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LETTER REGARDING REVIEW OF THE SUPPLEMENTAL RFI WORK PLAN FOR SITE 11
NSB KINGS BAY GA
1/31/1994
U S DEPARTMENT OF THE INTERIOR

United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
Peachtree Business Center, Suite 130
3039 Amwiler Road
Atlanta, Georgia 30360-2824

January 31,1994

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Mr. David Driggers
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive, P.O. Box 190010
North Charleston, South Carolina 29419-9010

Dear David:

Review of the Supplemental RFI work plan for Site 11 at Kings Bay submarine base (three-volume set dated September 1993) by ABB Environmental Services (ABB) is complete, and comments are enclosed. USGS personnel recently obtained information from the owner of the 4-inch diameter well that periodically supplies water to Raccoon Lake. Much of the water in the lake may occasionally be from the upper Floridan aquifer, rather than from the surficial aquifer. Comments regarding this information are in the enclosure.

We hope that this review is helpful to you. If you have any question, please feel free to call.

Sincerely,

Bud Zehner

Bud Zehner
Hydrologist

Enclosure

USGS comments on ABB supplemental RFI work plan for site 11 (Volumes 1, 2 and 3), Kings Bay submarine base

Much of Volume I of this September 1993 work plan is the same as the ABB report "RFI interim report for site 11", dated August 1993. USGS comments on the RFI interim report were sent to Ed Lohr at SOUTHDIV on October 15, 1993, and were obviously received after the work plan was written. Many of the review comments contained in the October 15 letter apply to Volume I of the present work plan, and are not repeated here.

Volume I, page 2-21, last paragraph, and following 3 pages. The discussion here on directions of ground-water flow is confusing. What is meant by "zones of upward head potential" in layer A? Are these "zones" areas of limited lateral extent? Only one site with three data points is within the landfill area, and the points are shown on figure 2-13 as indicating upward flow in layer A. Layer A is the 30-foot thick uppermost layer. The trenches are about 12 feet deep in layer A and the lower 6 feet of the waste is below the water table (information given on page A7). If flow in layer A is upward in the trench area, how did contaminants from the trenches flow to a depth of 60 feet in the area at the western boundary of the trenches? This needs to be explained.

Volume I, page 2-36, last paragraph. The 4-inch diameter well at lot number 1 is open to the upper Floridan aquifer. It is used periodically in summer to supply water to Porcupine lake, and to water the lawn and garden at the lot (information obtained by the USGS from the well owner). Water samples from the lake could sometimes be representative of water quality in the upper Floridan aquifer rather than water quality in the surficial aquifer. ABB field personnel could inquire about recent discharges to the lake, especially immediately prior to any planned summer sampling trip.

A sample could be collected from the 4-inch diameter well for comparison of water-quality characteristics of the upper Floridan Aquifer to those of the surficial aquifer. The comparison may be useful if much of the water in Porcupine lake is from the upper Floridan aquifer. Some of the expected differences in the water quality are pH, specific conductance, total dissolved solids, bicarbonate, chloride, sulfate, and possibly nitrate. These constituents are probably greater in water from the upper Floridan aquifer, with the exception of nitrate. The Georgia Enviromental Protection Division has data on nitrate concentration in water from the surficial aquifer in the Kings Bay area, and probably has chemical analyses of water samples from the upper Floridan aquifer wells that supply water to the submarine base.

Volume II, page 2-33, first paragraph. An accuracy of 0.01 foot for a measurement of depth to water by use of an electric water-level indicator is unrealistic. An accuracy of 0.1 foot is more probable. Accuracy of the measurement by use of a steel tape is about 0.02-0.03 foot, and a steel tape is more accurate than an electric water-level indicator.

Volume II, section 2.2.8. Why are excavations to be made into the waste trenches? If trench water and trench soil must be sampled, simpler and safer sampling methods might be used, such as hammering drive points and split-spoon samplers into the trenches.

Volume II, page 2-34, 7th para. Statement is made that test trenches are to be oriented perpendicular to the long axis of the waste trenches. However, figure 2-10 shows the orientation of the planned test trenches as about N10W, which is not perpendicular to the waste trenches. Is this figure just a schematic diagram? The orientation of the waste trenches is northwest to southeast, according to the statement made in Volume I, page 2-4, last paragraph. Orientation of the closed waste trenches can be interpreted from an aerial photograph of the Kings Bay submarine base, made about 1991 and affixed to a wall in the public works building at the base; that orientation is N60W. Moreover, an aerial photograph of the base, dated about 1977 and published in the U.S. Department of Agriculture Soil Survey of Camden and Glynn Counties (sheet number 84), shows an open trench at the landfill that is oriented N60W.

Volume II, page 2-38, 4th paragraph. An accuracy of 0.01 foot for the altitudes of well casings is probably a bit optimistic. Isn't a more realistic value about +- 0.04 foot?

Volume II, page 3-23, item 4. The constant given in the equation for volume is incorrect. The correct value is 5.88, not 5.09.

Volume II, page 3-30, 3rd para. It is very difficult to understand how an upper, low permeability zone could be breached --within a trench-- and thereby cause flow of upper contaminated water into lower uncontaminated water.

Volume III, page 3-3, table 1. What is the source of this table? Are the limits and values that are given for vinyl chloride (and other compounds) for air or water? The 5 ppm threshold limit given in this table is the same as that given in the "Handbook of Toxic and Hazardous Chemicals and Carcinogens" for vinyl chloride in air. Is the Draeger-tube air monitoring, alone, a sufficient safeguard against hazards to field personnel from vinyl chloride, or is direct contact with water containing vinyl chloride also a potential hazard? If direct contact with the water is a potential hazard, what concentrations of dissolved vinyl chloride would be considered hazardous?

Volume III, page 3-16, 2nd para. Why are thermoluminescent dosimetry badges to be worn? Is use of the badges part of the monitoring that will be done during trench excavation, as was described in the preceeding paragraphs, or are badges always to be worn as a matter of general precaution? The necessity of having laboratory analysis done to obtain radiation exposure information from thermoluminescent dosimetry (page 7-2 shows quarterly analysis of badges) would preclude use of this method for obtaining real-time exposure data. The equipment list in Volume 2, page 2-2 includes a radiation meter. Is this meter to be used for real-time monitoring during trench excavation, and if so, why was it omitted from the Health and Safety Plan? If the radiation meter is to be used during trench excavation, will a sensor be available for alpha detection, in addition to the normal beta-gamma sensor?