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NAS CECIL FIELD, FL
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TETRA TECH RESPONSES TO U S EPA REGION IV AND FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION COMMENTS ON DRAFT ANNUAL GROUNDWATER
MONITORING REPORT FOR OPERABLE UNIT 10 (OU 10) SITE 25 NAS CECIL FIELD FL

6/3/2004

TETRA TECH NUS INC

Response to Comments
Draft Annual Groundwater Monitoring Report – Year 1 for Operable Unit 10, Site 25
Naval Air Station Cecil Field
Jacksonville, Florida

EPA 1/8/04

1. **Comment:** Table 1-1 indicates that the hydraulic gradient (indicative of the direction of ground-water flow) is variable at OU 10, Site 25. While Figure 1-3 indicates that in February 2003 the direction of ground-water flow over most of the area shown is generally to the east, data from September 2000 indicate the direction of ground-water flow at that time was more or less to the west. Based on data presented in Section 3, the only wells that are being monitored for potential migration of potential contaminants of concern are to the east of the source area. There should either be monitoring of a well to the west of the source area to account for potential westward contaminant migration, or a more definitive evaluation of the direction of ground-water flow in the area needs to be made in the report. Figure 2-1 shows several shallow wells west of the source area. These wells are not included on Figure 1-3 or in Table 1-1. Possibly, water-level data from these additional wells could be cited as further definition of the overall eastward direction of ground-water flow, or a statement could be made at the close of Section 1 about the general direction of ground-water flow, based on the totality of data in Table 1-1.

Response: While there is some variability in the groundwater level elevation data on Table 1-1, the water levels measured in April 2000, July 2002, and February 2003 show that the groundwater flow beneath the site is to the east. The high water table in September 2000, 3 to 4 higher than the other events, was a temporary condition. The high water table is not considered to be typical and monitoring to the west of the site is not necessary. Taking water level measurements at other nearby wells (specifically 80-12S, 81-4S, 81-6S, and 81-7S) is no longer possible because these wells were abandoned. The water level in well 80-12S was to be measured per the Long-Term Monitoring Work Plan. Because 80-12S has been abandoned, the water level in well 81-14S will be measured during future sampling events. Well 81-9S is too close to both 81-14S and 81-8SR to be of benefit. Wells 81-10S and 81-11S are west of wells that already being measured and would not provide beneficial information about the groundwater flow at the site.

The following will be added to the end of the last paragraph in Section 1.0:

Water levels measured in April 2000, July 2002, and February 2003 show that the groundwater flow beneath the site is to the east. The high water table in September 2000, 3 to 4 higher than the other events, was a temporary condition. The high water table is not considered the norm and monitoring to the west of the site is not necessary.

2. **Comment:** Figure 2-1 shows that for the well where BHCs have been detected, there are two entries for the BHC analytical results for both sample periods (e.g. 0.12/0.12; alpha BHC for the 7/99 sample). The figure needs to indicate what the pair of results mean.

Response: The slash indicates the results of the duplicate sample at that location. The legend in Figure 2-1 (and Figure 3-1) will be revised to note this.

FDEP 3/11/04

1. **Comment:** ...one comment on the report. The report indicates that isomers of benzene hexachloride are contaminants of concern. This is incorrect. Benzene hexachloride has no isomers. The actual contaminants of concern are isomers of hexachlorocyclohexane, which are commonly denoted as alpha-BHC, beta-BHC and gamma-BHC (lindane). As the Department has different groundwater

cleanup target levels for benzene hexachloride and the isomers of hexachlorocyclohexane, please clarify this somewhere in the report to avoid confusion.

Response: In the third paragraph of Section 1.0, the phrase "... benzene hexachloride (BHC) isomers at concentrations in excess of Florida Department of Environmental Protection (FDEP) Groundwater Cleanup Target Levels (GCTLs)..." is an accurate statement. Benzene hexachloride (BHC) is one of the synonyms (although a structurally inaccurate one) for the compound 1,2,3,4,5,6-hexachlorocyclohexane (HCH). The isomers of this compound are based on the orientation of the chlorine atoms relative to the axis of the cyclohexane molecule. The use of "BHC" in the reports is the result of the use of "BHC" in the laboratory method, SW-846 8081A. The laboratory uses "BHC" to report each isomer, which is carried into the database and subsequent tables and reports as "BHC".

For GCTLs, 62-777 FAC uses the name hexachlorocyclohexane for the individual isomers. One of the entries in 62-777 FAC is "hexachlorocyclohexane [technical or BHC]" with the CAS Number 608-73-1 that is the mixture of isomers that results from the preparation of HCH; the mixture was once used as a pesticide. However, the individual isomers have GCTLs and the GCTL for "Hexachlorocyclohexane [technical or BHC]" is not applicable.

For clarity, the report text will be revised to note that BHC is also known as hexachlorocyclohexane (HCH). However, the term "BHC" will be used for consistency with laboratory reporting, database, and previous reports. With the exception of the Section 1.0 text above, "BHC" is always used with a prefix (e.g., alpha-) to denote the specific isomer.