TETRA TECH

July 9, 2018

Mr. Jason Pelton
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A, 12th Floor
625 Broadway
Albany, New York 12233-7015

Reference: CLEAN Contract No. N62470-16-D-9008
Contract Task Order WE13

Subject: Letter Work Plan 2018 Tritium Groundwater Investigation
Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, New York

Dear Mr. Pelton:

On behalf of the Department of the Navy, Tetra Tech is submitting an electronic copy of the subject document to the New York State Department of Environmental Conservation (NYSDEC) for review. This work plan provides for the sampling and analysis of ten groundwater samples from monitoring wells on the former NWIRP Bethpage. Seven of the wells were selected based on your email to Mr. Brian Murray on April 24, 2018. The other three wells represent shallow, intermediate, and deep groundwater at the northern edge of the facility.

If you have any questions or would like a paper copy of the document, please contact Mr. Brian Murray, NAVFAC Mid-Atlantic, at brian.s.murray@navy.mil or (757) 341-0491.

Sincerely

David D. Brayack, P.E.
Project Manager

Enclosure: Letter Work Plan 2018 Tritium Groundwater Investigation, Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, New York

Distribution:
NYSDEC, Don Hesler
NAVFAC Mid-Atlantic, Brian Murray
Project File

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LETTER WORK PLAN
2018 TRITIUM
GROUNDWATER INVESTIGATION
FACILITY WIDE
NWIRP BETHPAGE, NEW YORK

Introduction

The Navy is conducting an investigation to evaluate the potential release of tritium at the facility using the existing groundwater monitoring well network located at the former Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, New York (Figures 1 and 2). The existing groundwater monitoring well network is currently used to evaluate the release and cleanup of select volatile organic compounds (VOCs), polychlorinated biphenyls, and/or metals in groundwater resulting from operations at former NWIRP Bethpage. This letter work plan was prepared by Tetra Tech, Inc. (Tetra Tech) under the Naval Facilities Engineering Command (NAVFAC) Atlantic Comprehensive Long-Term Environmental Action Navy (CLEAN) under Contract Number N62470-16-D-9008 Task Order WE13.

In 2018, a radiological investigation was completed for on-property wells to determine whether there is any evidence of a source of radium or other radiological material that could result in a Maximum Contaminant Level (MCL) exceedance in either on property or off property groundwater. Tritium was not included in the 2018 investigation. Tritium [H-3] is a radionuclide utilized in materials testing operations in relatively larger quantities. Tritium is a naturally-occurring and human-made radioactive form of hydrogen. This radioisotope was used in neutron generation in conjunction with metal thickness measurement testing. The records document that tens of Curies of Tritium were present and used onsite over the course of years, and that proper disposal practices were observed (Arcadis, 2016).

Additional analysis for tritium was requested by New York State Department of Environmental Conservation. Tritium is suspected to be associated with a former neutron generator that was located in Plant 10. In a letter dated June 8, 1998 from New York State Department of Labor (NYSDOL, 1998), Plant 10 was released from radiological control for decommissioning. The objective of this investigation is to determine whether tritium is present in groundwater.

To address the objective, this investigation includes groundwater sample collection from the existing monitoring well network at the former NWIRP Bethpage. The monitoring wells selected for sampling provide upgradient and downgradient locations of the former neutron generator. Proposed sample locations are presented on Figure 2. The well and sample location details, nomenclature, and analyses are summarized on Table 1.

Groundwater Sampling

Groundwater samples will be collected from ten monitoring wells within the existing on-property network. Relative to Plant 10, three monitoring wells will be sampled from a downgradient location; four monitoring wells will be sampled from an upgradient location; and three monitoring wells will be sampled from a sidegradient location approximately 2,000 feet to the north of Plant 10. Sample locations are provided on Table 1 and Figure 2.

A down-hole, variable speed, submersible, centrifugal pump (e.g., Monsoon) with high-density polyethylene tubing will be used for groundwater purging and collection activities. The pump will be used in combination with a continuous flow-through cell suitable for taking water quality measurements (dissolved oxygen, oxidation-reduction potential, specific conductance, pH, temperature, and turbidity). Turbidity measurements will be made using a separate field turbidity meter specifically designated to measure turbidity only. Depending on stabilization of the groundwater parameters, two to five screen volumes may be purged prior to sample collection. The groundwater monitoring wells will be analyzed as indicated on Table 1.

