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03.01-05/10/94-00197
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5090
1822:JFH:srw

• Good to
• Does this "nail
the lid shut" on this issue?
RJB

MAY 10 1994

U.S. Environmental Protection Agency
Attn: Mr. Robert Stroud
Mail Code: 3HW61
Region III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Re: Results of Background Metals Sampling at Oceana

Dear Mr. Stroud:

One of the issues remaining after the first phase of the RFI at Oceana was whether metals concentrations in soils were a problem. Specifically, the concentrations of beryllium and arsenic at several sites were above Risk-Based Screening Concentrations (RBCs) published by EPA Region III. This was the focus of several comments by the Virginia Department of Environmental Quality (VDEQ). The VDEQ mentioned burning of fuel oil or coal as a possible source of the high beryllium. Our contention was that the metals concentrations were not the result of any station activities but were naturally above RBCs. Our proposal to resolve this issue was to sample soils for metals at two locations distant from any RCRA sites or other activities that could cause contamination to determine background concentrations of metals in soils. This was agreed to by the regulatory agencies in the October 1993 TRC meeting held at NAS Oceana.

The results of the background soil sampling are now available. The results are consistent with past results at the RFI sites, that is, the concentrations of beryllium and arsenic were above RBCs at one or both of the locations. The locations of the samples are shown in Figure 1 and the results are tabulated in Table 1. These are provided as enclosures. Both samples were collected near the main gate entrance off of Oceana Boulevard. Sample BG-SOIL1 was collected northwest of the large white announcement sign just west of the guard station at the edge of the woods at a depth of 2 to 3 feet from a silty clay zone. BG-SOIL2 was collected adjacent to the flag pole and blue-and-gold Oceana entrance sign just east of the guard station and the parking lot for the main gate pass office. It was collected from a clayey silt zone at a depth of 0.5 to 1 foot. Both samples were similar lithologically to the majority of the soils samples collected during the RFI and both were in areas of minimal human activity.

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The analytical data are compared in Table 1 to the average concentration in the eastern United States (Shacklette and Boerngen, 1984) and to proposed RCRA action levels (*Federal Register*, July 27, 1990), the same criteria used in the Phase I report. Beryllium, chromium, and lead were present above mean concentrations for the eastern United States. The concentration of arsenic was 0.62 ppm in BG-SOIL1 and 2.1 ppm in BG-SOIL2. The RBCs listed (EPA, first quarter 1994) for residential and industrial soils were respectively, 0.37 ppm and 1.6 ppm for arsenic (as a carcinogen), 0.15 ppm and 0.67 ppm for beryllium, 78,000 ppm and 1,000,000 ppm for trivalent chromium and 390 ppm and 5100 ppm for hexavalent chromium. There is no RBC for lead.

It is apparent from the comparison of RBCs to the data that only beryllium and arsenic are above RBCs in the background soils. This was also true in the soil sampling during the RFI Phase I. Appendix A of the report shows that maximum concentrations in soils ranged from 1.2 ppm to 22 ppm for arsenic and 0.24 ppm to 1.2 ppm for beryllium. The high concentration in both cases were from sites that have been removed from the RFI after consideration of overall concentrations, pathways, and site history. The concentrations at sites that are still active are 2.2 ppm to 3.5 ppm for arsenic and 0.29 ppm to 0.63 ppm for beryllium.

Because the background soils were collected from clean background areas, are consistent with past concentrations, yet are above RBCs, we conclude that soils at Oceana are naturally above RBCs and, therefore, arsenic and beryllium concentrations above RBCs during the Phase I RFI do not indicate site contamination with respect to metals.

Sincerely,



FOR N. M. JOHNSON, P.E.
Head
Installation Restoration Section
(North)
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Enclosures

Copy to: (w/encls)
NAS Oceana (Mr. W. Bullard)
VDEQ (Ms. E. Dameron)