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LETTER AND COMMENTS FROM U S EPA REGION 3 REGARDING SITE SCREENING  
AREAS FOR SITES 1, 6, 7 AND 15 NWS YORKTOWN VA  
9/22/1995  
U S EPA REGION 3



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Date: September 22, 1995

Ms. Brenda Norton, PE  
Atlantic Division, Naval Facilities Engineering Command  
Environmental Quality Division  
Code: 1822  
Building N 26, Room 54  
1510 Gilbert Street  
Norfolk, Va 23511-2699

Re: Naval Weapons Station, Yorktown, Va.  
Site-Screening Areas 1, 6, 7, and 15  
Review of draft *Site-Screening Progress Report*

Dear Ms. Norton:

The U.S. Environmental Protection Agency (EPA) has reviewed the Navy's draft *Site-Screening Progress Report* for the investigation of Site-Screening Areas 1, 6, 7, and 15 located at the Naval Weapons Station-Yorktown (WPNSTA) NPL facility. Based upon that review, EPA has the following comments to offer on the draft *Report*:

**General Comments**

- 1) In accordance with Section 9.3(c)(1) of the Federal Facilities Agreement (FFA) for the Naval Weapons Station-Yorktown (pages 17 & 18), Site Screening Process (SSP) Reports shall either (1) recommend a RI/FS for the SSA or (2) provide a basis that the SSA does not pose a threat or potential hazard to the environment, and be removed from further study. The draft SSP *Report* has investigated four SSAs and found contamination posing risk to the environment, yet the recommendations made in the draft SSP *Report* do not follow the requirements of the FFA. The draft SSP *Report* also fails to adhere to the criteria listed in the final *Site-Screening Process Guideline* workplan. Additionally, where risk to public health or the environment is found, the report should recommend the data gaps which would complete a RI/FS.
- 2) The SSA report indicates on page ES-7 that "a plume of 1,1-dichloroethane or trichloroethene is not evident in SSA 15 groundwater," and therefore no further action is recommended. This conclusion overlooks the presence of 1,1,1-trichloroethane in every groundwater sample (figure 5-34) indicating there is a plume of chlorinated VOCs at SSA 15.
- 3) EPA has reviewed the Human Health and Ecological Risk Screening for Site Screening Areas (SSA) 1, 6, 7 and 15, NWS Yorktown. In general, the Risk Screening was conducted in accordance with accepted risk assessment guidance. The COPC selection for human health and ecological risk is consistent with the site screening process guidelines, however some specific comments to risk screening process is provided below.
  - a. When using subsurface soil data to determine the risk to future construction workers, both surface and subsurface soil data should be used. Both surface and subsurface soil data should

be used because construction workers will also be exposed to the top six inches of soil during construction.

