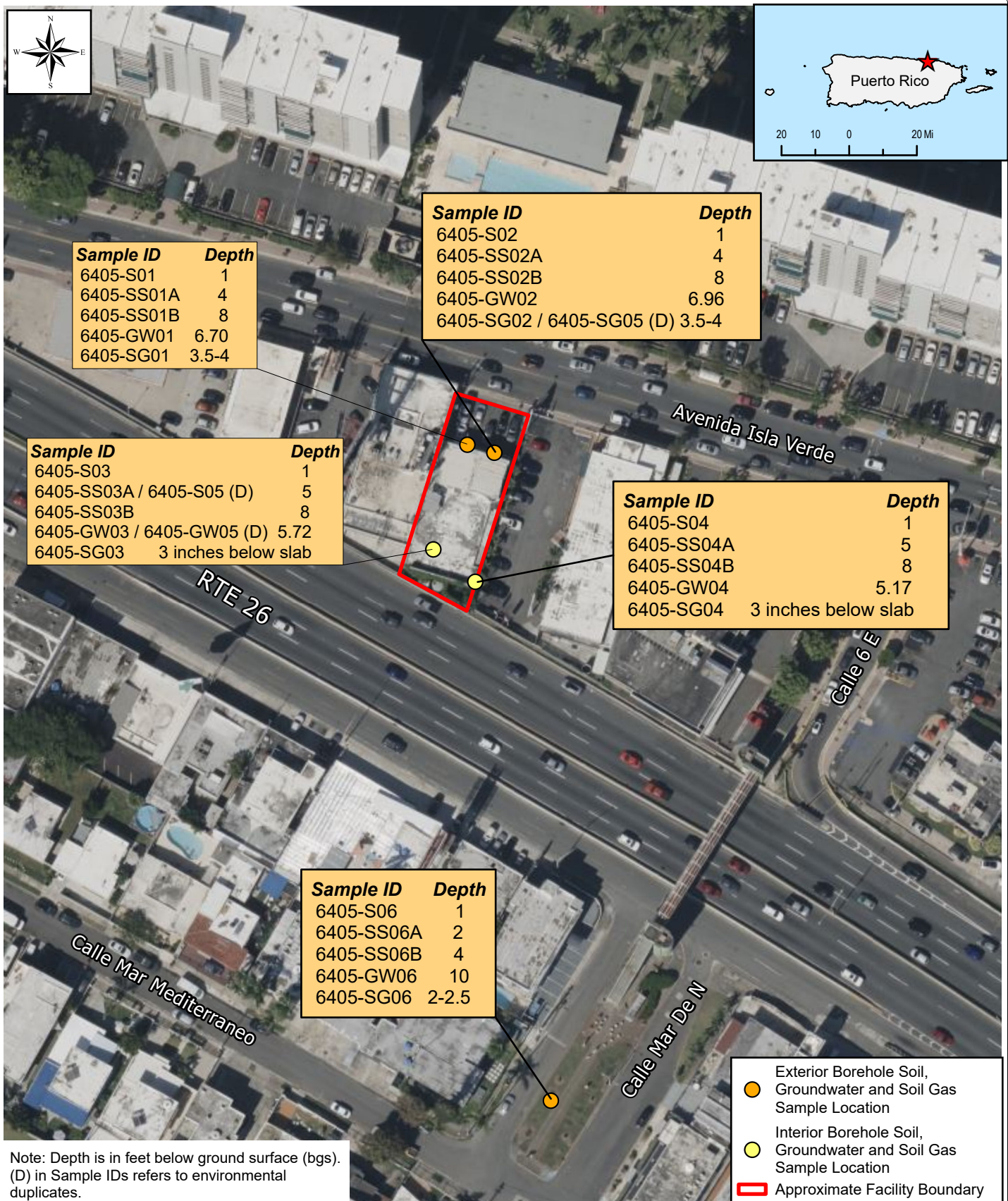
WESTON
 SOLUTIONS

DATE:

January 2024

FIGURE #:

2



PROJECT:

Former Antoine Laundry SI

CLIENT NAME:

US Environmental Protection Agency

TITLE:

SAMPLE LOCATION MAP
FORMER ANTOINE LAUNDRY
125 AVE ISLA VERDE, CAROLINA, PR

DATE:

January 2024

FIGURE #:

3



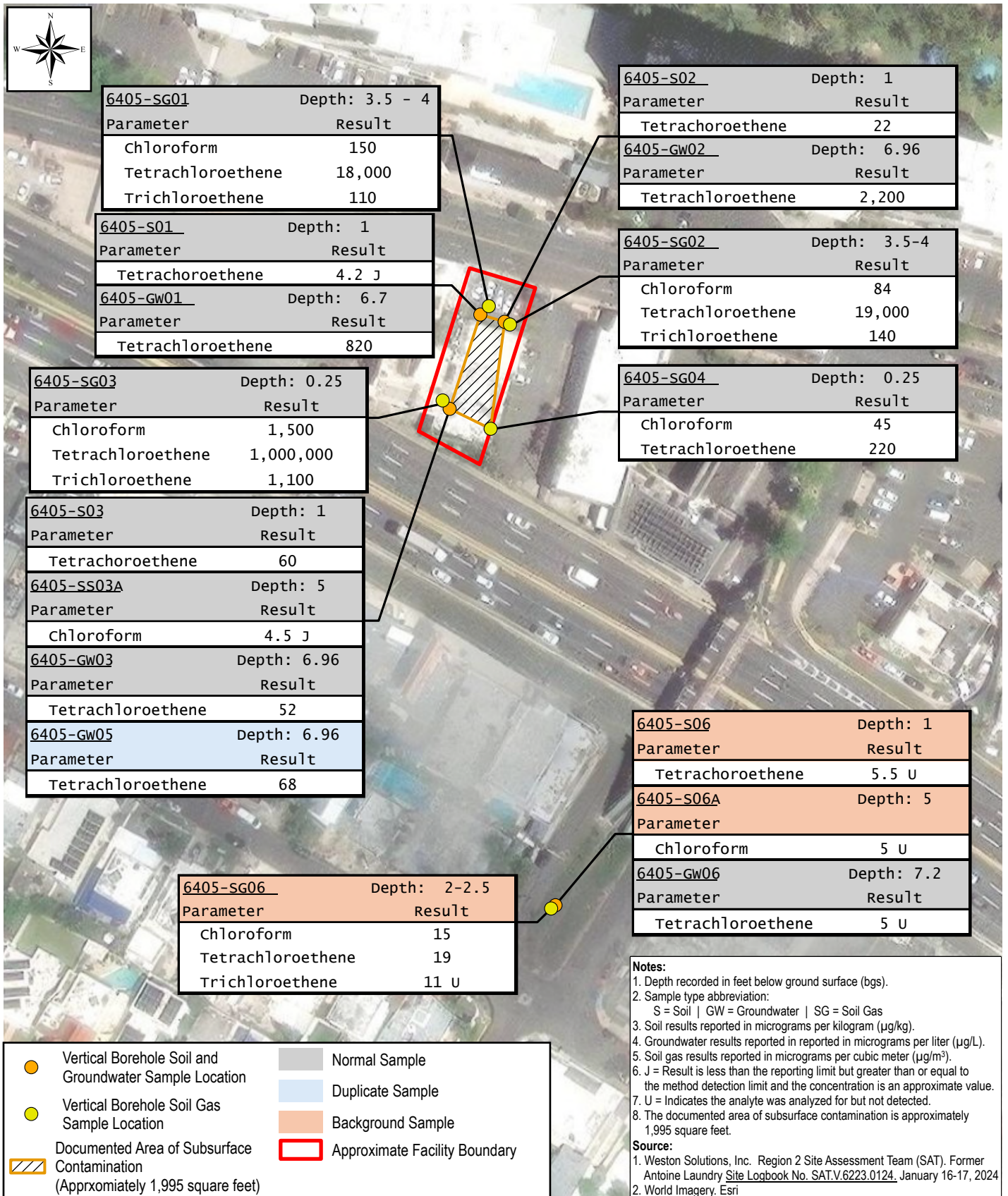


TABLE 1
SAMPLE LOCATION COORDINATES
FORMER ANTOINE LAUNDRY
Page 1 of 1

Location Type	Location IDs	Sample IDs	Latitude	Longitude	Data Collection Type
Direct-push Soil and Groundwater	6405-S01	6405-S01	18.443841	-66.028267	Approximate location due to GPS interference
		6405-SS01A			
		6405-SS01B			
		6405-GW01			
Post-Run Tubing System Soil Gas	6405-SG01	6405-SG01	18.443858	-66.028249	Approximate location due to GPS interference
Direct-push Soil and Groundwater	6405-S02	6405-S02	18.443826	-66.028215	Approximate location due to GPS interference
		6405-SS02A			
		6405-SS02B			
		6405-GW02			
Post-Run Tubing System Soil Gas	6405-SG02	6405-SG02	18.443821	-66.028204	Approximate location due to GPS interference
		6405-SG05 (Duplicate of 6405-SG02)			
Direct-push Soil and Groundwater	6405-S03	6405-S03	18.443649	-66.028332	Approximate location due to GPS interference
		6405-SS03A			
		6405-S05 (Duplicate of 6405-SS03A)			
		6405-SS03B			
		6405-GW03			
		6405-GW05 (Duplicate of 6405-GW03)			
Post-Run Tubing System Soil Gas	6405-SG03	6405-SG03	18.443666	-66.028347	Approximate location due to GPS interference
Direct-push Soil and Groundwater	6405-S04	6405-S04	18.44359	-66.028252	Approximate location due to GPS interference
		6405-SS04A			
		6405-SS04B			
		6405-GW04			
Direct-push Soil and Groundwater	6405-S06	6405-S06	18.442625	-66.028109	GPS point collected in the field
		6405-SS06A			
		6405-SS06B			
		6405-GW06			
Post-Run Tubing System Soil Gas	6405-SG06	6405-SG06	18.442633	-66.028119	Approximate location due to GPS interference

