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NAS WHITING FIELD
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LETTER REGARDING U S NAVY RESPONSES TO COMMENTS REGARDING HYDROGEOLOGIC ASSESSMENT AND GROUNDWATER MONITORING PLAN NAS WHITING FIELD FL
10/22/1984
NAS WHITING FIELD

18.01.00.0004

File 11 Whiting Field

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Code 18000/Ser 1380
22 OCT 1984

Department of Environmental Regulation
Attention: George E. Hoffman, Jr.
District Enforcement Officer
Northwest District
160 Governmental Center
Pensacola, FL 32501

Gentlemen:

The purpose of the Hydrogeologic Assessment and Ground-Water Monitoring Plan we submitted on 18 July 1984 is to determine if ground-water contamination resulted from our operations at the Battery Shop or eight other sites. Implementation of this plan will permit us to specifically answer the questions raised in your letter of 18 September 1984. We view more wells or more extensive measures to be premature in the absence of empirical proof of contamination.

The following are answers, provided by our consultants, to the questions raised in your 18 September 1984 letter.

1. Stratigraphy of soils at the battery shop and monitor well depth

A search was made of files at the Public Works offices for soil boring logs from the vicinity of the battery shop; however, none were found. Therefore, the site-specific stratigraphy of the sand and gravel aquifer is known only from the rather imprecise driller's log of supply well W-S2 (see Table A-6 of Appendix A, Geraghty & Miller, Inc., 1984). The first clay layer indicated in that log is at a depth of 146 feet; however, the "clay balls" logged at shallower depths probably represent thin clay stringers within the sand. The depth to the water table or to possible perched saturated zones will not be known until drilling is done for installation of the monitor well. At that time, close interval soil samples will be taken and the depth of the first permeable saturated zone will be determined and the monitor well will be screened therein as described on page 27 of the ground-water monitoring plan (Geraghty & Miller, Inc., 1984).

2. Ground-water flow direction and monitor-well location

The inferred direction of ground-water flow as shown in Figure 8 (Geraghty & Miller, Inc., 1984) is based only on the topography of the area and, as stated on page 24, it does not reflect the influence of cones of depression which occur around the Navy production wells. The battery shop dry well is only 120 feet from the south supply well (W-S2) and is undoubtedly within its cone of depression. Therefore, ground-water flow in the sand and gravel aquifer beneath the battery shop would be toward well W-S2. The proposed monitor well is located directly between the dry well and the south

supply well as shown in Figure 17 (Geraghty & Miller, Inc., 1984). Well W-31, as indicated in Table 4 and Figure 3, is abandoned and therefore causes no drawdown.

3. Number of monitor wells

Because the dry well is a very localized source, we see no need for more than one monitor well at this time. The proposed monitor well is positioned to monitor the first saturated zone directly downgradient from the source. If contaminants from the battery shop are found at this monitoring point, then additional monitor wells might be justified to determine the extent of the plume. It must also be noted that supply well W-32 serves as a monitoring point for the battery shop.

4. Water-Quality Analyses

It is proposed to analyze ground-water samples from the battery shop monitor well initially for the following parameters as indicated in Table 4 (GSM, 1984):

Arsenic	Turbidity
Barium	Chloride
Cadmium	Copper
Chromium (Hexavalent)	Foaming Agents
Fluoride	Hydrogen Sulfide
Lead	Iron
Mercury	Manganese
Nitrate (as N)	Sulfate
Selenium	TDS
Silver	Zinc
Endrin	Color
Lindane	Odor
Methoxychlor	pH (field)
Toxaphene	Specific Conductance (field)
2,4-D	VOC (Volatile Organics - Method 601)
2, 4, 5-TP Silvex	

We feel that this list of parameters contains any contaminants which might reasonably be expected to have been contained in the battery acid which was disposed of into the dry well. If new information is found to indicate otherwise, then additional analyses might be added for subsequent sampling.

The south supply well was sampled in March 1984 and analyzed for metals and none were detected above Primary Drinking-Water Standards. Metal ions are strongly adsorbed to soil particles, especially clay minerals. By this process, they are effectively immobilized and removed from the ground water. The clays in the sand and gravel aquifer are composed primarily of kaolinite, which has a cation exchange capacity of from 3 to 15 milliequivalents per 100

grams of clay. It is therefore likely that metal ions from the waste battery acid would be rapidly attenuated in the unsaturated sediments above the water table.

Sincerely,

C. L. LAVINDER, JR.
Captain, U.S. Navy

Blind copy to:
SOUTHNAVFACENGCOM