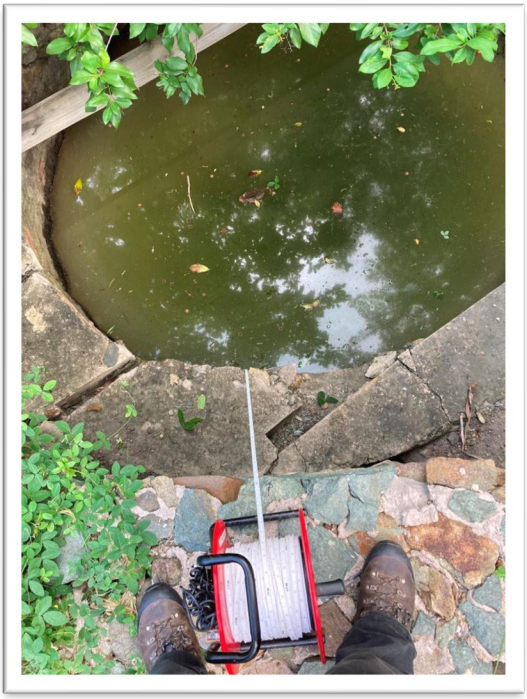

Sampling and Analysis Plan Addendum 2 for Engineering Evaluation/Cost Analysis Site Investigation

Virgin Islands National Park

EDL #: 5SER3346

Caneel Bay Resort Site

Prepared by

January 3, 2022

Signatories

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List of Abbreviations and Acronyms

AST	aboveground storage tank
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EE/CA	Engineering Evaluation/Cost Analysis
NPS	National Park Service
PAH	polycyclic aromatic hydrocarbon
SAP	Sampling and Analysis Plan
VIIS	Virgin Islands National Park
VOC	volatile organic compound

1 Introduction and Purpose

This document is the second addendum to the Sampling and Analysis Plan (SAP) for the Engineering Evaluation/Cost Analysis (EE/CA) at the Caneel Bay Resort (the Resort) within the Virgin Islands National Park (VIIS, or the Park) on the northwest side of the island of St. John, U.S. Virgin Islands. The National Park Service (NPS) is conducting this investigation as lead agency under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

NPS collected groundwater samples from five monitoring wells and two dug wells at the Resort on November 17 and 18, 2021. These samples were shipped to ALS Global in Middletown, Pennsylvania on November 19, 2021 using FedEx. A delay by FedEx caused all of the samples except metals to exceed the hold times established in the November 4, 2021 EE/CA SAP Addendum. Therefore, the volatile organic compound (VOC) and polycyclic aromatic hydrocarbon (PAH) results for analyzed samples will likely be qualified as potentially biased low. The pesticide samples were received several weeks after their maximum hold times and were not analyzed. Metals samples were received before their maximum hold times and were analyzed; those data are expected to be usable without being qualified for exceeding the hold time.

Groundwater sampling techniques described in the EE/CA Addendum SAP, dated November 4, 2021, will be used. No other changes are required. The following section details the planned sampling and analysis.

2 Field Sampling Plan

2.1 Groundwater Sampling Locations

NPS installed five groundwater monitoring wells during the November 2021 investigation. As shown on Figure 1, MW-2-06, MW-2-07, and MW-2-09 are near the historical aboveground storage tank (AST) release area and fuel dispenser pump, and MW-2-21 and MW-2-22 are downgradient of Area 2. NPS also located two historical dug wells, which are open to the environment and accessible for sampling, downgradient of Area 2. Additional details regarding the locations of these wells are in Table 1.

NPS will conduct a synoptic water level round and collect a groundwater sample from each of these seven wells, if water is present.

2.2 Groundwater Sampling Protocol

Procedures described in the EE/CA SAP Section 5.8.2 for water level measurements and low flow sampling remain unchanged.

2.3 Groundwater Sampling Field Measurements

Groundwater field measurements described in the EE/CA SAP Section 5.8.3 for water level measurements and low flow sampling parameter monitoring remain unchanged.

2.4 Groundwater Analytical Measurements/Methods

Groundwater samples will be analyzed for the following analytes and analytical methods, as summarized in Table 2.

Groundwater collected from the MW-2-06, MW-2-07, and MW-2-09 AST area monitoring wells will be analyzed for:

- VOCs by USEPA Method 8260D
- PAHs by USEPA Method 8082

Groundwater collected from MW-2-21, MW-2-22, Dug Well 1, and Dug Well 2 monitoring wells will be analyzed for:

- VOCs by USEPA Method 8260D
- PAHs by USEPA Method 8082
- Organochlorine pesticides by USEPA Method 8081

Collection of duplicates at a frequency of 10 percent is currently proposed. One set of matrix spike/matrix spike duplicates will be collected for each analytical group.

Figures

Figure 1: Groundwater Sample Locations

Caneel Bay Resort Site | Virgin Islands National Park, USVI

Path: \\vhb.com\gis\proj\Montpelier\58345.21 NPS Caneel Bay Resort\Project\APRXs\Nov2021_SiteVisit.aprx (rkay, 12/22/2021)

Source: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Tables

List of Tables 1 and 2

TABLE 1 GROUNDWATER SAMPLING LOCATIONS DETAILS

Sample ID	Location	Reason for Sampling
MW-2-06, MW-2-07, and MW-2-09	Wells in Area 2 near ASTs and fuel pump	Known past petroleum spill in Area 2. Sample to evaluate nature, extent, and migration potential of groundwater contamination. Previously sampled for VOCs and PAHs, but shipping delays require resampling to meet quality control parameters established in the SAP.
MW-2-21, MW-2-22, Dug Well 1, and Dug Well 2	Wells downgradient of Area 2	Sample to evaluate groundwater downgradient of pesticide impacted and petroleum impacted parts of Area 2. Previously sampled for VOCs, PAHs, and pesticides, but shipping delays require resampling to meet quality control parameters established in the SAP.

TABLE 2 SAMPLE TYPES AND TOTAL NUMBER OF CONTAINERS FOR GROUNDWATER

SAMPLE ID	MATRIX	DEPTH	TYPE	VOCs	PAHs	Pesticides
MW-2-06	Groundwater	Mid-screen	Low flow	1	1	0
MW-2-07	Groundwater	Mid-screen	Low flow	1	1	0
MW-2-09	Groundwater	Mid-screen	Low flow	1	1	0
MW-2-21	Groundwater	Mid-screen	Low flow	1	1	1
MW-2-22	Groundwater	Mid-screen	Low flow	1	1	1
Dug Well 1	Groundwater, possible water supply well	Mid-depth	Low flow	1	1	1
Dug Well 2	Groundwater, possible water supply well	Mid-depth	Low flow	1	1	1
Field Duplicate: MW-104	Groundwater	Mid-screen	Field QC, collect from any downgradient location	1	1	1
Matrix Spike/ Matrix Spike Duplicate	Groundwater	Mid-Screen	Lab QC, collect from any downgradient location	2	2	2
Trip blank	Water	None	Lab supplied water	1	0	0
Total number of containers for groundwater matrix:				11	10	7

Notes: QC = quality control