TABLE 2
SOIL ANALYTICAL DATA - VOLATILE ORGANIC COMPOUNDS
FORMER ANTOINE LAUNDRY
PAGE 1 OF 1

Sample Purpose: Field Sample ID: CLP ID: Date: Sample Depth (ft bgs): Comments:	Background Samples									3x Maximum Background, or Highest Reporting Detection Limit	Former Antoine Laundry Samples																																							
	6405-S06 BGPW3 1/17/2024 1			6405-SS06A BH705 1/17/2024 2			6405-SS06B BH706 1/17/2024 4				6405-S01 BGPS8 1/17/2024 1			6405-SS01A BGPS9 1/17/2024 4			6405-SS01B BGPT0 1/17/2024 8			6405-S02 BGPT1 1/17/2024 1			6405-SS02A BGPT2 1/17/2024 4			6405-SS02B BGPT3 1/17/2024 8			6405-S03 BGPT4 1/16/2024 1			6405-SS03A BGPT5 1/16/2024 5			6405-S05 BGPW0 1/16/2024 5			6405-SS03B BGPT6 1/16/2024 8			6405-S04 BGPT7 1/16/2024 1			6405-SS04A BGPT8 1/16/2024 5			6405-SS04B BGPT9 1/16/2024 8			
	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL		Value	Q	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Duplicate of 6405-SS03A			Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL		
Dichlorodifluoromethane	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Chloromethane	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Vinyl chloride	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Bromomethane	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Chloroethane	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Trichlorofluoromethane	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	UJ	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
1,1-Dichloroethene	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
1,1,2-Trichloro- 1,2,2-trifluoroethane	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	UJ	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Acetone	11	U	11	18	U	12	35	U	10	35	U	13	U	11	17	U	13	45	U	17	22	U	12	19	U	11	36	U	14	30	U	13	20	U	11	22	U	12	19	U	11	23	U	11	32	U	10			
Carbon disulfide	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Methyl acetate	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	UJ	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Methylene chloride	5.5	UJ	5.5	6.0	UJ	6.0	5.0	UJ	5.0	6.0	UJ	5.4	UJ	5.4	6.6	UJ	6.6	8.5	UJ	8.5	6.2	UJ	6.2	5.6	UJ	5.6	6.9	UJ	6.9	6.6	UJ	6.6	5.4	UJ	5.4	6.2	UJ	6.2	5.2	UJ	5.2	5.4	UJ	5.4	5.3	UJ	5.3	5.0	UJ	5.0
trans-1,2-Dichloroethene	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Methyl tert-butyl ether	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	UJ	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
1,1-Dichloroethane	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
cis-1,2-Dichloroethene	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
2-Butanone	11	U	11	12	U	12	10	U	10	12	U	11	U	11	13	U	13	17	U	17	12	U	12	11	U	11	14	U	14	13	U	13	11	U	11	12	U	12	10	U	10	11	U	11	11	U	11	4.5	J	10
Bromochloromethane	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Chloroform	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	4.5	J	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
1,1,1-Trichloroethane	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	UJ	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Cyclohexane	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	UJ	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Carbon tetrachloride	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	UJ	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
Benzene	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	U	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	5.0
1,2-Dichloroethane	5.5	U	5.5	6.0	U	6.0	5.0	U	5.0	6.0	U	5.4	U	5.4	6.6	U	6.6	8.5	U	8.5	6.2	U	6.2	5.6	U	5.6	6.9	UJ	6.9	6.6	U	6.6	5.4	U	5.4	6.2	U	6.2	5.2	U	5.2	5.4	U	5.4	5.3	U	5.3	5.0	U	

Sample Purpose: Field Sample ID: CLP ID: Date: Sample Depth (ft bgs): Comments:	Background Sample			3x Maximum Background, or Highest Reporting Detection Limit	Former Antoine Laundry Samples															QA/QC Samples					
	6405-GW06 BH729 1/17/2024 7.2				6405-GW01 BH724 1/17/2024 6.7			6405-GW02 BH725 1/17/2024 6.96			6405-GW03 BH726 1/16/2024 5.72			6405-GW05 BH728 1/16/2024 5.72 Duplicate of 6405-GW03			6405-GW04 BH727 1/16/2024 5.17			6405-RIN01 BH731 1/16/2024			6405-RIN02 BH732 1/17/2024		
	Result	Q	RDL		Value	Q	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	
Dichlorodifluoromethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	UJ	5.0	5.0	U	5.0		
Chloromethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	UJ	5.0	5.0	U	5.0		
Vinyl chloride	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Bromomethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	UJ	5.0	5.0	U	5.0		
Chloroethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	UJ	5.0	5.0	U	5.0		
Trichlorofluoromethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,1-Dichloroethene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,1,2-Trichloro- 1,2,2-trifluoroethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Acetone	24	U	10	24	U	17	U	10	17	U	10	13	U	10	15	U	10	20	U	10	25		10		
Carbon disulfide	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	UJ	5.0	5.0	U	5.0		
Methyl acetate	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Methylene chloride	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
trans-1,2-Dichloroethene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Methyl tert-butyl ether	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,1-Dichloroethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
cis-1,2-Dichloroethene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
2-Butanone	10	U	10	10	U	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10		
Bromochloromethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Chloroform	5.0	U	5.0	5.0	U	3.5	J	5.0	4.6	J	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,1,1-Trichloroethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Cyclohexane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Carbon tetrachloride	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Benzene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,2-Dichloroethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Trichloroethene	5.0	U	5.0	5.0	U	3.9	J	5.0	2.0	J	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Methylcyclohexane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,2-Dichloropropane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Bromodichloromethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
cis-1,3-Dichloropropene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
4-Methyl-2-pentanone	10	U	10	10	U	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10		
Toluene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	2.7	J	5.0	3.0	J	5.0		
trans-1,3-Dichloropropene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,1,2-Trichloroethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Tetrachloroethene	5.0	U	5.0	5.0	U	820		250	2200		500	52		5.0	68		5.0	5.0	U	5.0	5.0	U	5.0		
2-Hexanone	10	U	10	10	U	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10		
Dibromochloromethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,2-Dibromoethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Chlorobenzene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Ethylbenzene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
o-Xylene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
m,p-Xylene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Styrene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Bromoform	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
Isopropylbenzene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,2,3-Trichloropropane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,3-Dichlorobenzene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,4-Dichlorobenzene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,2-Dichlorobenzene	1.7	J	5.0	5.1	J	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,2-Dibromo-3-chloropropane	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,2,4-Trimethylbenzene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,3,5-Trimethylbenzene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0		
1,2,3-Trichlorobenzene	5.0	U	5.0	5.0	U	5.0	U	5.0	5.0	U	5.0	5.0	U	5.0											

All results are reported in micrograms per liter (µg/L)
ft bgs = feet below ground surface
RDL = Reporting Detection Limit, equivalent to the adjusted Contract Required Quantitation limit (ACRQL

