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LETTER WITH GEORGIA DEPARTMENT OF NATURAL RESOURCES COMMENTS ON  
INTERIM MEASURES PHASE 1 ACTIVITIES EVALUATION AND RECOMMENDATION NSB  
KINGS BAY GA  
6/14/1995  
GEORGIA DEPARTMENT OF NATURAL RESOURCES

## Georgia Department

205 Butler Street, S.

Environmental Protection Division  
Harold F. Roberts, Director  
404-656-2833

June 14, 1995

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Commanding Officer  
Naval Submarine Base, Kings Bay  
1063 USS Tennessee Avenue  
Kings Bay, Georgia 31546-2606

Re: Notice of Deficiency  
Corrective Action Document

Dear Sir:

We have reviewed *Interim Measure Phase I Activities: Evaluation and Recommendations Report, Site 11, Naval Submarine Base*, submitted by Subbase in accordance with the conditions of your Hazardous Waste Facility Permit, Number HW-014(S)(2). This letter transmits EPD's comments on the document. Comment numbers have been provided.

**SECTION 2.0 GROUNDWATER EXTRACTION SYSTEM****Section 2.1.3 Zone of Influence**

1. The first paragraph of this section states that the "cone of depression...and the extended radius of influence from Phase I GWE [groundwater extraction] system operations indicate that recovery wells at the four existing locations hydraulically control the areas of greatest groundwater contamination". This statement is unsupported. First, the water level elevations used to generate the map were not provided (see comment 6, below). In addition, the terms "zone of influence" and "capture zone" are not synonymous. It is possible to influence the potentiometric surface without reversing the direction of groundwater flow. Figure 2-10, the Stage III Potentiometric Surface Map, clearly shows two areas where the flow of contaminated groundwater from the landfill has not been directed towards the recovery wells. These areas are between RW-3 and RW-4, and north of RW-5.

**Section 2.1.4.1 Empirical Capture Zone**

2. The Potentiometric Surface Map presented in Figure 2-10 indicates that groundwater flow between RW-3 and RW-4 is not intercepted by the recovery wells. If flow lines were to be properly drawn from the vicinity of piezometer PS-4 they would be seen to follow a slightly arcuate path between wells RW-3 and RW-4 and through the vicinity of well KBA-11-16. This flow path crosses the plume between the two areas of highest contamination. An additional recovery well should be installed between RW-3 and RW-4. (NSB's own FLOWPATH model, presented in Figure 2-13, also indicates a flow path between RW-3 and RW-4 which is not intercepted by the recovery system.)

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3. Figure 2-10 also indicates that contaminated groundwater from the northern end of the landfill is not being intercepted. Although the northern part of the plume does show relatively lower levels of contaminants than those found along the remainder of the western boundary of the landfill, NSB is not relieved of the responsibility to conduct interim containment of this contaminated groundwater. An additional well or wells should be added to the system to address this problem.

4. Figure 2-11, which shows an interpretation of the capture zone (the "empirical capture zone"), and on which the discussion of the capture zone is based (Section 2.1.3) is incorrectly drawn. The figure shows flow lines which pass between RW-3 and RW-4 and then branch. Branching flow lines have no meaning and are not accepted methodology for constructing hydrogeologic maps. It should be kept in mind that the spaces between the flow lines, not the lines themselves, indicate the flow paths. Branching flow lines thus give the appearance that groundwater is "created" at the point of divergence; this is a physical impossibility. The map should be revised and reinterpreted, and Section 2.1.3 should be revised to reflect the actual capture zone.

5. The standard term for a map such as the one presented in Figure 2-8 is a drawdown map. The map should be retitled. The legend should also be revised to replace the words "cone of depression contour" with "line of equal drawdown, in feet".

6. Potentiometric contours are interpretations, and cannot be evaluated in the absence of data. The water level elevation data used to plot the Potentiometric Surface Map shown in Figure 2-9 and 2-10 should be presented on the map or in an accompanying table.

### Section 2.1.5 Capture Zone Versus Current Plume Evaluation

7. The conclusions presented in this section could not be evaluated in light of the errors in plotting the capture zone for the recovery system. This section should be revised as appropriate when the capture zone analysis is revised. In addition, all reference to the risk reduction standard derived from the Georgia Hazardous Site Response (HSRA) Rules should be removed from the document. NSB is a permitted RCRA facility and HSRA rules are not applicable. Finally, the discussion concerning VOC concentrations in well KBA-11-16 should be revised to reflect the fact this well lies on a flow path which is not intercepted by the recovery system.

### Section 2.2 Recommendations

8. Georgia EPD agrees that additional recovery wells are needed. Locations should now be proposed for approval, and installation of these wells should begin in advance of the final Corrective Measure. EPD does not concur that there are no potential threats to human health or the environment, or that the additional recovery wells are not necessary until the development of the final corrective measure. In addition, it is clear from reading the bimonthly reports on the interim measure that the recovery system is currently being operated for only five days a week. The effects of this pumping schedule

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on the capture zone are unknown. NSB should be aware that the primary goal of the interim measure is containment, and that continuous operation of the recovery system should begin immediately.

9. As NSB is aware, the provisions of the Georgia Hazardous Waste Management Act apply for corrective action at RCRA facilities. Conclusions regarding attainment of the risk reduction standard promulgated under the Georgia Hazardous Sites Response Act should be removed from the document, particularly in light of the uncertainties in the capture zone analysis as presented in this document.

10. The rationale for the selection of piezometers PS-1, PS-2, and PS-4 for abandonment (rather than retrofitting as for PS-3 and PS-5) should be provided.

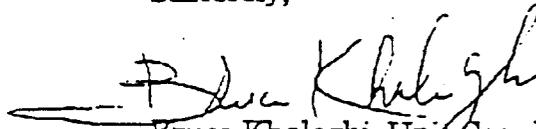
11. Although groundwater is being treated to within performance criteria, the performance criteria for air emissions are not being met. The vapor treatment system appears to be concentrating vinyl chloride and then releasing it at a higher concentration than is present in the influent.

The report maintains that the treatment standard is being met because the emissions do not exceed the Acceptable Ambient Concentrations (AAC) established under the Georgia Air Quality Act. However, the requirement to control air emissions of contaminants such as vinyl chloride is not based on the regulations governing air emissions. The Georgia Hazardous Waste Management Act prohibits releases of hazardous waste above background levels. The system should be reconfigured as needed to produce the required reduction in emissions.

12. Finally, the discussion of the rotating biological contactor (RBC) raises several questions. How was air stripping controlled for? How was the RBC maintained and verified closed to the atmosphere? Was any vapor monitoring conducted within the RBC, and, if so, what were the results?

Please make the required revisions to address these noted deficiencies and return within forty-five (45) days of receipt of this Notice of Deficiency. If you have questions, please contact Billy Hendricks at (404) 656-2833.

Sincerely,



Bruce Khaleghi, Unit Coordinator  
Hazardous Waste Management Branch

cc

Jeff Pallas, USEPA  
Capt. J. R. Allen, PE, DPW, Subsea

File: USN, NSR Kings Bay (R)

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