Quality Control Samples

Quality assurance and quality control samples will be collected for groundwater samples. Duplicate samples will be collected at 10 percent (1 per 10 samples). Matrix spike and matrix spike duplicate (MS/MSD) samples (i.e., triple volume) will be collected at a rate of 5 percent (1 per 20 samples). MS/MSDs will receive the same sample ID as the respective parent samples, and the triple volume will be noted in the field log book and on chain-of-custody form.

Equipment Decontamination

Reusable sampling equipment decontamination will consist of washing using a non-phosphate detergent followed by a rinse with deionized water provided by the laboratory.

Waste Management

Aqueous investigative-derived waste (IDW) will be generated during well sampling activities. The aqueous IDW will be containerized pending waste characterization analysis. IDW will be characterized for radiological materials, VOCs, semivolatile organic compounds, pesticides, Target Analyte List metals, and reactivity. Based on the results of the waste characterization, the waste will be discharged via the local industrial wastewater discharge permit or transported offsite and appropriately disposed by the IDW subcontractor.

Reporting

The data collected will be evaluated and submitted in a data summary package. Pending review of analytical results and consultation with New York State Department of Environmental Conservation, a determination will be made whether additional sampling is to be conducted. Recommendations will be made on whether to proceed with additional action (e.g. another more refined round of sampling), remedial investigation, risk assessment, or a no action decision.

REFERENCES

Arcadis, 2016. *Review of Files Containing Radiological Information for Northrop Grumman Bethpage, NY Operations.* Administrative File Record Number N90845.AR.002016. September.

NYSDOL, 2018. Letter to Northrop Grumman Re: NYSDOL License No. 0733-0291, Administrative Record. June.

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TABLES

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TABLE 1
MONITORING WELL DETAILS AND SAMPLE NOMENCLATURE
FACILITY WIDE TRITIUM INVESTIGATION
NWIRP BETHPAGE, NEW YORK

Sample ID Number/Nomenclature[1,2]	Location Relative to Plant 10	Matrix	Depth of Screened Interval (feet bgs)	Analysis[3]
TTAOC-22-MW06-2018MMDD	Upgradient	Groundwater	52 - 62	Tritium by EPA Method 906
TTAOC-22-MW07-2018MMDD	Upgradient	Groundwater	52 - 62	Tritium by EPA Method 906
TTAOC-22-MW08-2018MMDD	Upgradient	Groundwater	52 - 62	Tritium by EPA Method 906
TTAOC-22-MW10-2018MMDD	Upgradient	Groundwater	49 - 59	Tritium by EPA Method 906
BPS1-TT-MW305S-2018MMDD	Downgradient	Groundwater	40 - 50	Tritium by EPA Method 906
BPS1-TT-MW305I-2018MMDD	Downgradient	Groundwater	190 - 200	Tritium by EPA Method 906
BPS1-TT-MW305D-2018MMDD	Downgradient	Groundwater	286 - 296	Tritium by EPA Method 906
BPS1-TT-MW309S-2018MMDD	Approximately 2,000 feet sidegradient	Groundwater	53 - 63	Tritium by EPA Method 906
BPS1-TT-MW309I-2018MMDD		Groundwater	160 - 170	Tritium by EPA Method 906
BPS1-TT-MW309D-2018MMDD		Groundwater	252 - 262	Tritium by EPA Method 906

1 MMDD is the two digit month and two digit day that the sample is collected. As an example, if BPS1-TT-MW305S is sampled on April 10, 2018, the sample nomenclature would be BPS1-TT-MW305S-20180410.

2 Locations where field duplicates will be collected will be determined in the field by the Tetra Tech FOL.

3 Water quality parameters consisting of dissolved oxygen, oxidation- reduction potential, specific conductance, pH, temperature, and turbidity will be collected at each location.