TABLE 4
SOIL GAS ANALYTICAL DATA - VOLATILE ORGANIC COMPOUNDS
FORMER ANTOINE LAUNDRY
Page 1 of 2

Sample Purpose: Field Sample ID: Date: Sample Depth (ft bgs): Comments:	Background Sample			3x Maximum Background, or Highest Reporting Detection Limit		Former Antoine Laundry Samples														
	6405-SG06					6405-SG01			6405-SG02			6405-SG05			6405-SG03			6405-SG04		
	1/17/2024					1/17/2024			1/17/2024			1/17/2024			1/17/2024			1/16/2024		
	2 - 2.5					3.5 - 4			3.5 - 4			3.5 - 4			0.25			0.25		
	Result	Q	RDL	Value	Q	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL
1,1,1-Trichloroethane	11	U	11	11	U	55	U	55	65	U	65	44	U	44	1100	U	1100	11	U	11
1,1,2,2-Tetrachloroethane	14	U	14	14	U	69	U	69	82	U	82	55	U	55	1400	U	1400	14	U	14
1,1,2-Trichloroethane	11	U	11	11	U	55	U	55	65	U	65	44	U	44	1100	U	1100	11	U	11
1,1-Dichloroethane	8.1	U	8.1	8.1	U	40	U	40	49	U	49	32	U	32	810	U	810	8.1	U	8.1
1,1-Dichloroethene	7.9	U	7.9	7.9	U	40	U	40	48	U	48	32	U	32	800	U	800	7.9	U	7.9
1,2,4-Trichlorobenzene	37	U	37	37	U	190	U	190	220	U	220	150	U	150	3700	U	3700	37	U	37
1,2,4-Trimethylbenzene	7.9	J	9.8	23.7	J	49	U	49	59	U	59	39	U	39	990	U	990	8.1	J	8.1
1,2-Dibromoethane	15	U	15	15	U	77	U	77	92	U	92	61	U	61	1500	U	1500	15	U	15
1,2-Dichlorobenzene	12	U	12	12	U	60	U	60	72	U	72	48	U	48	1200	U	1200	12	U	12
1,2-Dichloroethane	8.1	U	8.1	8.1	U	40	U	40	49	U	49	32	U	32	810	U	810	8.1	U	8.1
1,2-Dichloroethene, Total	16	U	16	16	U	79	U	79	95	U	95	63	U	63	1600	U	1600	4.0	J	16
1,2-Dichloropropane	9.2	U	9.2	9.2	U	46	U	46	55	U	55	37	U	37	930	U	930	9.2	U	9.2
1,2-Dichlorotetrafluoroethane	14	U	14	14	U	70	U	70	84	U	94	56	U	56	1400	U	1400	14	U	14
1,3,5-Trimethylbenzene	2.5	J	9.8	7.5	J	49	U	49	59	U	59	39	U	39	990	U	990	2.5	J	9.8
1,3-Butadiene	7.0		4.4	21		22	U	22	27	U	27	18	U	18	600		450	4.4	U	4.4
1,3-Dichlorobenzene	12	U	12	12	U	60	U	60	72	U	72	48	U	48	1200	U	1200	12	U	12
1,4-Dichlorobenzene	12	U	12	12	U	60	U	60	72	U	72	48	U	48	1200	U	1200	12	U	12
1,4-Dioxane	180	U	180	180	U	900	U	900	1100	U	1100	720	U	720	18000	U	18000	180	U	180
2,2,4-Trimethylpentane	2.1	J	9.3	6.3	J	47	U	47	56	U	56	7.8	J	37	940	U	940	9.3	U	9.3
2-Chlorotoluene	10	U	10	10	U	52	U	52	62	U	62	41	U	41	1000	U	1000	10	U	10
3-Chloropropene	16	U	16	16	U	78	U	78	94	U	94	63	U	63	1600	U	1600	16	U	16
4-Ethyltoluene	9.8	U	9.8	9.8	U	49	U	49	59	U	59	39	U	39	990	U	990	2.5	J	9.8
4-Isopropyltoluene	11	U	11	11	U	55	U	55	66	U	66	44	U	44	1100	U	1100	11	U	11
Acetone	430		120	1290		230	J	590	710	U	710	480	U	480	12000	U	12000	120	U	120
Benzene	8.0		6.4	24		32	U	32	38	U	38	26	U	26	190	J	640	6.4	U	6.4
Benzyl chloride	10	U	10	10	U	52	U	52	62	U	62	41	U	41	1000	U	1000	10	U	10
Bromodichloromethane	13	U	13	13	U	67	U	67	80	U	80	54	U	54	1300	U	1300	13	U	13
Bromoethene(Vinyl Bromide)	8.7	U	8.7	8.7	U	44	U	44	52	U	52	35	U	35	880	U	880	8.7	U	8.7
Bromoform	21	U	21	21	U	100	U	100	120	U	120	83	U	83	2100	U	2100	21	U	21
Bromomethane	7.8	U	7.8	7.8	U	39	U	39	47	U	47	31	U	31	780	U	780	7.8	U	7.8
Carbon disulfide	7.2	J	16	21.6	J	78	U	78	93	U	93	62	U	62	1600	U	1600	16	U	16
Carbon tetrachloride	13	U	13	13	U	63	U	63	75	U	75	50	U	50	1300	U	1300	13	U	13
Chlorobenzene	9.2	U	9.2	9.2	U	46	U	46	55	U	55	37	U	37	930	U	930	9.2	U	9.2
Chloroethane	13	U	13	13	U	66	U	66	79	U	79	53	U	53	1300	U	1300	13	U	13
Chloroform	15		9.8	45		150		49	84		59	86		39	1500		980	45		9.8
Chloromethane	10	U	10	10	U	52	U	52	62	U	62	41	U	41	1000	U	1000	10	U	10
cis-1,2-Dichloroethene	7.9	U	7.9	7.9	U	40	U	40	48	U	48	32	U	32	800	U	800	4.2	J	7.9
cis-1,3-Dichloropropene	9.1	U	9.1	9.1	U	45	U	45	54	U	54	36	U	36	910	U	910	9.1	U	9.1
Cumene	9.8	U	9.8	9.8	U	49	U	49	59	U	59	39	U	39	990	U	990	9.8	U	9.8
Cyclohexane	6.9	U	6.9	6.9	U	34	U	64	41	U	41	28	U	28	690	U	690	6.9	U	6.9
Dibromochloromethane	17	U	17	17	U	85	U	85	100	U	100	68	U	68	1700	U	1700	17	U	17
Dichlorodifluoromethane	25	U	25	25	U	120	U	120	150	U	150	99	U	99	2500	U	2500	25	U	25
Ethylbenzene	4.6	J	8.7	13.8	J	43	U	43	52	U	52	35	U	35	870	U	870	5.2	J	8.7
Freon 22	18	U	18	18	U	88	U	88	110	U	110	71	U	71	1800	U	1800	18	U	18
Freon TF (Freon 113)	15	U	15	15	U	77	U	77	92	U	92	61	U	61	1500	U	1500	15	U	15
Hexachlorobutadiene	21	U	21	21	U	110	U	110	130	U	130	85	U	85	2100	U	2100	21	U	21

TABLE 4
SOIL GAS ANALYTICAL DATA - VOLATILE ORGANIC COMPOUNDS
FORMER ANTOINE LAUNDRY
Page 2 of 2

Sample Purpose: Field Sample ID: Date: Sample Depth (ft bgs): Comments:	Background Sample			3x Maximum Background, or Highest Reporting Detection Limit	Former Antoine Laundry Samples																
	6405-SG06				6405-SG01			6405-SG02			6405-SG05			6405-SG03			6405-SG04				
	1/17/2024				1/17/2024			1/17/2024			1/17/2024			1/17/2024			1/16/2024				
	2 - 2.5				3.5 - 4			3.5 - 4			3.5 - 4			0.25			0.25				
	Result	Q	RDL	Value	Q	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	Result	Q	RDL	
Isopropyl alcohol	120	U	120	120	U	610	U	610	740	U	740	490	U	490	12000	U	12000	120	U	120	
m,p-Xylene	18	J	22	54	J	22	J	110	130	U	130	26	J	87	2200	U	2200	22		22	
Methyl Butyl Ketone (2-Hexanone)	20	U	20	20	U	100	U	100	120	U	120	82	U	82	2100	U	2100	20	U	20	
Methyl Ethyl Ketone	72		15	216		74	U	74	88	U	88	59	U	59	1500	U	1500	22		15	
methyl isobutyl ketone	20	U	20	20	U	100	U	100	120	U	120	82	U	82	2100	U	2100	20	U	20	
Methyl methacrylate	20	U	20	20	U	100	U	100	120	U	120	82	U	82	2100	U	2100	20	U	20	
Methyl tert-butyl ether	7.2	U	7.2	7.2	U	36	U	36	43	U	43	29	U	29	730	U	730	7.2	U	7.2	
Methylene Chloride	17	U	17	17	U	87	U	87	100	U	100	69	U	69	1700	U	1700	17	U	17	
Naphthalene	26	U	26	26	U	130	U	130	160	U	160	100	U	100	2600	U	2600	26	U	26	
n-Butane	20		12	60		59	U	59	71	U	71	48	U	48	2000		1200	12	U	12	
n-Butylbenzene	11	U	11	11	U	55	U	55	66	U	66	44	U	44	1100	U	1100	11	U	11	
n-Heptane	5.7	J	8.2	17.1	J	41	U	41	49	U	49	33	U	33	820	U	820	8.2	U	8.2	
n-Hexane (hexane)	6.7	J	18	20.1	J	88	U	88	110	U	110	70	U	70	1800	U	1800	18	U		
n-Propylbenzene	9.8	U	9.8	9.8	U	49	U	49	59	U	59	39	U	39	990	U	990	9.8	U	9.8	
sec-Butylbenzene	11	U	11	11	U	55	U	55	66	U	66	44	U	44	1100	U	1100	11	U	11	
Styrene	8.5	U	8.5	8.5	U	43	U	43	51	U	51	34	U	34	860	U	860	8.5	U	8.5	
tert-Butyl alcohol	110	J	150	330	J	760	U	760	910	U	910	610	U	610	15000	U	15000	150	U	150	
tert-Butylbenzene	11	U	11	11	U	55	U	55	66	U	66	44	U	44	1100	U	1100	11	U	11	
Tetrachloroethene	19		14	57		18000*		36	19000*		42	20000*		28	470000*		2800	220		14	
Tetrahydrofuran	150	U	150	150	U	740	U	740	880	U	880	590	U	590	15000	U	15000	150	U	150	
Toluene	17		7.5	51		21	J	38	21	J	45	28	J	28	760	U	760	17		7.5	
trans-1,2-Dichloroethene	7.9	U	7.9	7.9	U	40	U	40	48	U	48	32	U	32	800	U	800	7.9	U	7.9	
trans-1,3-Dichloropropene	9.1	U	9.1	9.1	U	45	U	45	54	U	54	36	U	36	910	U	910	9.1	U	9.1	
Trichloroethene	11	U	11	11	U	110		54	140		64	150		43	1100		1100	3.7	J	11	
Trichlorofluoromethane	11	U	11	11	U	56	U	56	67	U	67	45	U	45	1100	U	1100	11	U	11	
Vinyl chloride	5.1	U	5.1	5.1	U	26	U	26	31	U	31	20	U	20	510	U	510	5.1	U	5.1	
Xylene (total)	26	J	30	78	J	22	J	150	180	U	180	26	J	120	3100	U	3100	30	J	30	
Xylene, o-	7.3	J	8.7	21.9	J	43	U	43	52	U	52	35	U	35	870	U	870	8.1	J	8.7	
Reference	12, pp. 11, 20; 15, pp. 11-12						12, pp. 10, 20; 15, pp. 11-12			12, pp. 10, 20; 15, pp. 9-10			12, pp. 10, 20; 15, pp. 11-12			12, p. 10, 21; 15, pp. 9-10			12, pp. 10, 21; 15, pp. 9-10		

