UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

July 12, 1999

Orlando Monaco
Naval Facilities Engineering Command
Environmental Contracts Branch
10 Industrial Highway
Lester, PA 19113

Re: Naval Air Warfare Center, Warminster, PA

Dear Mr. Monaco:

Please find below EPA comments on a Draft Remedial Investigation/Feasibility Study (RI/FS) Report for Operable Unit 5 (OU-5) (Site 8 Media Other Than Groundwater) dated May 1999.

TITLE

Please consult with EPA regarding Operable Unit number prior to finalizing report.

EXECUTIVE SUMMARY

Generally, please revise as needed after addressing comments below and provide an opportunity to review the final version prior to issuing the final RI/FS.

Under **Site 8 Background Information**

Next to last paragraph: More accurately, the purpose of the removal action was to address lead levels in surface soils which presented an unacceptable health risk. While elevated arsenic levels were present in the subject soils, the levels were within the acceptable (or target) carcinogenic risk range identified in the NCP and CERCLA. The removal action further lowered the carcinogenic risk presented by the arsenic.

Under **Human Health and Ecological Risk Assessments**

Risks associated with exposure to lead in soil should also be summarized.

Under **Remedial Action Objectives**

It is unclear why the human health risks posed by Site 8 soils are considered unacceptable. Per comments on the risk assessment performed with post-removal data, carcinogenic risks fall

within the acceptable (or target) range identified in CERCLA and the NCP and non-carcinogens do not present a health threat.

1.3 SITE DESCRIPTION AND HISTORY

1.3.1 Site Description

Suggest the second sentence be replaced with the following:

"Historically, the majority of surface runoff from the site has drained to a cement drainage culvert about 100 feet north of the northwestern corner of the runway. A cement culvert about 120 feet east of the northeastern corner of the runway has also received some runoff the site."

1.3.2 Site History

Second sentence: Should read the "...training area reportedly consisted of ...".

Page 1-14, first paragraph: While the text suggests PAHs can be present in jet fuel at significant concentrations, this should be clarified. As indicated, jet fuels are primarily comprised of aliphatic and aromatic hydrocarbons. However, PAHs may be produced during the incomplete combustion of jet fuel and other materials which may have been burned at the site. In addition, please indicate if there is any information which would suggest that chlorinated hydrocarbons / solvents were burned at the site.

Page 1-14, third paragraph: After the first two sentences, it is suggested this paragraph read as follows:

"Aerial photographs taken through 1958 did not show the presence of any significant features. In a photograph from 1965, two berms to contain liquids associated with fire training activities are evident on the runway - one berm along the perimeter of the end of the runway and a second V-shaped berm within the runway (Figure 1-4). Dark staining and an aircraft are apparent within the V-shaped berm. Ponding of a dark liquid is apparent along the western perimeter of the runway adjacent to this berm. Similar ponding of liquid and/or soil staining is also apparent along the western perimeter of the runway in other photos compiled by EPIC (see Figures 1-5, 1-6 and 1-7). These same photos also indicate liquids bypassing the berm at the runway perimeter and draining from the northwest corner of the runway toward the western cement culvert."

Page 1-14, fourth paragraph: Provide any information regarding the use of hazardous substances at structure S1. The investigation results described later in the report suggest that the source of elevated lead levels detected in soil next to runway were activities conducted at structure S1.

Page 1-14, fifth paragraph: Pits P2, P3 and P4 do not appear to be "bermed" as the text indicates. While it is indicated that POSS P5 is a "new and larger" burn pit, P5 appears to be the same bermed area that appeared in earlier aerial photos and is actually smaller than in previous years

Page 1-14, sixth paragraph: It is indicated that "...ash residues and containment berms had been

removed from the site." Based other information provided in this report, it should only be concluded that the ash and berms were "no longer evident."

1.3.3 Previous Response Actions

The notice of violation issued by PADER and a letter from the Navy (dated 12/8/86) responding to this notice should be included in the appendix.

