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NSB NEW LONDON
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United States Department of the Interior

FISH AND WILDLIFE SERVICE

400 RALPH PILL MARKETPLACE
22 BRIDGE STREET
CONCORD, NEW HAMPSHIRE 03301-4901

December 6, 1991

Mr. Paul Marchessault
U.S. Environmental Protection Agency
John F. Kennedy Federal Building
Boston, Massachusetts 02203-2211

Dear Paul:

I have reviewed the draft Installation Restoration Study for the Naval Submarine Base in New London (NSB-NLON), Connecticut, and provide the following technical assistance comments. Please accept my apologies for not meeting your response deadline. The NSB-NLON study considered or recognized most of the ecological issues at the site. I have listed only a few concerns or comments. I hope these comments, although late, may still be useful in the investigation.

General

Several of the "To Be Considered" (TBC) values and background concentrations used for the NSB-NLON investigation appear high. The soil or sediment TBC values for PCB (10 ppm), DDT (500 ppb) and the background concentrations for several inorganics exceed the 10th percentile effect range (ER-L) concentrations presented by Long and Morgan (1990). The effect ranges, ER-L for 10th percentile and ER-M for 50th percentile, suggest the potential for adverse biological effects. Though the effect ranges have varying degrees of confidence for different contaminants, and were developed primarily for marine sediments, the concentrations provide some guidelines for assessing freshwater sediments.

Many of the inorganic contaminant concentrations detected at the site may fall within the 95% background range of variation developed from Shacklette and Boerngen (1984), but it should be made clear that some of these levels may be potentially hazardous to biota. My concern is that soil or sediment samples with concentrations at or slightly above these upper-range background levels would be considered "safe." It may be prudent to collect soil samples in undisturbed areas of the site or in the general area to determine if the values derived from the US Geological Survey paper are similar to site-specific background levels.

Rubble Fill Site Near Bunker A-86

At the site, an elevated concentration of arsenic (127 ppm) was detected in surface soil sample 4SS3C. I could not locate this sampling station on Figure 4-2 (pg. 4-22); only 4SS1 and 4SS2 are marked. This concentration suggests a need for additional soil sampling to fully delineate the area requiring remediation.

Torpedo Shop

There is a small drainage ditch along the west side of Bldg 450, the Torpedo Shop. A small pipe under the building's asphalt apron connects the ditch to the catch basin that empties down to SW/SD-1. A soil/sediment sample should be considered for the small ditch beside the building. During the site visit, the cover for this ditch's catch basin appeared to be stained with paint residue. It should also be noted for this site that since the swale at SW/SD 1 has been recently disturbed by land-moving activities, new sampling at this station may reveal lower contaminant levels.

Although there is considerable human activity at the Torpedo Shop and much of the area is built-up land, exposure to ecological receptors remains a possibility. The small grassy bank between Bldgs. 450 and 325, the drainage swale, and the nearby leach field/lagoon are areas likely to be utilized by several species of birds along with species of amphibians and reptiles.

Goss Cove Landfill

The field investigation for the Goss Cove Landfill did not include sediment sampling in the adjacent Thames River. Elevated levels of several inorganics were detected in soils at the site and sampling of nearby river sediments appears appropriate. During landfill operations, site contaminants may have entered the river through runoff or erosion. On the site visit, the oil containment booms below the large outfalls at the USS Nautilus, beside the former landfill, were noteworthy. The sewer drainage of the tank farm may not be part of the CERCLA investigation, but has there been any sampling in the sediments below the outfalls to determine SVOC levels or the impacts of oil discharges to benthic organisms? If small discharges occur on a regular basis, this area should be investigated.

Area A Wetland

It appears in Figure 4-16 (pg. 4-66) that SW-1 exists in a drainage between the Perimeter Security Road and Route 12. Plate 4-1 does not show the Perimeter Road, so the station may be within the wetland boundaries. Is SW-1 the upgradient location? What was the rationale for not collecting sediments at this location? If SW-1 exists in an upgradient drainage, a description of the drainage within the NSB-NLON boundaries and east of Route 12 would be useful. We did not visit this station during the site visit. It would be useful to know if this drainage contains the same heavy iron floc or orange precipitate found downstream of the Area A wetland and in the adjacent OBDA drainage. A comparison with upgradient sites may indicate that the wetland or Area A landfill are the sources of the floc.

In previous sediment sampling, DDT was detected in the range of 17 ppm within and upgradient from the Area A wetland. These levels are potentially harmful to fish and wildlife. Cadmium, chromium, copper, lead, mercury, and zinc were also detected above the ER-L concentration. A more comprehensive sampling plan, particularly to determine the extent of DDT contamination, appears warranted to identify portions of the wetland and Area A for remediation.

A more intensive effort should be made to identify the fish species in the open water areas of the wetland. The habitat of the area and the reported sighting of otter further down the drainage suggest that semi-aquatic species may be exposed to site contaminants. Due to the presence of piscivorous birds and mammals in the area, this potential exposure route should be investigated more thoroughly.

Catbird fledglings were used to quantify exposure in the terrestrial food web near the Area A wetland and downstream watercourses. I have not obtained the paper by Menzie et al (1991), but I would echo the comment by the oversight contractor that the habitats and prey items at the NSB-NLON and the Manomet Bird Observatory may not be similar. I have requested a copy of the paper from Atlantic; perhaps Menzie describes the differences in the two sites in his paper. I do not view this issue as a problem, only as a point requiring clarification.

Downstream Watercourses and OBDA

In the drainage between the upper pond and the Area A wetland, SW/SD samples were not collected. This drainage contains the same iron floc or orange precipitate described above. SW/SD samples should be collected from this drainage, and an assessment of the fisheries or benthic fauna, if any, in the drainage should be provided. If a depauperate macroinvertebrate community is found, toxicity testing may be the next step for these drainages. Even if laboratory bioassays indicate that the waters or sediment are not toxic to the test organisms, the impact of the floc or precipitate on the quality of the habitat for fish and macroinvertebrates in the stream should be discussed. During our visits, the depth of the floc layer on the bottom substrate and on the rocks and woody debris in the streams was striking.

Fish species in the two small ponds below Area A should be identified for the exposure assessment. The report states that fish were not observed in these ponds, but it is unclear if any fish collection was attempted. The upper pond appears more suitable for fish than the lower pond. If fish are not present in the lower pond, I would expect a variety of amphibians to utilize the area. During the site visit, this pond looked like a good mole salamander breeding pool.

DRMO

As discussed during the October 8 site visit, the Thames River sediments directly adjacent to DRMO should be sampled due to the likelihood of transformer oil and other contaminants entering the river through erosion, surface water runoff and periodic flooding. Station SW/SD-12 may not detect PCBs from the DRMO and higher concentrations may be found in sediments closer to the site.

Miscellaneous

Since it is likely the wetlands at the site will require remediation, a wetlands delineation along with a function and value analysis should be conducted.

Once again, my apologies for the delayed response. If you have any questions regarding these comments, please do not hesitate to call me at (401) 364-9124.

Sincerely,

Steve

Steven E. Mierzykowski
Fish & Wildlife Biologist

cc: K. Carr

Literature Cited

Long ER and LG Morgan. 1990. The potential for biological effects of sediment-sorbed contaminants testing in the National Status and Trends Program. NOAA Technical Memorandum NOS OMA 52. Seattle, WA.

Menzie CA, Burmaster DE, Freshman JS and CA Callahan. 1991. Environmental Science and Technology. in press.

Shacklette HT and JG Boerngen. 1984. Element concentrations in soils and other surficial materials of the conterminous United States. USGS Professional Paper 1270. Washington, DC.