All results are reported in micrograms per cubic meter (µg/m³)
ft bgs = feet below ground surface
RDL = Reporting Detection Limit, equivalent to the adjusted Contract Required Quantitation limit (ACRQL)
Q = Validator's Qualifier
Data Qualifiers:
U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit [Ref. 15, p. 10].
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample [Ref. 15, p. 10].
UJ = The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise [Ref. 15, p. 10].
* = Tetrachloroethene exceeded the calibration range of the instrument. The samples was subsequently reanalyzed at a dilution, and the results for tetrachloroethylene were reported from the greater dilution which was within the calibratin range. Data qualification was not required because the greater dilution for tetrachloroethene was within instrument range [Ref. 15, p. 7].

YELLOW HIGHLIGHT indicates results for contaminants that are attributable to site sources and meet observed release/observed contamination criteria (≥ 3x maximum background, or ≥ highest RDL if no background detections).

SITE INSEPCION REPORT

PART I: SITE INFORMATION

1. Site Name/Alias Former Antione Laundry (aka Antoine de PR / Narvaez Cleaners)
Street 125 Avenida Isla Verde
City Carolina State Puerto Rico Zip 00907
2. County Carolina County Code 031 Cong. Dist. N/A
3. EPA ID No. PRR000020396
4. Parcel No. 041-076-034-04
5. Latitude +18.443850° Longitude -66.028243°
USGS Quad(s) San Juan Quadrangle, PR, 2018
6. Approximate size of site 0.16 acre (665.11 square meters)
7. Owner The Estate of Rafael E. Carlos (aka Sucesion Tartak)
Site Contact Pedro J. Tartak Telephone No. (787) 791-2727
Address P.O. Box 810180, Carolina, PR 00981
8. Operator Narvaez Dry Cleaners (most recent) Telephone No. Unknown
Address 125 Avenida Isla Verde, Carolina, PR 00907
9. Type of Ownership
☒ Private ☐ Federal ☐ State
☐ County ☐ Municipal ☐ Unknown ☐ Other _____
10. Owner/Operator Notification on File
☒ RCRA 3010 Date Unknown ☐ CERCLA 103c Date _____
☐ None ☐ Unknown

11. Permit Information

None identified.

12. Site Status

☐ Active☒ Inactive☐ Unknown13. Years of Operation: 1970s to early 2020s

14. Identify the types of waste sources (e.g., landfill, surface impoundment, piles, stained soil, above- or below-ground tanks or containers, land treatment, etc.) on site. Initiate as many waste unit numbers as needed to identify all waste sources on site.

Waste Sources

Waste Unit No.	Waste Source Type	Facility Name for Unit
1	Contaminated Soil	N/A

b) Other Areas of Concern

The Former Antoine Laundry site is situated in a shopping district, immediately surrounded by restaurants and commercial buildings. Directly across the street from the facility are numerous multi-unit, waterfront condominium buildings and hotels; the nearest is located a distance of approximately 200 feet from the Former Antoine Laundry site location and the known extent of the ASC identified at the site.

Part III, Table 2; Ref. 1, p. 1; 4, pp. 1-2; 13, pp. 14-15, 20-21; 17, p. 6; 19, Figure 2; 21, p. 1; 35, p. 14; 36, pp. 1-2.

15. Describe the regulatory history of the site, including the scope and objectives of any previous response actions, investigations and litigation by State, Local and Federal agencies (indicate type, affiliation, date of investigations).
- **NOVs, 1998-2013** – According to the AFS database, the State found the facility to be in violation during air compliance evaluations in 1997, 2001, 2002, 2003, 2007, and 2013; the State has issued multiple NOVs to the facility [Ref. 8, pp. 4–7].
 - **Pre-Comprehensive Environmental Response, Compensation, Liability Act (CERCLA) Screening, February 2022** – Conducted by Region 2 SAT as a part of the Puerto Rico Dry-Cleaning SDI. SAT visited the property of the former facility on February 8, 2022 and observed that the facility was closed and for sale. Laundry equipment was observed through the storefront windows. General housekeeping observed through the windows and the fenced portion of the facility was poor and messy, with trash littered throughout. The site was noted to be situated in a shopping district, immediately surrounded by restaurants and commercial buildings. Numerous multi-unit waterfront condominiums buildings and hotels were noted directly across the street from the facility; the nearest being approximately 200 feet north of the facility [Ref. 17, p. 5; 19, Figure 2]. Based on incomplete information regarding the facility's operational history, the known use of PCE as a dry-cleaning solvent, recorded violations during state inspections, the possible release of CERCLA hazardous substances to the subsurface, and the presence of nearby targets (i.e., regularly occupied residential structures and workplaces), the Former Antoine Laundry site was recommended to be added to the Superfund Active site inventory [Ref. 17, p. 6].
 - **Abbreviated Preliminary Assessment (APA), April 2022** – On March 31, 2022, Region 2 SAT performed a follow-up reconnaissance as part of the Preliminary Assessment (PA) of the site. Conditions in and around the subject property were the same as observed in February 2022. During the reconnaissance, SAT evaluated the accessibility of the former facility should the PA determine that sampling is warranted. The former facility location was observed to be paved with asphalt and pavement being in good condition [Ref. 9, p. 2]. Based on the findings of the Pre-CERCLA screening activities and site reconnaissance in March 2022, Region 2 SAT submitted an APA Checklist to EPA in April 2022. Available information does not indicate that any on-site investigations or sampling have occurred; therefore, the primary data gap identified by the APA was the absence of environmental sampling data associated with the site [Ref. 18, pp. 1–5].
 - **SI Sampling, January 2024** – Conducted by Region 2 SAT to determine if an ASC exists beneath the site. Region 2 SAT collected 16 soil samples, 6 groundwater samples, and 6 soil gas samples from five direct-push boreholes at the former facility; One boring was advanced to in an off-site location in an area believed to be unaffected by site activities to characterize background conditions. The site building was noted to be under construction during sampling activities. SI sampling results document the

presence of a contaminated soil source and an observed release to groundwater. Soil, groundwater, and soil gas sample results confirm the presence of an ASC at the site consisting of PCE and its breakdown products. Site and background sample analytical results are discussed in **Part III**. [Ref. 9, pp. 4–11; 12, pp. 1-11; 19, Figure 4].

- a) Is the site or any waste source subject to Petroleum Exclusion? Identify petroleum products and by products that justify this decision.

The source at the site is soil contaminated with the dry-cleaning solvent PCE (see **Part II**). Petroleum-related hazardous substances such as toluene were detected in some soil gas samples collected at the site (see **Part III**); however, it is unknown if there was formerly an underground storage tank (UST) or other source of petroleum at the site. Therefore, neither the site nor any waste source is subject to Petroleum Exclusion provisions.

Ref. 3, pp. 3, 4; 14, pp. 3, 4.

- b) Has normal farming application of pesticides registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) occurred at the site? Have pesticides been produced or stored at the site? Have there been any leaks or spills of pesticides on site?

The site is located in the urbanized northern portion of San Juan, near the north coast. Available background information indicates that the site property has been used for non-agricultural purposes, so it is unlikely that there has been normal farming application of pesticides regulated under FIFRA. Pesticide production, storage, leaks, or spills are not known to have occurred at the site. The site property has been utilized for dry-cleaning purposes since the 1970s. The January 2024 SI sampling did not include pesticide analyses.

Ref. 9, pp. 4-11; 19, Figures 1 and 2.

- c) Is the site or any waste source subject to Resource Conservation and Recovery Act (RCRA) Subtitle C (briefly explain)?

Records indicate that the facility was designated as a Very Small Quantity Generator under ID No. PRR000020396. The RCRA information available online does not indicate waste codes or quantities generated.