Second paragraph: The results of sampling in response to the subject notice should be included in the appendix and discussed in the text. It should be noted that four soil samples from the site and one background soil sample were collected (rather than a total of seven samples as currently indicated). The test should note that - 1) reportedly, one sample was collected of the berm soil and three samples were collected from areas eroded by surface runoff from the fire training area, 2) petroleum hydrocarbons were detected at 580 mg/kg in the berm soil and 28 to 180 mg/kg in soil from the eroded areas, and 3) no metals or PAHs were detected at levels significantly above background in the four site samples. It may also be noted that liquids from the bermed area and the receiving stream were sampled for semi-volatile compounds and only bis (2-ethylhexyl) phthalate was detected (at levels of 20 and 31 ug/l respectively).

Second paragraph: While the exact locations of the deposition of the berm material may not be known, an undated photo from 1988 taken after the berms were dismantled indicates several unvegetated areas around the perimeter of the runway which may be areas this material was deposited. (This photo should also be included in the report.) It is worth noting that by 1990, these areas were revegetated (see photo dated March 8, 1990).

Per previous comments, please clarify whether any soils around the perimeter of the runway or from eroded areas were excavated and/or removed from the site in response to the notice of violation issued by PADER or otherwise (prior to the transfer line installation and CERCLA removal action of 1999).

Third paragraph: Per previous comments, the area of soil excavated as part of transfer line installation in the area of Site 8 should be identified. This area should be indicated on a map and the depth of excavation identified in the text. It is indicated that "...in the vicinity of Site 8, no contaminated soils were encountered during excavation activities". A reference (e.g., OHM report) should be provided to support this statement. If the case, it should be indicated that no odors, stained soils or elevated PID/FID readings were encountered. It should be noted that stained soils and/or soils with a petroleum odor were encountered during excavation work south of the site. The disposition of the soil pile north of the runway should be updated prior to finalizing this report as applicable. If the pile is still in place at the time the final report issued, information regarding the quality of soil in the pile should be provided, e.g., any analytical results.

Page 1-20, first paragraph: Another section and/or references should be cited to provide more information regarding the subject removal, i.e., reference Appendix I for location of the soils removed, provide/identify location of verification samples, etc.

1.4 SUMMARY OF PREVIOUS INVESTIGATIONS AT SITE 8

Third paragraph: The text should again refer to QC (1988) for data regarding the quality of the soils tested.

Page 1-21, second full paragraph: Note that the subject stained soil was located immediately west of the runway and the V-shaped berm.

Page 1-21, fifth full paragraph: It should be noted that there are several holes in the runway apparently associated with the removal of structure S1. These holes, which are up to several feet in diameter, contain particulate material which may contain elevated lead levels. It is recommended that this material be removed and disposed.

Next to last paragraph: It is suggested that this paragraph be deleted as it does not relate the purpose of the report.

2.0 SITE 8 REMEDIAL INVESTIGATIONS

2.1 Introduction

Sixth paragraph: Second sentence should read "...which characterize the Site 8 soils present at this time."

2.2.1 Scope of Work

Third paragraph, second sentence: Should read "one objective" rather than "the objective".

Fourth paragraph: To our knowledge, "disposal areas" at Site 8 were not located with the GPS. Correct as needed.

Fifth paragraph: Again, the discussion in this paragraph does not appear to apply to Site 8. For example, there were no residential or paved areas involved and no borings were advanced to 12 feet.

2.2.3 Soil Borings

Second paragraph: It should be stated that soils were also to be sampled if staining, odor, elevated PID/FID readings or other observations suggested potential contamination.

2.2.6 Surface Soil Sampling and Analysis

Observations regarding the surface soils should also be noted. e.g., whether any were stained, etc. Field logs should support any conclusions in this regard.

It is noted that the "...average depth of these samples was between 6 and 30 inches..." The appendix should include the actual depth of each sample collected. In addition, it should be indicated that the range of sample depths was 6 to 30 inches bgs.

It is notable that surface soil samples were collected at several locations where the aerial photo of 1988 suggested berm soils may have been spread / graded. These locations include SS-08-05 through SS-08-09.

2.2.7 Subsurface Soil Sampling and Analysis

Again, observations regarding the nature of the subsurface soils investigated/sampled should be noted, i.e., whether observed/sampled soils were discolored/stained, had an odor or otherwise contained potential contamination. Boring logs in the appendix should be referenced to support these conclusions.

