



STATE OF MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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February 1, 2000

Mr. Fred Evans  
Department of the Navy  
Northern Division  
Naval Facilities Engineering Command  
10 Industrial Highway, Mailstop 82  
Lester, PA 19113-2090

re: Draft Seep/Sediment Summary Report for Data Collected Between December 1996  
and November 1997 for Portsmouth Naval Shipyard, Kittery, Maine, December 1999

Dear Fred:

The Maine Department of Environmental Protection has reviewed the document  
referenced above. The Department's comments follow.

**General Comments**

1. Throughout the report Sullivan Point is disassociated with known IRP sites, but it is acknowledged that OU3 is "located nearby". Elevated pesticides were found at Sullivan Point seep SP-1001, and this finding is used repetitively as an example of disassociating offshore contamination with onshore IRP sources. Reality is that the tip of the OU3 fill materials dredged from Berths 6, 11, and 13 in 1978 is within 300 feet of this seep. The dredge material rests on native clay, native till, and bedrock, according to Figure 1-5 of the Draft FS. It is not usual that till and bedrock have vertical fracturing. The composition and integrity of the native clay is largely unknown and may provide groundwater escape pathways in the direction of the Sullivan Point low-tide beach. The Department's Comment 35 on the Draft Feasibility Report for OU3 reads as follows:

*"At the JILF, Figure 2-5 shows interpreted groundwater flow potential within a cross section that parallels the shoreline. Contouring and arrows that point toward the MW-12 cluster from the northeast and southwest imply a discharge zone in this location. Gradients are substantial, and therefore a near-shore manifestation of this discharge should be detectable. The text does not address this potential."*

While data are not adequate to show that a groundwater pathway exists between the JILF and SP-1001, a potential appears to exist, as we interpret the hydrogeology. Unless sound arguments can be advanced, the Department believes it is premature to discount any connection between onshore sources and SP-1001, and recommends that statements to this effect be removed from this report.

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## Specific Comments

### 2. 1.2.2 Previous Seep Sampling, p. 1-3

a) "Seeps are defined as locations where water drains from Seavey Island into the river."

This definition is inappropriate as it would include all surface water discharge. To support the purposes of this investigation, please substitute "groundwater" for "water".

b) Please provide dates (at least month and year) for all previous seep and sediment sampling.

### 3. 1.2.2 Previous Seep Sampling, p. 1-3, 1<sup>st</sup> para, last sentence

"No known IRP sites are located onshore adjacent to Sullivan Point; however, OU3 is located nearby."

Please see General Comment 1.

### 4. Sampling Stations, Figure 1-6

This map and legend shows two "1998 Eelgrass Areas". One is located next to seep SP-1001. The purpose of showing these areas on this figure is not addressed in the report.

### 5. 2.2.1 Seep Sampling, p. 2-2, 1<sup>st</sup> para

It is stated that the seep sampling procedure involved removing the end caps of the horizontal drive points approximately one hour before sampling to flush out any sediment or biological precipitant. Why were the drive points capped at all? Natural seepage likely occurs continuously from the banks. Explain why the Navy believes that a representative seep sample could be obtained after shutting off the seepage, except for occasional one hour periods of sampling?

### 6. 3.1.1 Seep, p. 3-4

"These two seep locations are located offshore of the JILF and Topeka Pier..."

Technically the seeps are on the island, not offshore of the island. Please reword this statement.

### 7. 3.1.2 Sediment, p. 3-5

"...with higher concentrations in SP-1001 and SP-1003 than SP-1002."

Please change this and similar phrases to, "...with concentrations in SP-1001 and Sp-1003 higher than SP-1002."

8. 3.2.1 Seep, p. 3-9

“A dilution factor of approximately 230 has been estimated for Back Channel/Jamaica Cove and a dilution factor of 100 has been estimated for Clark Cove.”

This statement refers to the January 1999 Revised OU3 Risk Assessment which in turn refers to both the Draft Phase I Contaminant Fate and Transport Report and Phase II Contaminant Fate and Transport Report. Therefore, it is difficult to determine exactly how the dilution factors were derived.