Ref. 4, p. 2; 7, p. 2.

- d) Is the site or any waste source maintained under the authority of the Nuclear Regulatory Commission (NRC)?

The site property was utilized for dry cleaning from the 1970s until sometime between 2020 and 2022. There is no known historical or current handling of radiological materials at the site. Therefore, neither the site nor any waste source is maintained under the authority of the NRC.

Ref. 2, pp. 1, 4.

16. Do any conditions exist on site which would warrant immediate or emergency action?

Maximum concentrations of PCE in groundwater (2,200 µg/L) exceed the EPA MCL of 5 µg/L. In addition, PCE was detected in soil gas samples collected beneath the Former Antoine Laundry facility at maximum concentrations up to 470,000 µg/m³. The building is for sale and could become regularly occupied in the future. It is possible that the ASC identified at the site extends beneath nearby regularly occupied structures, including multi-unit residential condominiums, hotels and commercial businesses.

Ref. 14, pp. 7-12, 15-18; 16, p. 17; 18, pp. 1-2; 19, Figure 4.

17. Information available from:

Contact: James Song Agency: EPA Region 2 Tel. No.: (212) 637-4314

Preparer: Dennis Foerter Agency: Region 2 START V Date: May 2024

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 1 – Contaminated Soil

Source Type

<u> </u> Landfill	<u> X </u> Contaminated Soil
<u> </u> Surface Impoundment	<u> </u> Pile
<u> </u> Drums	<u> </u> Land Treatment
<u> </u> Tanks/Containers	<u> </u> Other

Description:

1. Describe the types of containers, impoundments, or other storage systems (i.e., concrete-lined surface impoundments) and any labels that may be present.

During a reconnaissance conducted at the facility on March 31, 2022, Region 2 SAT observed that the site exterior was generally flat and was completely paved with asphalt and concrete in good condition.

Soil analytical results from the January 2024 SI sampling document the presence of an on-site contaminated soil source at the facility [Ref. 19, Figure 4]. PCE (maximum concentration: 60 µg/kg; depth: 1 foot bgs) was detected at concentrations significantly above background concentrations in two surface soil samples. The maximum concentration of PCE was detected in soil sample 6405-SS03 collected in the rear of the facility where dry-cleaning machines were located. The highest concentration of PCE (i.e., 60 µg/kg) is below the EPA RSL for industrial soil of 100,000 µg/kg. Chloroform was detected in one subsurface soil sample (i.e., 6405-SS03A); however, this contaminant was detected at an estimated concentration below the contract required quantitation limit (CRQL).

Ref. 9, p. 3; 12, pp. 6-7, 16-17; 13, pp. 13-14, 20-21, 22-23; 16, p. 17; 19, Figure 4.

2. Describe the physical condition of the containers or storage systems (i.e., rusted and/or bulging drums).

Subsurface soils encountered at the site were predominantly fine to medium sand and covered by essentially impermeable surfaces.

Ref. 12, pp. 15–18.

3. Describe any secondary containment that may be present (e.g., drums on concrete pad in building or aboveground tank surrounded by berm).

There is no secondary containment associated with the on-site contaminated soil.

Ref. 12, pp. 15-18.

Hazardous Waste Quantity

The area of the contaminated soil is delineated by sampling locations that indicate the presence of hazardous substances at concentrations greater than or equal to three times (3x) the maximum background concentrations, or greater than the highest background RDL when all background results were non-detect, and the area lying between these locations (i.e., borehole locations 6405-S02, 6405-S03, and the area between them). Since there are only two locations indicating soil contamination, the area or volume of contaminated soil cannot be calculated; therefore, an area of >0 is evaluated for hazardous waste quantity.

Ref. 13, pp. 14-15, 20-21, 34-35; 19, Figure 4.

Hazardous Substances/Physical State

The following hazardous substance and maximum concentration is present in on-site contaminated soil:

PCE	60 µg/kg
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Summaries of the soil sample analytical results, including comparisons to background concentrations, EPA's RSLs for industrial soil, and reference citations, are presented in **Part III**. The physical state of the contaminated soil is solid.

Ref. 13, pp. 14-15, 20-21; 19, Figure 4.

PART III. SAMPLING RESULTS

REGION 2 SAT SI SAMPLING RESULTS, JANUARY 2024

On January 16 & 17, 2024, Region 2 SAT personnel collected soil, groundwater, and soil gas samples as part of the SI evaluation of the Former Antoine Laundry site and at an off-site location assumed to represent background conditions. Region 2 SAT collected a total of 16 soil samples (including one environmental duplicate), six groundwater samples (including one environmental duplicate), and six soil gas samples (including one environmental duplicate). All soil and groundwater samples, as well as their respective QA/QC samples, were analyzed for Organic TAL VOCs through the EPA CLP under Case No. 51287. The soil gas samples were analyzed by Eurofins Test America of South Burlington, VT, a WESTON-subcontracted laboratory. The samples were shipped to the laboratories via FedEx [Ref. 12, pp. 2, 6-13]. Sample locations are presented in **Figure 3**; sample coordinates are presented in **Table 1**.

Soil and groundwater sample borehole locations were proposed for diagonal drilling beneath the on-site building and through the floor of the on-site building, and co-located soil gas samples were proposed for each location. Based on field conditions and standing access agreements, Region 2 SAT adjusted the borehole locations to the four corners of the site property and employed vertical drilling at each (see Figure 2). Proposed borehole location 6405-S05 was not completed, as the owner of the adjacent parking lot did not grant access to advance a borehole and collect samples. As a result, proposed samples 6405-SS05A and 6405-SS05B were not collected. Sample identification numbers 6405-S05, 6405-GW05, and 6405-SG05 were used for the environmental duplicate samples collected at other locations [Ref. 9, p. 4; 12, pp. 3, 7, 9, 10].

Soil samples were obtained using jackhammer with Geoprobe tooling equipped with 4-ft macrocores and dedicated acetate sleeves. All soil samples were collected directly from the soil cores using dedicated EnCore™ sampling devices and designated for TAL VOC analysis. The percent moisture fractions required in conjunction with EnCore sampling were collected into 4-oz glass jars using disposable polyethylene scoops. Soil borings were screened using a photoionization detector (PID) in 6-inch intervals. Discontinuous PID readings above background were noted in all the soil cores, except background location 6405-S06, at depths ranging from 0.5 to 9.5 feet below ground surface (ft bgs). Most readings were less than 1 part per million (ppm); a maximum reading of 27 ppm at location 6405-S03 was recorded at a depth of 1.5 ft bgs [Ref. 12, pp. 3-4, 15-19].

Groundwater was encountered in all five borehole locations at vertical depths of 6.7 ft (6405-S01), 6.93 ft (6405-S02), 5.65 ft (6405-S03), 4.6 ft (6405-S04), and 4.65 ft (6405-S06) bgs [Ref. 12, pp. 22-27]. WESTON Region 2 SAT installed 1-inch polyvinyl chloride (PVC) temporary wells for the groundwater sample collection at these locations. The wells were purged using a peristaltic pump to remove as much suspended sediment as possible. Groundwater samples were collected from the temporary wells using Teflon®-lined mini-bailers and designated for TAL VOC analysis [Ref. 12, pp. 4, 22-27].

Upon completion of soil and groundwater sampling at each location, boreholes were backfilled with soil cuttings and capped with concrete prior to soil gas sampling to avoid introducing ambient

air into co-located soil gas samples. Exterior soil gas sampling locations (i.e., 6405-SG01, 6405-SG02, and 6405-SG06) were advanced using direct-push methods and leak tested using a helium kit, and samples were collected via a Post-Run Tubing (PRT) system. Interior soil gas samples (i.e., 6405-SG03, and 6405-SG04) were collected via sub-slab sampling methods: boreholes were advanced using a hand-held power drill, and sampling points were installed, sealed, and leak-tested prior to sampling. All soil gas samples were collected into 1-liter, batch-certified SUMMA canisters equipped with 1-hour regulators and designated for Toxic Organic (TO)-15 analysis [Ref. 12, p. 4].

Samples collected for quality assurance/quality control (QA/QC) purposes included one aqueous, one soil, and one soil gas environmental duplicate samples, two rinsate blanks to demonstrate adequate decontamination of non-dedicated equipment (i.e., Geoprobe cutting shoe, PRT adapter), and two trip blanks to demonstrate that there was no cross-contamination between sample containers and that atmospheric contaminants did not leak into sample containers. All samples were collected in support of the Former Antoine Laundry SI assigned under EPA Contract 68HE0319D0004 (Region 2 Superfund Technical Assessment and Response Team V [START V]).

Soil analytical results document the presence of an on-site contaminated soil source at the facility [Ref. 35, Figure 3]. PCE (maximum concentration: 60 µg/kg; depth: 1 foot bgs) was detected at concentrations significantly above background concentrations in two surface soil samples [Ref. 12, pp. 6-7, 16-17; 13, pp. 13-14, 20-21, Figure 4]. The maximum concentration of PCE was detected in soil sample 6405-S03 collected in the rear of the facility where dry-cleaning machines were located [Ref. 9, p. 3]. PCE was not detected above CRQLs in background soil samples 6405-S06, 6405-SS06A, and 6405-SS06B [Ref. 13, pp. 34-35]. The highest detected concentration of PCE is below the EPA RSL for industrial soil of 100,000 µg/kg [Ref. 16, p. 17]. Chloroform was detected in one subsurface soil sample (i.e., 6405-SS03A); however, this contaminant was detected at an estimated concentration below the CRQL [Ref. 13, pp. 22-23; Figure 4]. Soil analytical results are presented in **Table 2**. Site-related contaminant levels are present in **Figure 4**.

