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TRANSMITTAL LETTER FOR THE FINAL 1,4-DIOXANE GROUNDWATER SAMPLING REPORT AT SITE 16 NCBC DAVISVILLE RI
9/29/2006
TETRA TECH

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PITT-09-6-053

Project Number 00234

September 29, 2006

Mr. Curtis Frye
Remedial Project Manager
Base Realignment and Closure
Program Management Office Northeast
4911 South Broad Street
Philadelphia, Pennsylvania 19112-1303

Reference: CLEAN Contract No. N62472-03-D-0057
Contract Task Order No. 049

Subject: ***Final*** 1,4-Dioxane Groundwater Sampling Report for
Installation Restoration Program Site 16
Former Naval Construction Battalion Center Davisville

Dear Mr. Frye:

Tetra Tech NUS, Inc. (TtNUS) is pleased to provide one copy of this ***final*** letter report documenting the results of the 1,4-dioxane groundwater sampling program at Installation Restoration Program (IRP) Site 16 at the Former Naval Construction Battalion Center (NCBC) Davisville, North Kingstown, Rhode Island. Per your direction, copies of the draft document were distributed for review in early August 2006. As documented in the attached electronic mail (e-mail) correspondence, no comments were received from either the United States Environmental Protection Agency (USEPA) Region I or the State of Rhode Island Department of Environmental Management (RIDEM). Consequently, this cover letter and the title page (and spine) of the report ***only*** are being re-issued. We recommend that you add this cover letter and attached e-mails to your current copy of the report to document that the August 2006 version of the report has been finalized. Also, please replace the August 2006 version of the title page and spine with the attached version of the title page and spine.

The groundwater sampling discussed in this report was conducted by the Navy in response to a request from the USEPA Region I dated March 15, 2004. In correspondence dated March 30, 2004 (**Attachment No. 1**), the Navy concurred with USEPA's request and agreed to develop a 1,4-dioxane sampling program for select wells at Site 16. The 1,4-dioxane groundwater sampling program was conducted in the fall of 2004 (10 wells sampled) and the spring of 2006 (10 wells sampled) by EA Engineering, Science, and Technology Inc. (EA) and TtNUS, respectively.

Summary of Investigation

The following 10 monitoring wells were sampled for 1,4-dioxane in the fall of 2004:

MW16-02D,	MW16-05D,	MW16-10D,	MW16-15D,	MW16-38I,
MW16-39I,	MW16-45D,	MW16-50D,	MW16-52D,	MW16-56I

These wells were selected through a series of e-mail exchanges between Navy, USEPA Region I, and EA. A review of these e-mail exchanges indicates that the locations of the Site 16 potential contaminant source areas and site-specific hydrogeology were considered by the Navy, USEPA Region I, and EA in the determination of the monitoring well list. Samples were collected by EA between September 28 and October 25, 2004, and analyzed by Ceimic Corporation using SW-846 8260B Selective Ion Monitoring

(SIM) methodology. The analytical data packages received from Ceimic specified a reporting limit of 1 µg/L. 1,4-Dioxane was ***not detected*** in any of the 10 groundwater samples collected in 2004. Thus, all analytical results were reported as **1 U µg/L**.

TtNUS validated the fall 2004 1,4-dioxane groundwater data in accordance with Tier II USEPA Region I data validation (DV) guidelines (December 1996). The results of the data validation are documented in the associated data validation memorandum (**Attachment No. 2**). Unfortunately, all of the analytical results were rejected because the reported calibration relative response factors were less than the minimum requirement specified in the DV guidelines. Consequently, TtNUS conducted a more detailed review of the quality control data presented in the data packages (i.e., a review beyond the scope of Tier II data validation), including a review of data for the key ions, m/z 88 and m/z 58, that are representative of 1,4-dioxane. As a result of this review, the Navy concluded the 2004 data could be used as a ***screen*** for the presence of 1,4-dioxane at NCBC Davisville Site 16. However, the Navy further recommended that the appropriate detection limit for the 2004 non-detect results should be **5 µg/L** (not **1 µg/L** as reported by the analytical laboratory). The results of detailed data package review and the Navy's recommendations were forwarded to USEPA Region I and RIDEM in correspondence dated February 21, 2006 (**Attachment No. 3**). A teleconference between Navy, USEPA Region I, RIDEM, and TtNUS was held on March 1, 2006 to discuss the results and conclusions presented in the February 21, 2006 correspondence. All participants in the teleconference concurred that the fall 2004 1,4-dioxane data are usable at a 5 µg/L reporting limit; USEPA Region I further recommended that a matrix spike/matrix spike duplicate sample set be collected during the spring 2006 sampling event. The results of the March 1, 2006 teleconference are documented in correspondence from TtNUS to USEPA Region I and RIDEM dated March 8, 2006 (**Attachment No. 3**).