As State of Maine 06-096 Chapter 530.5 D(b) states,

- b. For estuarine and marine discharges, dilution factors (DF) are calculated as follows.
  - i. For discharges to the ocean, dilution must be calculated as near-field or initial dilution, or that dilution available as the effluent plume rises from the point of discharge to its trapping level, at mean low water level and slack tide for the acute exposure analysis, and at mean tide for the chronic exposure analysis using appropriate models determined by the Department such as MERGE or CORMIX. Where far-field impacts on sensitive resources such as swimming beaches or clam flats are a concern, other appropriate methods estimating far-field dilution must be used.
  - ii. For discharges to estuaries, dilution must be calculated using a method determined by the Department to be appropriate for the site conditions. Where freshwater river flow is dominant and instantaneous mixing across the width can be assumed, dilution must be calculated as in subsection E [Note: this should be subsection D] (3)(a). Where tidal flow is dominant or incomplete mixing is assumed, dilution must be calculated as in subsection E [Note: this should be subsection D] (3)(b)(i). Where appropriate, other methods such as dye studies or water quality methods may be used.

In order that the Department may review the Navy's methodology, please provide us with a detailed description of how the dilution factors were derived. This may be attached to the Response to these comments or provided separately.

9. 3.2.2 Sediment, p. 3-9, last sentence

“Among the chemicals that had criteria, chemicals that consistently exceeded criteria in one or more location (i.e., in three of four rounds at the same location) include...”

Should the first “location” be “round”?

10. 3.2.2 Sediment, p. 3-11, top para

“Pesticide exceedances of ER-Ls were consistent throughout the sampling locations, including the locations that are not offshore of a known IRP site.”

The Department reminds the Navy that other types of PNS sites besides IRP sites may have contributed to the widespread distribution of pesticides that the shore/beach sediment samples reveal. The above statement has little significance at this time, particularly if used as supporting evidence of the ubiquity of pesticides in the PNS environment.

The discussion at the top of page 4-18 should be revisited, also.

11. 3.3 Comparison of Sediment Data to Regional Sediment Concentrations, p. 3-12

“No data available for RF-4 because this station was not sampled during the EERA.”

Station RF-4 was sampled in September 1999. Therefore if validated data are available prior to issuing the Final version of this document they should be incorporated.

12. 4.1 Objectives and Scope of Evaluations, p. 4-1, 3<sup>rd</sup> sentence

“Although the data were not collected for these purposes, the data evaluations were designed to derive as much interpretive information as possible from existing data.”

Several aspects of this less than ideal situation may cast considerable doubt on the interpretative relationships included in this report. For example, because paired seep/sediment stations may include a separation between the collection points described as “within approximately 10 meters” of each sample type, actual dependency of chemical concentrations of one on the other might be expected to be unlikely or perhaps impossible, depending on the physical settings (which are not diagrammed in the report). Therefore, readers must remember that a more goal-oriented study might results data relationships different than those gleaned from this effort. It would be prudent to not use the term “collocated” when referring to pairs of seep/sediment samples.

13. 4.2.3 Co-Occurrence of Chemicals, Results, p. 4-10

“It is noted the enrichment does not necessarily equate to elevated concentrations; they may just have unique concentrations in relation to other parameters.”

The meaning of this statement is not clear. Please explain what the term “unique” involves in this case.

14. 4.2.4 Potential Pathways of Contaminant Migration, p. 4-10, 1<sup>st</sup> sentence

A third potential pathway of contamination migration from onshore to offshore should be added. The Department believes it is certainly possible and perhaps likely that groundwater containing contaminants is traveling in shallow fractured bedrock at PNS and eventually upwells within the adjacent Back Channel or Piscataqua River.

15. 4.2.4 Potential Pathways of Contaminant Migration, p. 4-11, 2<sup>nd</sup> para

"The results are expected to indicate whether an onshore source at OU3 could have potentially be linked to elevated concentrations in offshore sediment/biota."

Please change "are to "were", and delete "have".