Groundwater sample analyses document an observed release to groundwater by chemical analysis. Site-attributable PCE was detected in four groundwater samples (collected from three borings) at concentrations ranging from 52 to 2,200 µg/L [Ref. 12, pp. 9, 22-24; 14, pp. 7-12, 15-16; 31, p. 1; Figure 4]. Groundwater sample 6405-GW02, collected from an exterior borehole located just north of the facility building, showed the highest detection of PCE at a concentration of 2,200 µg/L [Ref. 14, pp. 9-10; Figure 4]. Analysis of background groundwater sample 6405-GW06 indicated a non-detect value for PCE [Ref. 14, pp. 17-18]. Dry-cleaning solvents chloroform and TCE were also detected in two groundwater samples (i.e., 6405-GW01 and 6405-GW02); however, these contaminants were detected at estimated concentrations below the CRQLs [Ref. 14, pp. 7-10; 31, p. 1; 33, p. 1; Figure 4]. PCE concentrations detected in groundwater samples collected at the Former Antoine Laundry site exceed the MCL level of 5 µg/L [Ref. 14, pp. 7-12, 15-16; 16, pp. 17]. The groundwater analytical results are presented in **Table 3**. Groundwater contaminant levels results are present in **Figure 4**.

The soil gas analytical results confirm an ASC exists beneath the Former Antoine Laundry facility [Ref. 12, pp. 10-11, 20-21; 15, pp. 9-12; Figure 4]. VOCs attributable to the site were detected at

concentrations significantly above background in soil gas samples 6405-SG01, 6405-SG02, 6405-SG05 (duplicate of 6405-SG02), 6405-SG03, and 6405-SG04, which were collected within the footprint of the former facility [Ref. 19, Figure 3]. Maximum concentrations of PCE (470,000 $\mu\text{g}/\text{m}^3$), its breakdown product/related solvent TCE (1,100 $\mu\text{g}/\text{m}^3$), and chloroform (1,500 $\mu\text{g}/\text{m}^3$) were detected in soil gas sample 6405-SG03, which was collected at a depth of 0.25 feet bgs in the rear of the facility interior, where dry-cleaning machines were located. PCE and chloroform were detected in background soil gas sample 6405-SG06 at levels of 19 $\mu\text{g}/\text{m}^3$ and 15 $\mu\text{g}/\text{m}^3$, respectively. TCE was not detected in the background soil gas sample above its CRQL of 11 $\mu\text{g}/\text{m}^3$ [Ref. 9, p. 3; 12, pp. 10, 21; 15, pp. 9-12; Figure 4]. Toluene, 1,3-butadiene, and n-butane were detected in soil gas samples; however, these contaminants are not considered attributable to the on-site contaminated soil source or historical site operations [Ref. 15, pp. 9-10; 31, p. 1]. The soil gas analytical results are presented in **Table 4**. Soil gas sample contaminant levels are presented in **Figure 4**.

PART IV: HAZARD ASSESSMENT

GROUNDWATER MIGRATION PATHWAY

1. **Describe the likelihood of a release of contaminant(s) to the groundwater as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence and relationship to background.**

An observed release to groundwater is established by chemical analysis. Analytical results for surface soil samples collected by Region 2 SAT in January 2024 document an uncontained contaminated soil source at the site consisting of site-attributable PCE, and a release of PCE to groundwater (see **Parts II and III**).

Groundwater was encountered in on-site boreholes at depths ranging from 5.17 to 6.96 feet bgs. Groundwater samples were collected from temporary wells installed in the boreholes. The chlorinated VOC PCE was detected at concentrations above the site-specific background reporting detection limits (RDL) in the groundwater samples (see **Part III, Table 3**). PCE is considered to be site related as it is present in the on-site contaminated soil source and attributable to the historical site operations (i.e., dry cleaning and PCE storage).

Ref. 12, pp. 22-27; 13, pp. 14-15, 20-21, 34-35; 14, pp. 7-12, 15-18; 31, p. 1; 19, Figure 4.

2. **Describe the aquifer of concern; include information such as depth, thickness, geologic composition, areas of karst terrain, permeability, overlying strata, confining layers, interconnections, discontinuities, depth to water table, groundwater flow direction.**

The Former Antoine Laundry site is located within the Bayamón-Loíza region as defined by the U.S. Geological Survey (USGS). The two main water-containing units existing in the Bayamón-Loíza region, collectively known as the North Coast Limestone Aquifer System (NCLAS) are: an upper water-table aquifer formed by unconsolidated surficial deposits and sedimentary rocks of Tertiary age and Quaternary age; and a lower confined aquifer composed of sedimentary rocks of Tertiary age. The lower aquifer is confined by the upper member of the Cibao Formation.

The aquifer of concern is the upper aquifer which occurs in the surficial deposits (consisting of alluvial deposits, blanket sands, dune sands and swamp deposits) and extends into the underlying hydraulically connected Aguada and Aymamón Limestone formations of the NCLAS upper aquifer (NCLAS-UP), which have undergone karstification. The thickness of the surficial deposits reaches approximately 100 feet. As the aquifer of concern extends from predominantly sandy surficial deposits to the underlying karst limestone, the hydraulic conductivity ranges from 10^{-4} to 10^{-2} centimeters per second (cm/s). Compared with areas to the east and west, the NCLAS-UP in the San Juan metropolitan area is relatively thin and well yields are small. Groundwater beneath the site was encountered at depths ranging from 5.17 to 6.96 feet bgs.

Geologic Unit	Depth (Approximate)	Thickness (Approximate)
Upper Aquifer (unconsolidated deposits)	5.17 feet	100 feet
Upper Aquifer (Aguada and Aymamón Limestones)	100 feet	>150 feet

Ref. 12, pp. 22-26; 22, pp. 7, 13–15, 17; 23, pp. 8–12, 14.

3. What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?

Based on the observed release to groundwater at the site, the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern is 0 feet (**Tables 2 and 3**).

Ref. 19, Figure 4.

4. What is the permeability value of the least permeable continuous intervening stratum between the ground surface and the top of the aquifer of concern?

Direct-push soil cores were collected and logged as part of the January 2024 SI sampling event. Soils at the site are predominantly fine to medium sands, with some silty sands and trace gravel. Sand is considered the least permeable continuous intervening stratum between the ground surface and the top of the aquifer of concern. Sand deposits such as this are assigned a hydraulic conductivity of 10^{-4} cm/s.

Ref. 12, pp. 15-18; 24, p. 7.

5. What is the net precipitation at the site (inches)?

Net precipitation at the site is greater than 30 inches.

Ref. 24, pp. 5, 6.

6. What is the distance to and depth of the nearest well that is currently used for drinking purposes?

The nearest well that is currently used for drinking water is the standby well Hiram Bithorn 1, which is located approximately 3.5 miles southwest of the site. The depth of the well is 250 feet bgs.

Ref. 19, Figure 5; 20, pp. 1, 2.

7. **If a release to groundwater is observed or suspected, determine the number of people that obtain drinking water from wells that are documented or suspected to be actually contaminated by hazardous substance(s) attributed to an observed release from the site.**

Although an observed release to groundwater is documented (see the response to **Question No. 1**), there are currently no drinking water wells documented within a 3-mile radius.

In July 2022, PRASA provided analytical data for groundwater samples collected from Hiram Bithorn 1, Las Américas, and Sorbona. The samples were collected by PRASA between March 2021 and June 2022 and were analyzed for TAL VOCs. The analytical results do not show any detection of VOCs at the three wells.

Ref. 19, Figure 5; 20, p. 2.

8. **Identify the population served by wells located within 4 miles of the site that draw from the aquifer of concern.**

Distance	Population
0–¼ mile	None identified
>¼–½ mile	None identified
>½–1 mile	None identified
>1–2 miles	None identified
>2–3 miles	None identified
>3–4 miles	15,486

Ref. 19, Figure 5; 20, p. 1.

State whether groundwater is blended with surface water, groundwater, or both before distribution.

The water provided by the Metropolitano system is blended from multiple sources, including the Super Aqueduct. PRASA confirmed that Hiram Bithorn 1, Las Américas, and Sorbona contribute water to the Metropolitano System. Therefore, groundwater is blended with other groundwater and surface water prior to distribution.

Ref. 19, Figure 5; 20, p. 1.

Is a designated wellhead protection area within 4 miles of the site?

For the purposes of the Wellhead Protection (WHP) program, Puerto Rico's aquifers have been grouped into seven groundwater provinces. Wellhead protection areas (WHPAs) are defined by a minimum radius of 1,500 feet around each potable supply well drawing water from the North Coast Province. Two recently active public stand-by wells have been identified within 4 miles of the site that draws from the NCLAS; therefore, there is a designated WHPA within 4 miles of the site.

