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Project 6883

Mr. Lonnie Monaco
Naval Facilities Engineering Command (NAVFACENGCOM)
Northern Division
Environmental Contracts Branch, Mail Stop No. 82
10 Industrial Highway
Lester, Pennsylvania 19113

Reference: CLEAN Contract No. N624272-D-1298
Contract Task Order (CTO) No. 252

Subject: Ecological Stream Monitoring Work Plan, Unnamed Tributary to Little Neshaminy Creek,
Area A Sites. Naval Air Warfare Center (NAWC) Warminster, Pennsylvania

Dear Mr. Monaco:

Tetra Tech NUS (TtNUS) is pleased to submit the enclosed revised work plan for your review and approval. The document has been revised to respond to comments presented by BTAG during the June 1, 1999 meeting. The major BTAG comments, and responses, have been summarized in a separate enclosure. Additional copies have been forwarded to the individuals listed below. The field work effort for this project is scheduled to start September 13, 1999.

Please contact me with any questions or comments.

Respectfully;

A handwritten signature in black ink, appearing to read 'Garth Glenn', written over a white background.

Garth Glenn
Project Manager

GG/ejc

C: Thomas Ames (NAVFACENGCOM)
Darius Ostrauskas (EPA Region III)
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Project File

**BTAG Comments on and Navy Responses to
Stream Monitoring Work Plan
Unnamed Tributary to Little Neshaminy Creek
Area A Sites, Naval Air Warfare Center (NAWC)
Warminster, PA. Tetra Tech NUS April 1999**

The following comments are taken from notes recorded during a June 1, 1999 review meeting held at the NAWC Caretaker Site Office. Meeting participants included representatives from EPA, BTAG, Navy, and TtNUS. The purpose of the meeting was to discuss the April 1999 Work Plan for Biomonitoring of the Unnamed Tributary to Little Neshaminy Creek. The comments and responses listed below are only those comments that were not resolved during the meeting and/or that require a revision to the April 1999 Work Plan.

1. The Site Background section should refer to the Phase III RI ecological risk assessment as it relates to the need for conducting the proposed monitoring program.

Response: The last paragraph of page 2-6 will be replaced with the following:

“Three sampling events were performed in the unnamed tributary to Little Neshaminy Creek during the completion of the RI phases. In general, the surface water and sediment sample analytical results revealed low-level contamination with metals and polycyclic aromatic hydrocarbons (PAHs). The source of the contamination, especially PAHs was not well defined.

A screening-level ecological risk assessment (ERA) was performed as part of the Phase III RI. Surface water and sediment analytical results were compared to conservative Benchmark Toxicity Values to estimate the potential ecological risks associated with the contaminant concentrations. The ERA concluded that surface water contamination presented a low to moderate potential for adverse ecological impacts. Sediment contamination was estimated to present a moderate to high potential for adverse impacts. The ERA recommended further site-specific data collection and analysis to define potential ecological impacts. The EPA Biological Technical Assistance Group (BTAG) concurred with this recommendation and suggested the implementation of a long-term chemical and benthic macroinvertebrate monitoring program at the site.”

2. At least one additional sampling location should be added to the potentially impacted downstream portion of the creek.

Response: The Navy agrees to one additional sampling location in the downstream portion of the Unnamed Tributary to Little Neshaminy Creek. The sample location will be located approximately 200 feet downstream of Outfall OF1 at the location agreed to in the field during the June 1, 1999 meeting with EPA and BTAG. Surface water, sediment, and biological samples will be collected from this location.

The following changes will be made to the Work Plan:

- Figure 3-1 will be revised to show this additional sampling location.
- Page 3-6, Section 3.2.3, first paragraph: Second sentence - change “four” to “five”; last sentence - change “five” to “six”.
- Page 3-6, Section 3.2.3: The following sixth bullet will be added to the text:

- Approximately 200 feet downgradient of Outfall 1. This sample will serve as an indicator of potential impacts from all upgradient influences.
 - Table 4-1: The number of samples will be increased by one.
3. The seeps on the south bank of the unnamed tributary are a concern and are viewed as a potential source of contamination. Although the Navy has completed removal actions at Area A sites, these seeps could be a continued source of contamination that needs to be addressed. These seeps should be sampled during at least the first year of sampling and possibly throughout the monitoring program.