16. Comparison of Seep Data with Groundwater Data, within 4.2.4, p. 4-12

This subsection needs a table similar to that provided in the text for Topeka Pier Area (following subsection). In the Topeka table, it is easy to see if seep and well concentrations exceed background levels, and by how much.

The fact that concentrations of a given contaminant in seep water is as much as one order of magnitude higher than well water does not necessarily rule out an interrelationship. Wells may not be placed within the a contaminants hotspot, or else a particular well may not actually be along the same flowpath as a particular seep. Also, the time-of-travel factor between well and seep may cause significant differences if upgradient concentrations vary appreciably over time. The occurrence of elevated concentrations above background in both well and seep located in the same general flowpath would suggest a correlation to DEP.

17. 4.2.5 Comparison of Sediment/Mussel Data, p. 4-18

"In addition, the location with elevated pesticide concentrations in Sullivan Point (SP-1001) is the furthest Sullivan Point location from the JILF (the nearest IRP to Sullivan Point). These results suggest a potentially more ubiquitous source of pesticides in the offshore."

The Navy's data from reference locations, as reported in Section 3, indicates that DDD exceeded both its ER-L and ER-M at the Shipyard but did not exceed the ER-L at reference locations. Similarly, DDT exceeded the ER-M at the Shipyard but not at reference locations. This indicates that DDD and DDT concentrations at the Shipyard are not representative of background, or reference, conditions but are rather more unique to the Shipyard. These results, as well as the Navy's statement above, suggest that perhaps there is an unknown source at the PNSY. For instance, the area around Building 193, the former prison, has yet to be investigated.

18. 4.3 Seasonal Variations of Data, Results, p. 4-18/4-19

The Department suggests that four sampling rounds during an 11-month period is not adequate to statistically test for a pattern in seasonal variation. Either some sort of qualifier needs to be added, or the topic deleted from the report.

19. 5.5 Indications of Potential Origins of Seep/Sediment Chemicals, p. 5-7, 3<sup>rd</sup> para

The suggested link between seeps and nearby sediments at the Topeka Pier Area has considerable support by this data analysis. The Department believes that a definite relationship exists, and that the statement needs to be stronger.

20. 5.6 Status of Pesticides as COCs, p. 5-8

a) "Furthermore, contaminant fate and transport modeling results do not suggest a significant current or future onshore to offshore impact for pesticides."

Please explain this statement. Table 5-21 from the Phase II Fate and Transport Report indicate the model predicts a sediment DDT concentration of 0.348 mg/kg at Jamaica Cove. This is almost 50 times higher than the ER-M of 0.007 mg/kg. In addition, the model predicts a sediment DDT concentration of 0.0028 mg/kg at OU2, which is below the ER-M but above the ER-L of 0.001 mg/kg.

Furthermore, the model did not look at Sullivan Point, the area with the highest concentration of DDT in the sediment and seeps.

b) "...and review of soil and groundwater data does not indicate the use of pesticides other than their intended use and does not indicate levels of pesticides significantly above those at non-IRP site related areas within and immediately outside the shipyard."

Please explain how soil and groundwater data can be used to indicate compatibility with "intended use". What data are being referenced that are immediately outside the shipyard? Where in this report are they presented and discussed?

Furthermore, 38 MRSA § 1362 (3), states, "Uncontrolled hazardous substance site" or "uncontrolled site" means an area or location, whether or not licensed, at which hazardous substances are or were handled or otherwise came to be located, if it is concluded by the commissioner that the site poses a threat or hazard to the health, safety or welfare of any person or to the natural environment and that action under this chapter is necessary to abate, clean up or mitigate that threat or hazard."

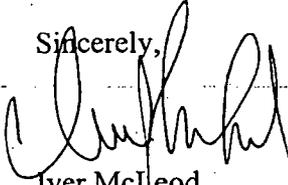
The State of Maine does not consider whether or not a hazardous substance was legally applied, but rather whether or not it has come to be located at a site.

21. Appendix B

Please provide electronic copies of these tables to the Department in Microsoft Excel or Microsoft Access format. Note that the Department has difficulty reading Foxpro files.

Please feel free to contact me at (207) 287-8010 if you have any questions.

Sincerely,



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