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MEMO

To:
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From:
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Date:
May 17, 2007

ARCADIS Project No.:
NY001464.0607.00001

Subject:
Former Plant 2 Soil Vapor Extraction System Closure Work Plan, Operable Unit 1, Northrop Grumman Corporation, Bethpage, New York NYSDEC #1-30-003C).

ARCADIS has prepared this memorandum for investigative, data evaluation and reporting activities that will be conducted to determine whether the remedial objectives and system shutdown criteria have been satisfied for the Northrop Grumman former Plant 2 Soil Vapor Extraction (SVE) System.

Former Plant 2 SVE Closure Work Plan

The former Plant 2 SVE Closure Work Plan sampling program presented herein consists of the collection of soil gas samples from the original Operable Unit 1 (OU1) Remedial Investigation (RI) Soil Gas Locations SG-4C and SG-4D and the collection of soil and soil gas samples from two proposed vertical profile borings (VPBs) (SB-1 and SB-2) located at the former trichloroethene (TCE) storage tank area (Figure 1). The following sections describe the methodology for soil and soil gas sample collection and analysis.

An ARCADIS field representative will supervise all work, perform the sample collection, and record the pertinent sampling information, as specified in Attachment 1 (sample collection logs).

Prior to investigation activities, background ambient air quality will be evaluated utilizing a photoionization detector (PID).

For all borings, the drill cuttings will be returned to the hole and the remainder of the boring will be abandoned per NYSDEC protocols.

Soil Sampling

Soil samples will be collected continuously at the proposed VPBs SB-1 and SB-2 to a proposed terminal depth of approximately 50 ft bls (i.e., at the water table). Soil samples will be collected utilizing split-spoon or macro core sampling methods with one portion of each soil sample containerized for potential laboratory analysis and a second portion of each soil sample containerized for headspace analysis of VOCs utilizing a photoionization detector (PID). Soil from the 48 to 50 ft bls interval will be collected and submitted for laboratory analysis. Additionally, soil samples response from each soil boring location will be submitted for laboratory analysis. Additional soil samples may also be submitted for laboratory analysis should multiple zones with elevated PID response (minimum of one order of magnitude above the background PID response) be observed at the soil boring location. However, should no PID response be observed from the collected soil samples at the soil boring location, then three soil samples from depths corresponding to the original RI sample intervals will be submitted for laboratory analysis (i.e., 0-2, 8-10, and 18-20 ft bls), plus the 48 to 50 ft bls interval.

The retained soil samples will be packaged in laboratory provided containers, placed in a cooler with ice for preservation and transported via express mail to Columbia Analytical Services of Rochester, New York under chain-of-custody procedures for analysis of Target Compound List (TCL) of VOCs in accordance with New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) Method 2000.

Soil Gas Sampling

Soil vapor probes will be installed approximately two feet below land surface (ft bls) using the Geoprobe post-run tubing (PRT) method utilizing disposable Teflon tubing and following New York State Department of Health (NYSDOH) (2005) protocols at each proposed soil gas sample location (SG-4C, SG-4D, SB-1 and SB-2). Additionally, soil gas samples will be collected from 15 ft bls and 40 ft bls from SG-4D.

Following the soil gas purging process, the pump will be disengaged and the tubing will be connected to a laboratory-supplied SUMMA canister. The SUMMA canister will be equipped with a laboratory-supplied flow controller set to extract a soil gas sample at a rate of approximately 0.2 liters per minute. The SUMMA canister will be opened and will extract a soil gas sample until canister has reached minimum vacuum (approximately 2-in Hg or less) as measured by a vacuum gauge. The SUMMA canister will be closed, labeled and disconnected to transport for analysis.

Based on the successful implementation of the soil gas sampling protocols, on behalf of Northrop Grumman, elsewhere in Bethpage, the tracer gas test, as specified by NYSDOH (2005) guidance, is not warranted and will not be performed for this effort.

Following each soil gas sample procedure, the soil gas probe will be removed from the subsurface and decontaminated utilizing a triple rinse decontamination method. An ARCADIS field representative will package and transport via express mail to Columbia Analytical Services under chain-of-custody procedures for analysis of the TCL VOCs in accordance with the United States Environmental Protection Agency (USEPA) Method TO-15.

Report Preparation

Following the completion of the Plant 2 SVE system closure sampling program, the soil and soil gas data will be validated following USEPA (1999) protocols, tabulated and a letter report will be prepared and submitted to Northrop Grumman for review and comment. Following Northrop Grumman's acceptance and authorization, the data report will be submitted to the NYSDEC. The data presented in this letter report will be utilized in conjunction with the current SVE system performance monitoring and groundwater quality data to evaluate whether the SVE system has achieved its remedial objectives and can be shut down. As requested by the NYSDEC in correspondence dated February 7, 2000, ARCADIS will provide the NYSDEC a two week written notification prior to implementing the sampling program to allow the NYSDEC the opportunity to collect duplicate samples.

