



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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JUL 11 0 1995

Mr. Orlando Monaco  
Naval Facilities Engineering Command  
Environmental Contracts Branch  
10 Industrial Highway  
Lester, Pennsylvania 19113

Naval Air Warfare Center (NAWC), Warminster, PA

Dear Mr. Monaco:

Please find below EPA comments on an Engineering Evaluation/Cost Analysis (EECA) for Site 4 North Runway Landfill at NAWC distributed to EPA and the NAWC Restoration Advisory Board on June 15, 1995.

**GENERAL**

As discussed during a recent BRAC Cleanup Team meeting and recommended in a previous letter to the Navy dated August 11, 1994 (see attached), to help assess the implementability of the alternative response actions, the Navy should solicit comments on the actions (e.g., institutional controls and capping) from the Federal Lands Reuse Authority (FLRA) of Bucks County and Warminster Township prior to selecting a response action.

The referenced test pit investigation observed less than 5% of the contents of the trenches and therefore did not fully characterize the trench contents. This is consistent with the Navy's previous position that "even an aggressive test boring or test pit investigation program could not fully characterize the trench contents." As a result, the investigation results do not eliminate concerns regarding the alleged disposal of solvents, sewage treatment sludge and other materials potentially containing hazardous substances within Site 4.

With regard to the "Removal Action Goals" identified in the report, the Navy should consult with Pennsylvania Department of Environmental Protection on these goals prior to selecting a response action.

It should be stated that Section XIII.3 of the Federal Facility Agreement for NAWC between EPA and the Navy dated September 20, 1990, requires that a removal action in this case, "to the extent practicable, contributes to the efficient performance of any long-term remedial action with respect to the release or

threatened releases concerned". In this case, due to the pending closure of NAWC, the objective of this action should be, to the extent practicable, to meet CERCLA remedial action requirements for Site 4."

It is unclear whether an objective of this report is fulfill CERCLA RI requirements for Site 4. If this is an objective, the complete Phase III RI results should be included and the report should otherwise meet CERCLA RI requirements for Site 4. On the other hand, if the objective of the report is solely to present those RI results which support the performance of a Removal Action, this should be stated. In this case some of the Phase III RI results presented in the report or otherwise discussed below may not need not be included.

## **EXECUTIVE SUMMARY**

Revise as necessary to be consistent with changes made to the balance of the report.

## **1.0 FACILITY AND SITE CHARACTERIZATION**

### 1.2.2 Previous Investigations and Response Actions

The following sentence/paragraph should be added to start this section: "Prior to a recent Phase III RI investigation of Site 4 (see Section 1.4), a series of investigations and actions were conducted by the Navy to address Site 4:"

### 1.4.3 Test Pit Excavations

Note that 1) the 24 test pits conducted within the trenches excavated approximately 9216 cubic feet of material, 2) there is an estimated 213,000 cubic feet of material in the pits and 3) that, as a result, approximately 4.3% of the test pits contents was actually observed during this investigation. In this case, over 95% of the trench contents is still unknown.

A map should indicate the locations of the "subsurface soil" samples. These sample locations should correspond to sample numbers indicated in Appendix C. The text should note that 18 of these samples were collected from the trenches, 3 were duplicates of samples from the trenches and 5 were background samples collected from test pits between the trenches.

With regard to Appendix C, the key for the tables should indicate which reported results are the (apparent) average of duplicate samples from the same location. In addition, the results of metals analyses for subsurface soils should be included.

#### 1.4.4 Surface Soil Sampling

Again, the tables in Appendix C should indicate which results are the average of duplicates. Where are results for the background surface soil samples collected from the end of each runway?

#### 1.4.5 Surface Water and Sediment Sampling and Analysis

Figure 1-9 indicates 9 locations for surface water/sediment samples, while the text only references only five locations. Also, there is no reference to the results from RI work appearing in Appendix C.

The tables in Appendix C erroneously refer to samples points C-1 and C-2 from the Phase III RI as "Background". In fact, these samples were collected from an apparent groundwater seep which may contain water which has migrated through Site 4.

### 1.5 **Nature and Extent of Contamination at Site 4**

A last paragraph could be added to the text under Sec. 1.5 which reads as follows: "The sections below include summaries of the results of Phase III RI for Site 4 available at the time this EECA was prepared."

#### 1.5.4 Subsurface Soil Sampling Results

TABLE 1-2

Note that the "Frequency of Detection in Site Samples" and "Range of Detection in Site Samples" do not appear to be consistent with data in Appendix C because duplicate samples are not identified and/or duplicate sample results have been averaged. A footnote should be included in this table to note duplicate sample results were averaged. This table should be finalized when all inorganic data is available.

Is the range of detection of metals in background samples "Not Available" rather than "Not Applicable"? Concentration of metals in background soil is necessary to establish "Removal Action Levels" for metals such as arsenic and beryllium (see comments below). In this regard, where site soils concentrations exceed the "screening criteria", the report should identify whether these concentrations exceed background levels.

Why has lead been determined to exceed the screening criteria when all of the criteria are NA?

### 1.5.5 Surface Soil Sampling Results

TABLE 1-3

Again, a comparison of the range of positive detection to background should be made.

