



Infrastructure, environment, facilities

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Subject:

Technical Comments on Work Plan for Soil Vapor Investigation  
Naval Weapons Industrial Reserve Plant (NWIRP) Site 1  
Bethpage, New York  
(NYSDEC Site# 1-30-003B).

Dear Mr. Scharf:

On behalf of Northrop Grumman Systems Corporation (Northrop Grumman), ARCADIS has prepared technical comments regarding the September 5, 2007 Letter Work Plan for the Soil Vapor Investigation at the NWIRP Site 1, in Bethpage, New York, prepared by Tetra Tech NUS, Inc. on behalf of the Department of the Navy. ARCADIS' detailed comments are provided below.

### Comments

1. The volatile organic compound (VOC) analyte list for soil gas and groundwater (see Comment 2) should be provided in an additional table in the work plan.
2. Selected proposed soil gas sampling locations should be advanced to the water table (approximately 55 ft bls) and a groundwater sample should be collected from the water table for VOC analysis. Comparison of groundwater to soil gas VOC concentrations can assist in the evaluation as to the processes governing soil gas migration (i.e., vertical off-gassing from VOCs in groundwater and/or lateral diffusion).
3. Community air monitoring should be performed via an approved Community Air Monitoring Plan developed per NYSDEC/DOH protocols.
4. It would be helpful to have a figure showing the locations of previous vapor, soil and water samples. This information would provide background to help determine whether the proposed sampling locations along the fence line are appropriate.
5. Section 1.2 indicates that Preliminary Remediation Goals (PRGs) were used to screen VOCs in soil boring samples. More detail should be provided regarding

ENVIRONMENT

Date:  
September 21, 2007

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Our ref:  
NY001464.0507.00005

Imagine the result

the PRGs used in this screening analysis as they are not provided in either Section 1.2 or in Attachment A.

6. Data collected at other sites suggest that soil vapor can migrate beyond the extent of the delineated groundwater plume. The current extent of VOCs in groundwater at Site should be evaluated and the scope of soil gas sampling along the border between the NWIRP site and 11<sup>th</sup> Street expanded as appropriate to encompass the extent of the groundwater plume.
7. In Table 2, the target depth information in the Sample ID is listed as "XX" rather than the targeted depths. It is recommended that the target depths be included in the Sample ID. Given that sample depths might be modified in the field to avoid silt/clay units, this Sample ID column could be footnoted to indicate this possibility.
8. It is not clear how the steel drive rod boring will be sealed to ensure that there is not preferential movement of vapor along the outside of rod. ARCADIS would recommend packing with hydrated bentonite or other similar material to prevent potential short-circuiting of vapor to the surface.
9. The analytical method (TO-15 or TO-15A) for analyzing soil gas and ambient air samples is inconsistent. Also, if TO-15A is to be used please justify why this method was chosen over method TO-15.
10. The post-run tubing (PRT) system is not mentioned in the sample collection section. It is assumed that the PRT system will be employed to ensure that soil gas samples are collected from the annular space created by retracting the drive rods. Please add detail and clarify this section.
11. Sample collection times are not indicated in the text. Collecting a 6-liter SUMMA canister at 200 mL/min will fill the canister in approximately 30 minutes depending on site conditions. Please add this to the methods section and clarify the methodology for sample completion.
12. The number of ambient air samples that will be collected and length of time for which samples will be collected is not discussed/is inconsistent. The text of the Work Plan states that samples will be collected over an 8 hour period while Table 1 states that air samples will be collected for 2 hours. Please clarify and revise both sections.
13. There is no text for footnote 1 in Table 1. This footnote needs to either be completed or removed and footnote 2 renumbered.
14. Ambient air samples are not included in Table 2.
15. Footnote 1 in Table 2 is unclear. It is assumed that this is the turn-around-time for sample analysis, please clarify.

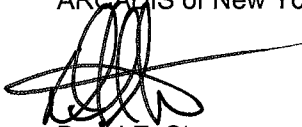
ARCADIS

Mr. Steve Scharf  
September 21, 2007

Please do not hesitate to contact the undersigned if you have any questions regarding these comments.

Sincerely,

ARCADIS of New York, Inc.



David E. Stern  
Senior Scientist



Carlo San Giovanni  
Project Manager

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