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FIGURES

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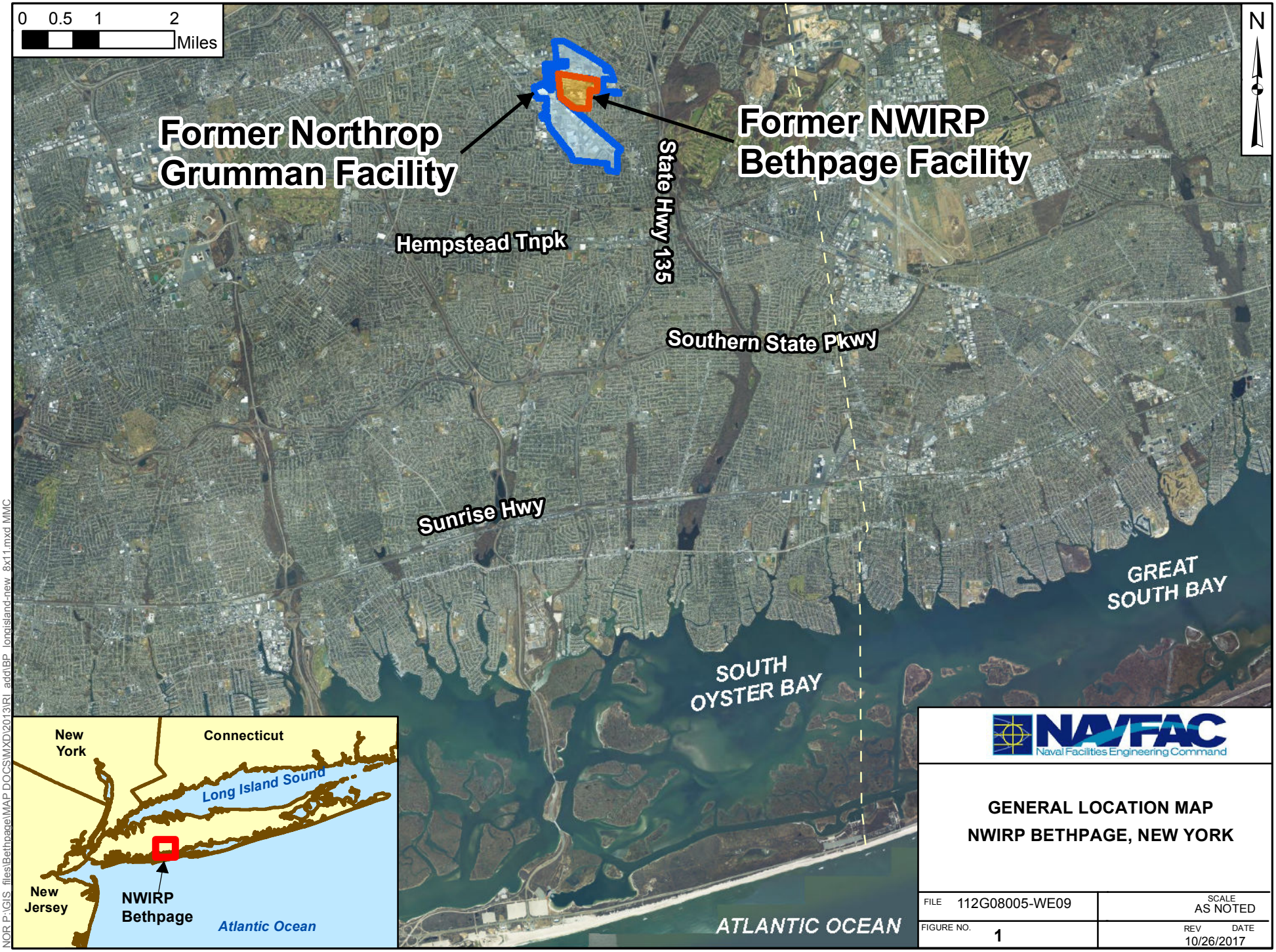

NAVFAC
Naval Facilities Engineering Command

GENERAL LOCATION MAP
NWIRP BETHPAGE, NEW YORK

FILE	112G08005-WE09	SCALE	AS NOTED
FIGURE NO.	1	REV / DATE	10/26/2017

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NAVFAC Naval Facilities Engineering Command

PROPOSED TRITIUM SAMPLE LOCATIONS

NWIRP BETHPAGE, NEW YORK

FILE	112G08005-WE13	SCALE	AS NOTED
FIGURE NO.	2	REV	DATE 7/3/2018

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