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User Name : alsanchez
Date\Time : Thu, 01 Mar 2007 – 11:25am
Path\Name : G:□APROJECT□Northrop Grumman□Cadd□Former NG Plant 2□Proposed SVE System.dwg
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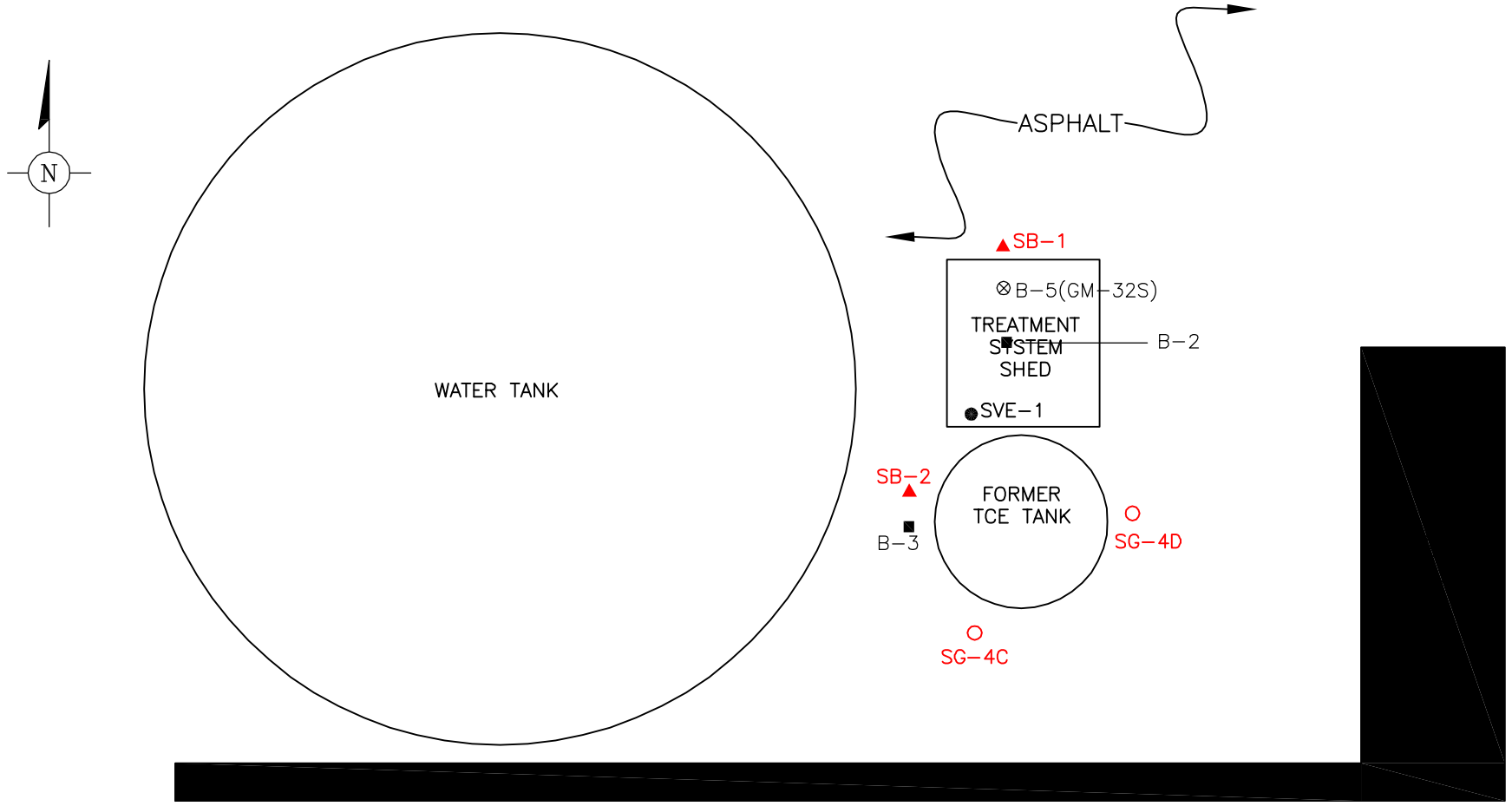

NOTE: ALL LOCATIONS SUBJECTED TO FIELD VERIFICATION

LEGEND:

- ● EXISTING SOIL VAPOR EXTRACTION WELL
- ⊗ PREVIOUSLY INSTALLED SOIL BORING/MONITORING WELL
- ▲ PROPOSED SOIL VAPOR SAMPLING/VERTICAL PROFILE BORING LOCATION
- ○ PROPOSED SOIL VAPOR SAMPLING LOCATION
- ■ PREVIOUSLY DRILLED SOIL BORING

0 10' 20'

SCALE IN FEET

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SHEET TITLE: PROPOSED FORMER PLANT 2 SVE SYSTEM SOIL & SOIL GAS SAMPLING PROGRAM NORTHROP GRUMMAN BETHPAGE, NEW YORK		TASK/PHASE NUMBER: 00001	DRAWN BY: A. SANCHEZ
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