The depths of the samples and the rationale for sample depths should be identified. It is notable that subsurface soil samples outside of the area with elevated lead were collected at the soil / bedrock interface. It is assumed that the objective of these samples were to help assess whether Site 8 may be the source of VOCs in Area C groundwater. This should be stated if this is the case. On the other hand, per EPA comments on the investigation workplans for Site 8, sampling of soils midway between the ground surface and this interface would have provided a more complete characterization of soils.

It is ntoable that soil borings SB-08-15, SB-08-16 and perhaps others were at locations where the aerial photo of 1988 suggested the berm soils may have been spread / graded.

3.2 SURFACE WATER HYDROLOGY AND TOPOGRAPHY

Page 3-2, first full paragraph, first sentence: Should read: "...is drained primarily by a concrete swale located about 100 feet northwest of the end of the runway..."

4.4. SURFACE SOIL RESULTS

4.4.1 Pre-Removal Results

Last paragraph, first sentence: Should read "...TICs associated with both the volatile and semi-volatile organic compounds..."

Last paragraph: The last sentence appears incorrect and should be deleted. It is suggested this sentence be replaced with the following - "However, the levels of the TICs detected are not indicative of significant contamination by petroleum-derived products."

Table 4-1

The EPA residential soil RBC for beryllium is 160 mg/kg (when HQ=1), not 0.15 mg/kg.

4.4.2 Post-Removal Results

First full paragraph, fourth sentence: See typo ("...V..."?).

4.5 SUBSURFACE SOIL RESULTS

4.5.1 Pre- and Post-Removal Results

Last paragraph: Again, the last sentence should be deleted. (See comment above on Sec. 4.4.1.)

6.0 BASELINE RISK ASSESSMENT

In the discussion of data quality, the requirements of RAGs - Part D are said to be satisfied. However, Table 1 of the RAGs - Part D format appears to be missing from the report.

6.2.3.1 Surface Soil COPC Selection

Although associated risks would be insignificant, because the screening level for lead in soil was exceeded, the Adult Lead Model should have been considered for commercial workers at Site 8. At least, justification should be provided in the report for not evaluating lead risks to these receptors.

6.3 EXPOSURE ASSESSMENT

Figure 6-1

Risks to casual users of the site should probably be combined with those to recreational receptors. This combination will not impact conclusions at Site 8, but from an academic perspective, it is reasonable that receptors intermittently exposed to on-site soil could also be exposed to surface water and sediment.

6.3.2.2 Sediment Soil Exposure Estimates

If the sediment at the site resembles mud more than dry soil, a soil-to-skin adherence factor greater than 0.2 mg/cm2/event should be used. In this regard, EPA's Exposure Factors Handbook (1997) should be referred to for a more appropriate value.

6.4 DOSE-RESPONSE ASSESSMENT

Table 6-31

Due to toxicological mechanisms and pathways of metabolism, EPA's NCEA warns against using oral toxicity criteria to quantitatively evaluate dermal risks from manganese.

6.7 HHRA CONCLUSIONS FOR SITE 8

It should also be indicated that the total carcinogenic risks posed by surface soil to the residential child and lifetime resident were 2.27 X 10-5 and 2.77 X 10-5 respectively. These are the highest carcinogenic risks identified under reasonably anticipated potential land uses based on available data. These risks may be considered acceptable in that they fall within the acceptable range identified in the NCP/CERCLA (1 X 10-4 to 1 X 10-6).

It should also be noted that lead levels in the soils do not an unacceptable risk and that non-carcinogenic risks are also acceptable under all reasonable land use scenarios.

Given the comments above, based on available sampling data and the associated risk assessment, the risks posed by soils at the site may be considered acceptable. As a result, it is unclear why a Feasibility Study has been performed.

7.0 FEASIBILITY STUDY

7.4 REMEDIAL ACTION OBJECTIVES

Given the health risks at the site may be considered acceptable under all reasonably projected land use scenarios, the rationale for the development of remedial objectives and performance of a Feasibility Study is unclear.

Should you have any questions or comments regarding the above, please give me a call.

Sincerely,

Darius Ostrauskas

Remedial Project Manager

cc: Thomas Ames, NAWC

April Flipse, PADEP