### 1.5.6 Surface Water and Sediment Sampling Results

TABLE 1-4

All Phase III RI results should be reported. Note the "upstream" samples are not actually upstream and that copper in water does exceed to AWQC in both the "upstream" and "downstream" samples. Note lead is also of concern in "upstream" sample. Note the results in this table do not appear to be consistent with sample results reported in the Appendix C.

Generally, the surface water/sediment results appearing in Appendix C are presented in a confusing fashion. To clarify, the results for Phase I and Phase II could be removed. In addition, the results from the Phase III RI are incomplete as presented, e.g., all metal analyses for surface water are not included, etc.

TABLE 1-5

All Phase III RI results should be reported. The last column, "Downstream Concentration Exceed Upstream Samples and ER-L Criteria" appears inappropriate since there are no apparent "upstream samples". Note that cadmium, copper, lead and zinc in "upstream samples" are all above the ER-L criteria.

### 1.5.7 Groundwater Sampling Results

Note Sec. 1.4. does not describe groundwater sampling which was performed as part of the Phase III RI. No sample locations have been provided. Also, no results are provided in the appendix.

Which are background samples? Note cadmium, thallium, manganese, lead and copper are all at levels which could warrant further evaluation.

## 1.6 **STREAMLINED RISK ASSESSMENT**

### 1.6.2 Potential Exposure Pathways

The first paragraph of this section should be deleted..

In the second paragraph, the following bullet should be added:

" Exposure of the aquatic organisms to surface water and sediment"

### 1.6.3 Risk Characterization

Any conclusions regarding further action for groundwater at Site 4 are inappropriate in this report. Instead, groundwater at Site 4 is being addressed by the OU-3 ROD for Area C.

Second paragraph, first sentence: The words "Site 4 trenches" should be replaced with "test pits conducted within Site 4".

Second paragraph, second sentence: The following sentence should be inserted after this sentence: "However, less than 5% of the contents of the trenches was investigated by the test pits."

Second paragraph, current third sentence, could be replaced with the following: "However, investigations of soils, sediment, groundwater and surface water suggest that wastes buried in the trenches may be the source of hazardous substances which have been released to the environment or could potentially be released into the environment."

It is suggested that followup discussion include separate paragraphs addressing each of the environmental media and associated risk characterization for that media (see below).

### Surface and Subsurface Soils

The following should be noted:

1) The PCB Aroclor 1248 was detected in 11 of 24 surface and subsurface samples at levels ranging up to 3.5 mg/kg. The maximum of 3.5 mg/kg exceeds a carcinogenic risk of  $10^{-6}$  for both residential (0.083 mg/kg) and non-residential (0.74 mg/kg) land use scenarios.

2) TCE was detected at low levels in 6 of 9 surface soil samples collected and was detected in one of the monitoring wells sampled. These results suggest that the trenches may contain a source of TCE which, while not impacting the environment to an unacceptable degree at this time, could potentially be released in the future.

3) Regarding metals, even if "screening criteria" are exceeded, a metal is not of concern if it appears within background concentrations. As a result, the significance of metals concentrations cannot be evaluated without the results of

background surface and subsurface soil samples and the complete results of site subsurface soil samples. The text currently indicates that arsenic, barium, beryllium and chromium were detected above background concentrations. However, available information actually suggests the opposite.

#### Surface Water and Sediment

1) As noted earlier, there appear to be no "upstream" samples. In this case, the detection of 103 ug/l of copper in a surface water sample (location and date of sample unclear based on the information presented) is above the AWQC of 12.48 ug/l for copper. In addition, cadmium was also detected in a surface water sample at a level above the AWQC. Since the location of the samples is unclear, it is not possible to assess whether these elevated levels may be attributable to Site 4.

2) With regard to sediment samples, again, it does not appear that any "upstream samples" were collected. On the other hand, while polynuclear aromatic hydrocarbon (PAH) concentrations are well above the ER-L criteria, could these levels be attributable to sources other than Site 4, e.g., surface runoff from roads surfaced with coal tar and/or asphalt, etc. Metal concentrations in sediment of potential concern and potentially attributable to Site 4 could include cadmium, copper, lead and zinc. Again, attribution of these substances to Site 4 cannot be assessed with available information.

3) Contrary to the text, there should be adequate information to assess whether ecological risks are occurring. If these risks are a primary risk concern in the case of site 4, an assessment of ecological risk should be considered for inclusion in this report to help support a response action. In addition, this report could assess the likelihood that the contaminant levels of concern in surface water and sediment are attributable to recharge of surface water by groundwater containing contaminants attributable to Site 4.

#### **1.7 CONDITIONS THAT SUPPORT INITIATION OF A REMOVAL ACTION**

While the text states that "workers at the site could have some exposure", the report conducts no assessment of risk to workers. As a result, any conclusions regarding risk in this regard are not documented. Also, while the text states the site "may be used for unrestricted land use", the Reuse Plan indicates the parcel would be used for recreational purposes. It is suggested that the FLA-BC be provided an opportunity to comment regarding the future use of this property and that this comment be considered in the risk assessment.