Response: These seep areas have been inspected several times during different seasons and they produce an insufficient volume of water for sampling. Soils from the seep areas were sampled in previous investigations. Analytical results from soils collected in the seep areas are not representative of the stream sediment and these results cannot be directly compared to sediment criteria. However, it is agreed that soil analysis from these areas may provide an indication as to whether these seeps are potential source areas.

After conducting an inspection of the area it was agreed that soil samples from two seep areas would be collected during the first year of sampling as a minimum. The analytical results will be reviewed, compared to background soil concentrations established for NAWC, and presented in the first year monitoring summary report. A recommendation for changes to the sampling program, if needed, as already indicated in the Work Plan, will be presented with the annual report.

The following text will be added to the end of Section 3.2.2, page 3-6:

"In addition to collecting stream sediment samples, soil samples will be collected from the two seep areas located on the southern bank of the unnamed Tributary to Little Neshaminy Creek (see Figure 3-1). One sample will be collected from each seep area. The samples will be collected at the base of the seep area immediately above the stream bank. The soil samples will be collected from the top 6 inches of soil and will be analyzed for the same parameters as the sediment samples using the same methods.

Seep soil samples will be collected quarterly for the first year of monitoring. A recommendation regarding the need for continued sampling will be made after the first year of data is evaluated. The first-year soil data will be compared to NAWC background soil concentrations as presented in the Phase III RI and evaluated in conjunction with surface water, sediment and biological data."

- Table 4-1: The number of soil samples to be collected have been added to Table 4-1.
4. The plan does not detail how the data will be interpreted and what potential actions could be taken in response to findings. The plan does not identify specific exit criteria or threshold values that will be used to determine the need for further action, continued monitoring, or cessation of the monitoring program. Either the plan should present a decision tree to be followed during the evaluation of chemical and biological data or it should state that decision tree/specific threshold values will be developed after completion of the first year of monitoring. The first year of data collection could be used to define the impacted community, COCs and possible sources.

Response: Section 1.2 provides a brief outline of the format and content of the reports to be generated as part of this planned activity. Section 4.10.4, specifically the last paragraph, provides more detail regarding the proposed interpretation of data generated during the monitoring program. The Navy agrees that further definition of exit criteria and the decision process to be applied should be developed.

As pointed out in BTAG comment 1, a screening-level ERA has been completed for the Unnamed Tributary to Little Neshaminy Creek. This screening-level ERA identified a potential for adverse effects through the evaluation of stream chemical data and the use of conservative exposure assumptions. However, the health of the benthic community, the presence or absence of impacts to benthos, the magnitude and cause of the impacts to benthos (if present), the relative risks from individual contaminants, and the sources of contamination have not been fully defined. The objective of the long-term monitoring program is to characterize these issues and to determine if Navy disposal operations within Area A have or are continuing to impact the stream community. In addition the data, if they indicate that impacts associated with the Navy disposal operations exist, will be used to support an evaluation of what additional actions may be warranted to ameliorate these impacts.

The following text will be added to Section 1.2 to more clearly define the decision process that will be applied in interpreting the data under this long-term monitoring program:

"In addition to the preparation of sampling-round specific monitoring reports, annual reports summarizing the results of the monitoring program will be prepared and submitted for review. The first annual report, to be prepared after completion of 4 quarterly monitoring events, will present the benthic macroinvertebrate data and characterize the benthic community through an evaluation of taxa richness and diversity. Station-specific data will be compared to determine community similarity. This will include comparisons of the potentially impacted samples with the reference sample.

Surface water and sediment chemical and physical data will be presented and evaluated with the biological data to determine the possible source or cause of any benthic community impairment identified. If the data indicate benthic community impairment from sources other than Navy disposal activities, the possible source or cause of the impairment will be identified. The report will also recommend any changes to the sampling program that should be applied to future monitoring or data evaluation efforts. In the event that no community impairment is identified and continued monitoring is recommended the report will identify the criteria and decision steps to be taken to support the termination of the program.

If impairment of the benthic community is apparent but the data do not clearly identify the source or if the source is associated with Navy disposal activities, the report will recommend changes to the long-term monitoring program necessary to further define or quantify the problem and the possible causes.

The first year's data will be combined with the second year's data to establish a baseline for chemical and biological conditions in the stream. If concentrations of chemicals do not appear to have decreased during the first two years of monitoring and the benthic community appears to be impaired, surface water and sediment data will be compared to screening guidelines presented on Tables 3-1 and 3-2 to further characterize risks. The second year's report, and subsequent annual reports (if necessary), will evaluate the data and trends over time in a similar manner and present recommendations for evaluating possible remedial alternatives.