- b. Risks from exposure to surface water and sediment should be calculated for future residents.
- 4) Is there any sampling of the pipeline that runs from Building 373 to the UST? Is there any sampling of the soil around the pipeline??
  - 5) The groundwater plume around the UST at Building 373 needs to be defined. Based upon the SSP, SSA 7 is recommended for an RI/FS. Additional sediment and surface water samples are recommended for areas where groundwater discharges to surface water.
  - 6) The source of the high volatile concentration seen in surface water ASW1502 must be investigated, i.e. RI/FS. Given that this area borders the Naval Weapons Station, the importance of investigating this site is even more critical. It is unclear whether this contamination is due to present discharge from the sewage plant or discharge from an undetected ground water plume. Presently, there are no ground water monitoring points between the sewage treatment plant and the southern drainage area. The RI/FS for this area should focus on defining the nature and extent of the groundwater plume, which may or may not be related to SSA 15 specifically, and the sediments at SSA 15.
  - 7) The RBC based on carcinogenic effects for PCB mixtures should also be used to assess risk from Aroclor 1254 and all other Aroclors with RfDs. Simply assessing the non-cancer risk for Aroclors with RfDs may underestimate the risk.
  - 8) An RI/FS for SSA 6 is recommended based upon the criteria listed in the final *Site Screening Process Guidelines* workplan.
  - 9) An RI/FS for SSA 1 is recommended based upon the criteria listed in the final *Site Screening Process Guidelines* workplan.
  - 10) The 95 % UCL should be used for all sample data. In cases where the data set is small, the maximum concentration can be used in lieu of the 95 % UCL if the 95 % UCL is greater than the maximum concentration. The text should state clearly the assumptions made to determine whether the data sets were normal or lognormal.
  - 11) Please discuss the methodology (statistical analyses) used to determine how contaminant levels on-site compare with background levels.
  - 12) In cases where the RBC is driven by the cancer risk, but there is a corresponding non-cancer risk for a COC, i.e. dieldrin, beryllium, 2,4,6-TNT, it is recommended that this risk be assessed qualitatively by adding an appropriate statement in the text and in the tables.
  - 13) The RfD for manganese in water is presently being reviewed. A new RfD (approximately a factor of three higher) will be recommended shortly in IRIS. Please make a note of this change. Also, the RfD for manganese in food should be used to assess risk from exposure to soil. The RBC for soil ingestion should be based on the RfD for food, not water.
  - 14) It is of concern to BTAG that quantitation limits may be too high, with the result that determinations regarding contaminants of ecological concern may not be precise. In such cases, EPA recommends using either 1/2 the detection level or the criteria level for that medium as the benchmark.
  - 15) SSA 1 - Two sediment samples had elevated concentrations of total DDT exceeding the ERL (Long and MacDonald 1992) for DDT, while one sediment sample had a mercury concentration exceeding its ERL. The concentrations of chromium, iron, lead, and mercury in groundwater exceeded ten times

their respective chronic AWQC, while these same trace elements as well as zinc were found to exceed their chronic AWQC in surface water.

- 16) SSA 6 - PAHs, pesticides, PCBs, and trace elements are the primary contaminants of concern detected in soils of SSA 6. No sediment samples were collected at SSA 6. The concentrations of chromium and iron in groundwater exceeded ten times their respective chronic AWQC. Any risk assessment of elevated contaminants in groundwater should take into consideration such constraints as attenuation, dilution, aquifer class, etc.
- 17) SSA 7 - PAHs, pesticides, PCBs, and trace elements are the primary contaminants of concern detected in soils and sediments of SSA 7. Nine sediment samples were collected from four locations in Felgates Creek. Only arsenic was detected at a concentration exceeding its ERL concentration. The concentrations of chromium, iron, and lead in groundwater exceeded ten times their respective chronic AWQC. No chemicals were reported in surface water at concentrations above their respective chronic AWQC.
- 18) SSA 15 - Pesticides and trace elements are the primary contaminants of concern detected in soils of SSA 15. Five sediment samples were collected from Ballard Creek. Sediment samples had elevated concentrations of DDT and mercury exceeding their respective ERL concentrations. The concentrations of chromium and iron in groundwater exceeded ten times their respective chronic AWQC. There were no exceedances of criteria in surface water.
- 19) The limited data presented in the draft SSP Report indicates that some degree of risk exists to aquatic biota using the tributary to Felgates Creek as well as to Ballard Creek. Of major concern is the presence of pesticides detected in sediments of an unnamed creek at SSA 1 and in sediments of Ballard Creek at SSA 15. Surface water samples from the unnamed creek at SSA 1 also show elevated concentrations of chromium, copper, iron, lead, mercury, and zinc.
- 20) Only limited sampling was conducted as part of the SSP, so the extent of contamination in these surface water bodies and in the York River due to site-related activities is not clearly defined. In several instances, the BTAG questions the decision to truncate work at this time. For example, we agree with the conclusion on p 7-2 that additional soils investigations are needed at SSA 1 to characterize the nature and extent of PAH contamination in surface soils. But it is unclear why they conclude on 7-2 that a formal RI/FS is unnecessary at this time. What is the basis for this decision and when will additional information be available related to this decision. Further investigations are also needed to characterize nature and extent of PAH contamination in sediments.
- 21) Additional soil sampling is needed in the vicinity of Test Pits 2 & 3 to characterize the nature and extent of PCB and cadmium contamination. This area is associated with SSA 6 (see p 7-3).
- 22) The ecological risk assessment included in the draft SSP Report can best be described as a screening level risk assessment. Very limited information was presented describing terrestrial and aquatic habitats at the four SSA sites. Hazard quotients reported for DDT and mercury in sediments from a number of the SSA sites were greater than one, indicating that there is the potential for risk to aquatic biota using these areas. To insure that environmental receptors, are protected, an RI/FS is necessary to better define the extent of risk to resources using these areas.

