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LETTER AND CONCURRENCE FROM FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REGARDING REMEDIAL ACTION PLAN FOR ALPHA DELTA PIERS NS MAYPORT FL
3/4/1994
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Florida Department of
Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

March 4, 1994

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Bryan Kizer
Code 184 PDC
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
P.O. Box 10068
North Charleston, SC 29411-0068

Dear Mr. Kizer:

Department personnel have completed the technical review of the Remedial Action Plan, Alpha Delta Pievs, NS Mayport. I have enclosed a memorandum addressed to me from Mr. Bill Neimes. It documents our comments on the referenced report.

If I can be of any further assistance with this matter, please contact me at 904/488-0190.

Sincerely,

Eric S. Nuzie
Federal Facilities Coordinator

ESN/st

Enclosure

cc: Bill Neimes
David Clowes
Brian Cheary
John Mitchell
James Hudson
Jerry Young

Florida Department of
Environmental Protection

Memorandum

To: Eric Nuzie
Federal Facilities Coordinator

From: Bill Neimes
Engineering Support Section

Bureau of Waste Cleanup

Date: February 28, 1994

MAR 2 1994

Subject: Remedial Action Plan
NS Mayport
Alpha Delta Piers

Technical Review Section

I have reviewed the subject document prepared by ABB Environmental, Inc. and dated December 1993. The proposed remedial strategy is to utilize in-situ bioremediation to treat contamination in the saturated zone. I have included a few comments on this RAP.

1. Based on the justification on page 3-1, I agree with classifying this aquifer as a G-III. However, because the contaminated groundwater is adjacent to a bulkhead which supposedly separates this aquifer from the Turning Basin of the St. Johns River, the RAP should include any documentation which supports the argument that there will be no pathway between this aquifer and the adjacent river once the storm sewer is retrofitted. In discussions with David Clowes, he stated that the technical review section is considering using the surface water standards (and not G-III standards) for this site.

Also, Figure 2-5 of the CAR indicates that there is another storm sewer pipe located to the west of the contaminant plume that discharges into the Turning Basin. As noted on Page 2-10 of the CAR, a sheen is evident from both the storm sewer being retrofitted and this other storm sewer. What is being done to retrofit this other storm sewer?

2. I do not necessarily agree with the authors rationalization for using a factor of 20 in determining the basis for excessively contaminated soils. Although the Department does have different cleanup levels for G-II and G-III aquifers, I have never seen this apply for a determination of excessively contaminated soils. Especially with the remarks in the RAP stating that old diesel exists, a level of 1000 ppm on the OVA for determining excessively contaminated soils appears to be too high of a level. Additionally, after discussions with David Clowes, the technical review section does not accept this pretentious cleah soil standard.

3. Please include additional information on the use of magnesium peroxide as a oxygen donator. I would like to see either technical articles or empirical data from other sites which have used magnesium peroxide in a bioremediation process. How was it determined that the spacing of the dosing wells should be every five feet? Was this spacing determined by the best engineering judgment?

4. Please include more details of the drip tubing system for our review. Specifically, I am interested in the depth of tubing. It appears that the drip tubing will be installed directly below the asphalt and limerock road bed. From Figure 2-3 of the CAR, there are several underground utilities where this construction will be occurring. At what depth are these utility lines installed and will it be feasible to install a massive piping network as shown on Figure 4-1? If the drip tubing will be installed above the utility lines, will 100 ppm concentration of hydrogen peroxide expedite the oxidation and cause detrimental effects of the utility lines? The CAR noted that these lines are over 30 years old with no cathodic protection.

5. Please elaborate on how the author concluded that the thickness of the contaminated aquifer above the G-III levels of 100 ppm TRPH is 5 feet. On what basis did they make this conclusion? Please note that Table 5-2 of the CAR indicates relatively high OVA readings (2,000 ppm) for soil borings at MP-1406-23D, located 15-17 feet below land surface. With the author stating that only the top five feet of the aquifer will be affected by the bioremediation, I am concerned about not proposing any remediation for known contamination below this depth. Also, how was it determined that oxygen, applied as hydrogen peroxide in the unsaturated zone, will penetrate the water table and effect any contamination below the top of the water table? Is the penetration into the aquifer based only on molecular diffusion and mechanical dispersion or are there other forces (i.e., vertical gradient) which will moves the oxygen enriched water downward?

6. In the pilot study, what was the difference between type B and type F peroxide? Figures B-3 and B-4 indicates the rate of dissolved oxygen released is significantly lower after 10 days of testing. With the proposed schedule of thirty days between inspections (i.e., after the first month) what will assure us that there will be a significant dissolved oxygen release especially near the end of the monthly interval?

7. Although I agree with many of the imputs and assumptions used in the MODRET program to calculate the mounding of the aquifer from the injection of 30,000 gallons per day of hydrogen peroxide solution, there are a couple of comments that should be mentioned.

My first comment is the value used for the hydraulic conductivity. The hydraulic conductivity (K) value of 21 ft/day was based on the average of the higher and lower values calculated during a slug test. In reviewing the slug test data in the CAR, most of the K values calculated were between 11.5 ft/day and 19.8 ft/day with the average K value being around 15 ft/day. The were some K values out of this range, however, these values appear to be atypical. Therefore, although this is not critical to the design, I believe that, based on the slug test data, a more appropriate K value should be approximately 15 ft/day.

My other comment concerns the impermeable barrier (Alpha bulkhead). The author makes note of the fact that the Alpha bulkhead has not been included in the MODRET program and concludes by stating that this program is only to be used for a preliminary analysis. The concern I have is the location of the injection area in relation to Alpha bulkhead. Figure 4-1 shows the injection area directly adjacent to the original Alpha bulkhead. Because of the close proximity of the two features, the mounding due to the bulkhead will be twice (based on imaging) than that calculated in the MODRET program. This, added with a lower hydraulic conductivity value, may increase the mounding into the roads sub-base.

cc: David Clowes - BWC