Ref. 19, Figure 5; 20, p. 1; 25, pp. 7, 8, 10, 11, 14, 20.

Does a waste source overlie a designated or proposed wellhead protection area? If a release to groundwater is observed or suspected, does a designated or proposed wellhead protection area lie within the contaminant boundary of the release?

WHPAs are defined by a minimum radius of 1,500 feet around each potable supply well drawing water from the NCLAS. The closest recently active standby public well (i.e., Hiram Bithorn 1) has been identified at a distance of 3.5 miles southwest of the site that draws from the North Coast Province; therefore, the waste source identified at the site does not overlie a designated or proposed WHPA.

Ref. 19, Figure 5; 20, p. 1; 25, p. 20.

- 9. Identify one of the following resource uses of groundwater within 4 miles of the site (i.e., commercial livestock watering, ingredient in commercial food preparation, supply for commercial aquaculture, supply for major, or designated water recreation area, excluding drinking water use, irrigation (5-acre minimum) of commercial food or commercial forage crops, unusable).**

There is no known resource use of groundwater within 4 miles of the site.

Ref. 23, p. 9.

SURFACE WATER MIGRATION PATHWAY

- 10. Describe the likelihood of a release of contaminant(s) to surface water as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence and relationship to background.**

A release to surface water is neither observed nor suspected. A contaminated soil source has been identified at the site that extends under the former facility footprint and the commercial building bordering the site property to the east (see **Part II**). As the source is located beneath a maintained impenetrable surface that provides protection from precipitation, the potential to release to surface water is low.

The overland segment of the surface water migration pathway for the site consists of storm sewers that are believed to discharge to Laguna Los Corozos. There was no surface water migration pathway sampling during the January 2024 SI sampling event as surface water is not considered to be a pathway of concern at the site.

Ref. 9, p. 2; 18, pp. 2, 10, 13; 19, Figure 6; 26, p. 3.

11. Identify the nearest downslope surface water. If possible, include a description of possible surface drainage patterns from the site.

The nearest downslope surface water is the Atlantic Ocean, located approximately 500 feet north of the site. However, as runoff from the site flows to storm sewers along Avenida Isla Verde, the overland path to surface water consists of the Municipality of Carolina MS4 system that is believed to discharge to Laguna Los Corozos, with the Atlantic Ocean as the ultimate receiving waterbody. The potential for site sources to release to surface water is believed to be low.

Ref. 19, Figures 1 and 6; 26, p. 3.

12. What is the distance in feet to the nearest downslope surface water? Measure the distance along a course that runoff can be expected to follow.

The nearest downslope surface water is the Atlantic Ocean, located approximately 500 feet north of the site. However, runoff from the site flows to a storm drain approximately 60 feet east of the site on Avenida Isla Verde. From this point, the overland path to surface water continues along the Municipality of Carolina MS4 system for approximately 1.1 miles, where the system is believed to discharge to Laguna Los Corozos, with the Atlantic Ocean as the ultimate receiving waterbody. The potential for site sources to release to surface water is believed to be low.

Ref. 9, p. 2; 19, Figures 1 and 5; 26, p. 3.

13. Identify all surface water body types within 15 downstream miles.

As the contaminated soil source at the site is beneath an impermeable asphalt surface (as observed during the January 2024 SI sampling), the potential to release to surface water is believed to be low. Runoff is intercepted by MS4 storm drains that are believed to discharge to nearby Laguna Los Corozos, with the Atlantic Ocean as the ultimate receiving waterbody. For the purpose of this report, a probable point of entry (PPE) to the Laguna Los Corozos approximately 1.1 miles west of the site is used as a reference point to describe the surface water pathway. Laguna Los Corozos extends southeastward through Laguna San Jose and then westward through Marin Peña Channel to San Juan Bay, which discharges to the Atlantic Ocean 9 miles downstream of the PPE. The Atlantic Ocean comprises the remainder of the 15-mile target distance limit (TDL).

Name	Water Body Type	Flow (cfs)	Salt/Fresh/Brackish
Los Corozos Laguna	Coastal tidal waters	N/A	Salt
Caño Martin Peña	Coastal tidal waters	N/A	Salt
Bahia de San Juan	Coastal tidal waters	N/A	Salt
Atlantic Ocean	Shallow to deep ocean zone	N/A	Salt

Ref. 15, p. 11; 16, pp. 12, 18; 19, Figure 6.

14. Determine the 2-yr, 24-hr rainfall (inches) for the site.

The 2-year, 24-hour rainfall for the site location is 4.38 inches.

Ref. 27, p. 1.

15. Determine size of the drainage area (acres) for sources at the site.

The contaminated soil source lies beneath an impermeable surface. During field activities conducted by Region 2 SAT, the paved asphalt and cement was observed to be in good condition. The topography at the site is generally flat. Runoff from neighboring properties is intercepted by storm drains and other infrastructure along Avenida Isla Verde and adjacent streets. Based on these considerations, the drainage area for sources at the site is equal to the site property area or 0.16 acre (665.11 m²).

Ref. 9, p. 2; 18, pp. 12-13; 21, p. 1; 19, Figure 2; 36, pp. 1-2.

16. Describe the predominant soil group in the drainage area.

The site and surrounding area are covered predominantly by impermeable, urban surfaces (e.g., pavement). The predominant soil type in the site area is Coloso-Toa-Bajura association, which has a permeability of 0.06 to 0.2 inches per hour. As sources at the site are covered by impermeable surfaces, as observed during field activities conducted by Region 2 SAT, the predominant soil group in the drainage area is evaluated under soil group designation D.

Ref. 9, p. 2; 23, pp. 15, 16; 24, pp. 9; 19, Figure 1.

17. Determine the type of floodplain that the site is located within.

The Federal Emergency Management Agency (FEMA) has designated the entire site property to be within Flood Zone X (unshaded). Zone X (unshaded) is defined as an area of minimal flood hazard and outside the 500-year (0.2 percent annual chance flood hazard) floodplain.

Ref. 19, Figure 2; 28, p. 1.

18. Identify drinking water intakes in surface waters within 15 miles downstream of the point of surface water entry. For each intake identify: the name of the surface water body in which the intake is located, the distance in miles from the point of surface water entry, population served, and stream flow at the intake location.

The water bodies within the TDL are saline and are not used for drinking water supply. There are no drinking water intakes within 15 miles downstream of the site.

Ref. 19, Figure 6.

19. Identify fisheries that exist within 15 miles downstream of the point of surface water entry.

The 15-mile TDL for the site consists of four coastal tidal waters and the Atlantic Ocean. Fishing for consumption is assumed to occur within these waterbodies based on available information.

Name	Water Body Type	Flow (cfs)	Salt/Fresh/Brackish
Los Corozos Laguna	Coastal tidal waters	N/A	Salt
San Jose Laguna	Coastal tidal waters	N/A	Salt
Marin Peña Channel	Coastal tidal waters	N/A	Salt
San Juan Bay	Coastal tidal waters	N/A	Salt
Atlantic Ocean	Shallow to deep ocean zone	N/A	Salt

Ref. 19, Figure 6; 24, p. 11; 29, p. 1.

20. Identify surface water sensitive environments that exist within 15 miles of the point of surface water entry.

The following HRS-eligible sensitive environments exist along the 15-mile surface water pathway:

- 1 Federally Endangered/Threatened Species Habitats
- 2 State Endangered/Threatened Species Habitats
- 1 State Protected Natural Area
- 1 Coastal Barrier
- 1 Critical Habitat

There is a total of 23.27 miles of wetland frontage along the water bodies within the TDL.

Water Body	Water Body Type	Flow (cfs)	Dilution Weight	Wetlands Frontage (miles)
Laguna Los Corozos/Laguna San Jose	Coastal Tidal Waters	N/A	0.0001	3.00
Caño Marin Peña	Coastal Tidal Waters	N/A	0.0001	5.78
Bahía de San Juan	Coastal Tidal Waters	N/A	0.0001	1.53
Atlantic Ocean	Shallow to deep ocean zone	N/A	0.0001 to 0.000005	12.96

Water Body	Water Body Type	Flow (cfs)	Dilution Weight	Wetlands Frontage (miles)
Total				23.27

Ref. 10, pp. 2, 4; 19, Figure 6; 24, pp. 11, 12.

- 21. If a release to surface water is observed or suspected, identify any intakes, fisheries, and sensitive environments from question Nos. 18-20 that are or may be actually contaminated by hazardous substance(s) attributed to an observed release of from the site.**

A release to surface water is neither observed nor suspected. See the response to **Question No. 10** for a description of the likelihood of a release.

- 22. Identify whether the surface water is used for any of the following purposes, such as: irrigation (5 acre minimum) of commercial food or commercial forage crops, watering of commercial livestock, commercial food preparation, recreation, potential drinking water supply.**

Surface water within 15 miles of the site is used for primary and secondary contact recreation, including fishing, boating, and swimming.

Ref. 29, p. 1; 30, pp. 7, 8.