#### Specific Comments

- 1) Figures 5-1 through 5-39

The figures should be modified to only depict the location and concentration of the COCs identified for each media at each of the SSAs. The depiction of all of the positive detections for each media at each site is overburdensome for utilization on figures. The depiction of only the COCs with

corresponding concentration values, however, enables one to determine if "hot spots" exist at a site.

2) Page 6-5, Section 6.1.1, 2nd paragraph

Please reference the March 1994 screening values as being part of "USEPA, 1993b".

3) Page 6-5, Section 6.1.1, 2nd paragraph

In the last sentence of the paragraph, change "quarterly" to "semi-annually".

4) Page 6-8. Section 6.1.1 COPC Selection Criteria, Blanks

The GC blank should be used to assess common laboratory contaminants in soil samples, not the head space analysis of the trip blank.

5) Page 6-9. Section 6.1.2 Selection of COPCs

The report indicates that surface water COPCs identified for the SSAs may be used to determine potential human health risks associated with **only** (?) those constituents that would be expected (?) to bioaccumulate in fish tissue. Please note that the Weston Round I RI attempted to use sediment data in Lee Pond to make the same assumptions. Fish sampling later confirmed that the accumulated contaminants in fish tissue were higher than predicted (calculated). Additionally, surface water chemical concentrations could be higher in areas not sampled under the current work plan. Therefore, the text in the final SSP *Report* should note the inherent deficiencies of this methodology, and should not draw any definitive conclusions about the mechanisms surrounding the bioaccumulation of **reported** surface water chemical concentrations into fish tissue. Please modify the final SSP *Report* accordingly.

6) Page 6-27, Section 6.2.2

Risk screening for residential exposure to surface water and sediment should also be included for SSAs where they were collected.

7) Page 6-29, Section 6.2.4

Please add bullets showing the inclusion of residential exposure to surface water and sediment.

8) Page 6-30, Section 6.2.4

Please note somewhere in the discussion of calculating the UCL that a normal distribution has been assumed.

9) Page 6-36, Section 6.3

In the last sentence, please note that the RBC values will now be updated on a semi-annual basis.

10) Page 6-37, Section 6.4.1 Human Health Effects - Carcinogens

The ICR equation uses the detected concentration in a medium. The final *Site Screening Process Guidelines* workplan indicate that the maximum detected concentration will be used for this term.

11) Page 6-38, Section 6.4.2 Human Health Effects - Noncarcinogens

The HQ equation uses the detected concentration in a medium. The final *Site Screening Process Guidelines* workplan indicate that the maximum detected concentration will be used for this term.

12) Page 6-39, Section 6.4.3 Ecological Effects

The EQ equation uses the detected concentration in a medium. The final *Site Screening Process Guidelines* workplan indicates that the maximum detected concentration will be used for this term.

13) Page 6-41, Section 6.5.2

In the 2nd paragraph, three concentrations are given for only two constituents, Aroclor-1260 and arsenic. Please clarify.

14) Table 6-1

The barium COC value should be 550. Sodium should be noted as an essential nutrient.

15) Table 6-2

Anthracene is misspelled. The COC value listed for endosulfan sulfate is actually for endosulfan, and the COC value listed for endrin ketone is actually for endrin. This should be noted in the table.

16) Table 6-3

The COC value for thallium is actually for thallium carbonate/chloride/sulfate. This should be noted in the table.

17) Table 6-23

The benzo(a)pyrene tap water RBC should be 0.0092.

This concludes EPA's comments on the review of the Navy's draft *Site-Screening Progress Report* for the investigation of SSAs 1, 6, 7, and 15 located at the WPNSTA NPL facility. If you have any questions, please feel free to call me at (215) 597-1110,

Sincerely,



Robert Thomson, PE  
VA/WV Superfund Federal Facilities (3HW71)

cc: Jeff Harlow (WPNSTA, Code 09E32)  
Stephen Mihalko (VDEQ, Richmond)  
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