



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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August 15, 2002

Mr. Orlando Monaco  
Department of Navy  
Engineering Field Activity-Northeast  
Code 1823/OM  
10 Industrial Highway, Mailstop 82  
Lester, PA 19113-2090

Re: Site 7, Manganese

Dear Mr. Monaco:

Thank you for the response to comments for the Maine Department of Environmental Protection's letter of July 23, 2002 for the Site 7 Record of Decision. We have carefully studied your response regarding the elevated manganese at Site 7, however we cannot agree that it is consistent with background. The proposed association between wells screened into clay and elevated manganese has too many exceptions in the chemical data base to be an acceptable explanation. The following paragraphs provide points of disagreement regarding the Navy's rationale.

**Bullet 1:**

The geologic log of MW-NASB-228 taken from the Navy's Well Book CD (September 1999) indicates that the screen was set from 2.5 to 6.5 feet bgs and the top of clay is 7 feet bgs. Therefore, the manganese cannot definitively be attributed to the clay.

Furthermore, the manganese value of 1000 mg/L in clay at Site 7 well MW-705 (now MW-NASB-095), obtained during the 1997 background study, had the highest manganese concentration of silt/clay samples collected on base. This study found an average manganese concentration of 664 mg/L in clay. This well is located approximately 70 feet from the RI mapped location of the old acid/caustic pit within Site 7. Well MW-703 (now MW-NASB-093), located about the same distance from the pit but 120 degrees different in direction, was included in the shallow groundwater background sampling in 1997 study. This well is screened relatively deep (6 to 16 ft bgs) and the top of the clay is indicated as 17 ft bgs on its well boring log. Manganese was not detected in the sample (less than 9 µg/L). The linkage between manganese in subsurface clay and shallow groundwater is not as obvious as the Navy suggests. The possibility exists that waste disposal may have elevated manganese levels within the top of the shallow clay in some locations and not others at Site 7.

**Bullet 2:**

It should also be noted that MW-801 has a history of high turbidity, as its screen protrudes into the clay. MEDEP has previously stated that for this reason, MW-801 is not a legitimate background well for inorganics. The Navy cites another well (MW-804) as having high manganese concentrations (up to 1370 µg/L). Well construction data also indicates that the MW-804 screen protrudes into the clay. MW-808, which is screened 2 feet above the clay, was

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sampled for four rounds during the RI, with the highest manganese concentration being 114  $\mu\text{g/L}$ .

**Bullet 3:**

MEDEP believes the Navy means MW-NASB 92 (formerly MW-702), not MW-NASB-094. The screen in MW-NASB-92 has its bottom within about 1 foot of what the geologic log calls weathered rock. Silt and clay are present as minor constituents within a fine sand, according to the log. Therefore, the geology is different at this location near the topographic high on site. The reason for moderately elevated manganese values (in the 500  $\mu\text{g/L}$  range) is not apparent. No recent year inorganic samples have been taken at this location. The RI method of water collection might be a factor.

**Additional Discrepancy:**

In March 1999, a groundwater sample removed from MW-NASB-094 (formerly MW-704), collected by the low-flow method, found a manganese concentration of 37.2  $\mu\text{g/L}$ . This well is screened 0.5 foot into the clay. In March 1999, a groundwater sample from MW-NASB-228 had a manganese concentration of 280  $\mu\text{g/L}$ . While difficult-to-read, the well log on the well book CD appears to indicate it is screened from 2.5 to 6.5 feet bgs. The top of clay looks to be at 7 feet bgs. Therefore, the bottom of the screen is 0.5 feet above clay. If the clay were contributing manganese to the sampled groundwater, the well with the lowest concentration (MW-NASB-094) would be expected to be screened above the clay, and not partially within the clay as the log indicates.

Without better correlation between the manganese at Site 7 and naturally occurring (background) manganese, MEDEP cannot discount it as a site contaminant. Like the cadmium, the manganese may have been mobilized by the disposal of acid at the site. Therefore, manganese must be included in the Record of Decision as a contaminant of concern and be included in the long term monitoring plan.

MEDEP encourages the Navy to proceed with the evaluation of neutralization and phyto-remediation, which may eliminate these metals and lead to the ultimate close out of this site.

If you have any questions or comments please call me at (207) 287-7713.

Respectfully,



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