SOIL EXPOSURE AND SUBSURFACE INTRUSION PATHWAY

- 23. Determine the number of people that occupy residences or attend school or day care on or within 200 feet of observed contamination.**

Soil analytical results for surface and subsurface samples collected in January 2024 in support of the SI document an on-site contaminated soil source within the top 2 feet of soil consisting of PCE. However, the contaminated soil source is located beneath the building and is covered by either cement or asphalt, a permanent or otherwise maintained, essentially impermeable material as observed during the field activities conducted by Region 2 SAT. Therefore, the contaminated soil source does not constitute an area of observed contamination (AOC) in the Soil Exposure component.

Ref. 9, p. 2; 18, p. 2; 19, Figure 4.

- 24. Determine the number of people that regularly work on or within 200 feet of observed contamination.**

Due to the presence of an impermeable surface, as observed during field activities conducted by Region 2 SAT, (i.e., the asphalt parking lot), observed contamination is not documented at the site (see the response to **Question No. 23**). During the January 2024 SI sampling

event, the Former Antoine Laundry facility was undergoing construction and there were no on-site employees.

Ref. 9, p. 4.

25. Identify terrestrial sensitive environments on or within 200 feet of observed contamination.

Due to the presence of an impermeable surface, as observed during the May 2022 SI sampling, (i.e., the asphalt and concrete), observed contamination is not documented at the site (see the response to **Question No. 23**). The site location is in an urbanized area. Current land use within the area is a mixture of residential and commercial. There are no terrestrial sensitive environments on or within 200 feet of the former facility.

Ref. 2, pp. 2-3; 9, p. 2; 18, pp. 1-2; 19, Figure 1 and 2.

26. Identify whether there are any of the following resource uses, such as commercial agriculture, silviculture, livestock production or grazing within an area of observed or suspected soil contamination.

Due to the presence of an impermeable surface, as observed during the field activities conducted by Region 2 SAT, (i.e., the asphalt and concrete), observed contamination is not documented at the site (see the response to **Question No. 23**). The site is situated within the urbanized northern portion of Carolina. There is no known resource use of soil at the former facility.

Ref. 2, pp. 2-3; 9, p. 2; 18, pp. 1-2; 19, Figures 1 and 2.

27. Is there an area of subsurface contamination (ASC) that could have an impact on regularly occupied structures via subsurface intrusion?

The 2024 SI sampling results indicate that site-attributable PCE is present on-site (i.e., beneath the building extending to just outside the northern portion of the building) at concentrations significantly above background (see **Part III**). These results document that an ASC exists beneath the building. There is no basement in the building as it is built on grade. Based on these considerations, subsurface intrusion is a pathway of concern at the site.

Ref. 2, p. 2; 19; 31, p. 1; 19, Figure 4.

28. Describe the likelihood of exposure to contaminant(s) in the subsurface intrusion component as follows: observed exposure, suspected exposure, potential exposure, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed exposure, define the supporting direct observation or analytical evidence and the relationship to background.

There is suspected exposure in the subsurface intrusion component. The January 2024 SI sampling results indicate the presence of VOCs in soil, soil gas, and groundwater underlying the building, which was undergoing construction and not regularly occupied as of January 2024. During the initial phase of the SI, indoor air samples were not collected. It should be noted that the highest concentration of PCE in soil (60 µg/kg) collected from location 6405-S03 at a depth of 1 ft beneath the building slab, does not exceed the EPA RSL for industrial soil of 100,000 µg/kg. PCE was detected in groundwater samples 6405-GW03 and duplicate sample 6405-GW05 (52 µg/L and 68 µg/L); these samples were collected beneath the building's interior in an area where the dry-cleaning machines were located. PCE was detected at higher concentrations in groundwater samples 6405-GW01 (820 µg/L) and 6405-GW02 (2,200 µg/L), which were collected from exterior borings advanced outside the building's northern wall. The PCE concentrations exceed its MCL of 5 µg/L. PCE was not detected in background groundwater sample 6405-GW06 above its CRQL of 5 µg/L.

The ASC beneath the Former Antoine Laundry property is confirmed by the presence of PCE and TCE in on-site soil gas samples 6405-SG01 (18,000 µg/m³ and 110 µg/m³), 6405-SG02 (19,000 µg/m³ and 140 µg/m³) and its duplicate sample 6405-SG05 (20,000 µg/m³ and 150 µg/m³), and 6405-SG03 (470,000 µg/m³ and 1,100 µg/m³). PCE was also detected in soil gas sample 6405-SG04 (220 µg/m³). Chloroform was detected in all soil gas samples collected at concentrations up to 1,500 µg/m³. PCE and chloroform were detected in background soil gas sample 6405-SG06 at levels of 19 µg/m³ and 15 µg/m³, respectively. TCE was not detected in the background soil gas sample above its CRQL of 11 µg/m³. Given that contamination was detected at less than 10 feet bgs, has migrated beyond the building footprint, and is near commercial and multi-unit residential properties, it is possible that the ASC identified at the site extends to other nearby residences and workplaces.

Ref. 13, pp. 14-15, 20-21; 14, pp. 7-12, 15-18; 15, pp. 9-12; 19, Figure 4; 16, p. 17.

- 29. Identify the number of individuals residing in or attending school or day care in regularly occupied structures within documented areas of observed exposure (AOE). Also identify the number of individuals residing in or attending school or day care in regularly occupied structures within the ASC but outside the documented AOE(s).**

The ASC identified at the site exists beneath the building and extends to just outside the northern wall of the building. During the January 2024 sampling event, the facility was noted to be under construction and the building was not regularly occupied at the time. Commercial buildings and multi-unit condominiums and hotels exist in the vicinity of the Former Antoine Laundry property. Indoor air was not sampled during the January 2024 SI sampling; therefore, AOE's cannot be evaluated at this time.

Ref. 3, pp. 3, 4; 9, pp. 2, 4; 18, pp. 1-2; 19, Figure 4.

- 30. Identify the number of full-time workers and the number of part-time workers in regularly occupied structures within the documented AOE(s). Also identify the number of full-time workers and the number of part-time workers in regularly occupied structures within the ASC but outside the documented AOE(s).**

Indoor air was not sampled during the January 2024 SI sampling; therefore, AOE(s) cannot be evaluated at this time.

Ref. 2, p. 1; 3, pp. 3, 4; 35, Figure 2.

- 31. Is there resource use of regularly occupied establishments (e.g., library, church, tribal facility) within either an AOE or an ASC?**

During the January 2024 SI sampling, the facility building was not regularly occupied; the interior of the building was undergoing construction. Indoor air was not sampled during the January 2024 SI sampling; therefore, AOE(s) cannot be evaluated at this time. There are no known libraries, churches, or tribal facilities where subsurface contamination is documented. Therefore, resource uses of regularly occupied structures within documented ASCs or AOE(s) are not evaluated.

Ref. 9, p. 2; 19, Figure 2.

AIR MIGRATION PATHWAY

- 32. Describe the likelihood of release of hazardous substances to air as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence and relationship to background.**

Historical releases to air are suspected. The former facility operated under CAA ID No. PR0000007203100052 for minor PCE emissions and had been issued multiple NOVs in 1997, 2001, 2002, 2003, 2007, and 2013. As described in **Part III**, the January 2024 SI sampling identified an ASC below Former Antoine Laundry facility. During the SI sampling event, SAT conducted air monitoring and screening of soil cores with a PID. No readings were noted above background in ambient air. The maximum PID reading in the top 2 feet of soil was 27 ppm at location 6405-S03.

Ref. 5, p. 2; 8, pp. 2-7; 9, pp. 4-11; 12, pp. 15-18.

- 33. Determine populations that reside within 4 miles of the site.**

The total population residing within 4 miles of the site is 279,598, as follows:

Distance Ring (mi)	Population
On-site	0
>0 - ¼	1,109
>¼ - ½	1,585
>½ - 1	13,303
>1 - 2	66,148
>2 - 3	81,986
>3 - 4	115,467
Total	279,598

Ref. 11, p. 2.

- 34. Identify sensitive environments, including wetlands and associated wetlands acreage, within 4 miles of the site.**

Distance (miles)	Wetlands Acreage	Sensitive Environments
On-site	0.00	None identified
0–¼	8.24	1 State Endangered/Threatened Species
>¼–½	97.02	None identified
>½–1	234.62	None identified
>1–2	923.33	1 Federal Endangered/Threatened Species 1 State-Endangered/Threatened Species
>2–3	1,248.19	2 State-Designated Natural Areas 1 Critical Habitat 1 Coastal Barrier
>3 – 4	1,152.33	1 Federal Endangered/Threatened Species 4 State-Protected Natural Area

Ref. 10, pp. 2, 3; 19, Figure 6.

- 35. If a release to air is observed or suspected, determine the number of people that reside or are suspected to reside within the area of air contamination from the release.**

Historical releases of PCE to air are suspected; see the response to **Question No. 32** for a description of the likelihood of a release. There are no persons documented to have resided or suspected to have resided within an area of air contamination from the suspected releases.

- 36. If a release to air is observed or suspected, identify any sensitive environments, listed in question No. 34, that are or may be located within the area of air contamination from the release.**

Historical releases of PCE to air are suspected; see the response to **Question No. 32** for a description of the likelihood of a release. There are no sensitive environments documented to have been located within an area of air contamination from the suspected releases.

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