In September 2005, TtNUS was tasked with the preparation of a quality assurance project plan (QAPP) Addendum for the Navy's spring 2006 1,4-dioxane groundwater sampling event. The Draft Quality Assurance Project Plan Addendum for 1,4-Dioxane Ground-Water Investigation at IR Program Site 16, NCBC Davisville was published in December 2005. The QAPP documented all sampling and analysis procedures. Of particular note, the analytical method recommended for 1,4-dioxane was SW-846 8270C SIM, which routinely yields acceptable calibration relative response factors for 1,4-dioxane (not the aforementioned Method SW-846 8260B SIM used for the fall 2004 sampling event). Northeast Laboratory Services (NE) was contracted to perform the analysis; the reporting limit specified by NE was 2 µg/L. Comments on the draft QAPP were received from USEPA Region I and RIDEM on January 25, 2006 and February 16, 2006, respectively. The Navy transmitted a response-to-comments letter to the agencies on March 7, 2006 (**Attachment No. 4**). The responses-to-comments were approved by USEPA Region I and RIDEM in e-mail correspondence dated April 6, 2006 and April 20, 2006, respectively (**Attachment No. 4**). The QAPP was revised based on the approved responses-to-comments and was published as a final document on April 27, 2006. Per the approved response-to-comments, the monitoring well list specified in the QAPP for the spring 2006 1,4-dioxane groundwater sampling event, and presented below, differed from the monitoring well list for the fall 2004 1,4-dioxane groundwater sampling event.

MW16-45I,	MW16-04D,	MW16-39I,	MW16-37S,	MW16-37I,
MW16-10D,	MW16-05I,	MW16-05D,	MW16-59I,	MW16-15D.

The rationale for this monitoring well list is provided in the Navy's response-to-comments letter dated March 7, 2006 (**Attachment No. 4**).

Groundwater samples for the spring 2006 1,4-dioxane groundwater sampling event were collected by TtNUS on May 11 and 12, 2006 and shipped to NE for analysis. The analytical data were received and

validated by TtNUS in late May 2006. All data were acceptable as reported without qualification. 1,4-Dioxane was not detected in any of the 10 groundwater samples collected in 2006. Thus, all analytical results were reported as **2 U µg/L**, which is less than the Region IX Preliminary Remediation Goal (PRG) for tap water of 6.1 µg/L (USEPA October 2004). The analytical data package and data validation memorandum are provided as **Attachment 5,** and the field sampling logsheets for both fall 2004 and spring 2006 sampling events are provided as **Attachment 6**.

Summary and Conclusion

At the request of USEPA Region I, the Navy conducted a groundwater monitoring program for 1,4-dioxane at Site 16 at NCBC Davisville. Groundwater samples were collected during the fall of 2004 (10 wells sampled) and the spring of 2006 (10 wells sampled). 1,4-Dioxane was not detected in any of the groundwater samples collected during either sampling event. The sample quantitation limits reported for all samples collected were less than the Region IX PRG for tap water (6.1 µg/L). Table 1 summarizes analytical results reported for the fall 2004 and spring 2006 sampling rounds; Figure 1 displays the locations of the monitoring wells sampled. The results presented in Table 1 indicate that 1,4-dioxane is not a chemical of potential concern at Site 16 and that further groundwater monitoring for this chemical is not necessary.

Please contact me at (412) 921-8887 if you have any questions or comments regarding this letter report.

Sincerely,

Lee Ann Sinagoga
Contract Task Order Manager

LAS/mlg
Enclosures

cc: Mr. David Barney, BRAC Environmental Coordinator (1 copy)
Ms. Christine Williams, EPA Region I (4 copies)
Mr. Louis Maccarone, RIDEM (1 copy)
Dr. Ken Finkelstein, NOAA (1 copy)
Ms. Kathleen Campbell, CDW (2 copies)
Mr. John Trepanowski, TtNUS PMO (1 copy)
Mr. Steve Vetere, TtNUS Boston (1 copy)
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Mr. Steven King, Quonset Development Corporation (1 copy)
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