## 2.0 IDENTIFICATION OF REMOVAL ACTION OBJECTIVES

Second paragraph: Regarding groundwater, simply state that groundwater is being addressed under OU-3.

Third paragraph, last sentence should read: "The waste material encountered in the test pits..."

Without a more complete risk assessment, the objectives cannot be fully identified at this time. At this time, it is clear that concentrations of the PCB Aroclor 1248 in soil present a carcinogenic risk of greater than  $10^{-6}$  under both residential and non-residential land-use scenarios. In this case, the objective of a response action should be to prevent incidental ingestion and/or inhalation of this soil. In addition, measures should be undertaken to prevent the erosion of soil with elevated PCBs to surface water. In addition, available soil data suggests waste in the trenches may be a source of TCE. Measures should be considered to prevent the potential additional release of TCE and other potential hazardous substances from the trenches.

It is unclear why groundwater is to be protected by "reducing contaminated soil and associated waste concentrations" rather than by reducing infiltration of water into the waste and soil of concern. The objective should simply be to protect groundwater quality.

## 2.4 REMOVAL ACTION GOALS

As stated previously, removal action goals cannot be fully identified without a more complete risk assessment.

The third paragraph states that "unrestricted land use, including future residential land use, was assumed..." However, the Reuse Plan for NARC indicates this parcel will be used for recreational purposes. Please reconcile.

## 2.5 DETERMINATION OF REMOVAL ACTION SCOPE

First paragraph should be deleted.

Many of the Removal Action Goals indicated in Table 2-1 do not appear to be reasonable. For example, the goals for arsenic, barium, beryllium, chromium may be below background.

### 3.0 IDENTIFICATION AND SCREENING OF TECHNOLOGIES AND ALTERNATIVES

#### 3.4.1.1 Deed Restrictions

It is indicated that the "likelihood of acceptance of a deed restriction by regulatory agencies or the public (including FLA-BC) is low". As noted earlier, rather than speculate on the likelihood of acceptance by these parties, the Navy should request parties such as the FLA-BC, Warminster Township and the Pennsylvania DEP to comment on this alternative.

Regarding the last sentence, a deed restriction would be also necessary in the case of non-residential land-use due to, for example, the levels of Aroclor 1248 and the potential for unknown waste of potential concern.

In addition to a deed restriction, another potential institutional control is a "deed notice". In this case, the deed would be required to contain information regarding the presence of hazardous substances.

#### 3.4.1.2 Monitoring and Analysis

Note this is already to be performed as necessary under the OU-3 remedy. Any additional monitoring wells would be installed as part of the OU-3 remedy, not a removal action.

#### 3.4.2 Removal through Bulk Excavation

Fugitive dusts and any air emissions of concern would also have to be controlled to protect off-site receptors.

#### 3.4.3 Containment Through Capping

The description of the single synthetic cap should be clarified. The effectiveness of the single synthetic and multi-layer caps with regard to groundwater protection should be compared. If groundwater protection is an objective, does the single synthetic cap meet this objective? It is stated that capping would control vertical migration of water. Is the control of lateral groundwater infiltration an objective?

Are both the single and multi-layered caps implementable under the recreational land-use scenario? Is a multi-layered cap feasible given the proximity of the trenches to a public road, etc? Are necessary surface controls such as grading implementable under the recreation land use scenario?

What type of operation and maintenance would be required for these caps? What is the implementability of this O & M ? Has this implementability been discussed with the FLA-BC and/or Warminster Township?

Would capping meet Pennsylvania ARARs? For example, Section 3.4.5.1 states that on-site landfills are not implementable in this case. Would capping in effect produce an onsite landfill?

### 3.5 SITE 4 REMOVAL ACTION ALTERNATIVES

Generally, changes should be made in this section as necessary to be consistent with the revised text of Section 3.4.

#### 3.5.1 Alternative 1: Institutional Controls

First paragraph: As stated earlier, groundwater monitoring will be conducted as necessary to ensure groundwater quality as part of the OU-3 ROD.

Under Effectiveness, the reference to "trespassers" is not appropriate. What ARARs for the contaminated soils and waste would not be met?

#### 3.5.2 Alternative 2: Bulk Excavation, Off-Site Landfilling

It should be stated that soil sampling would be conducted to assure "Removal Action Goals" are met.

#### 3.5.3 Alternative 3: Single Synthetic Cap

The text says the concern is only with "direct contact with buried soils and wastes". Is this really the case? The reference to "impenetrable barrier" should be deleted. Under Effectiveness, it is stated that the cap would be effective in limiting the infiltration of water and subsequent leaching. Is this true? Is this an objective?

Under Cost, the cost of the operation and maintenance of the cap should be included.

### 4.0 COMPARATIVE ANALYSIS OF REMOVAL ACTION ALTERNATIVES

#### 4.2.1 Effectiveness

Which ARARs would not be met by institutional controls?

The objective of the second paragraph is not clear.

Given the unknown nature of the majority of the trench contents, capping should protect groundwater quality by preventing infiltration of water into the buried waste and associated soil. Is the single synthetic cap effective in this regard?

**6.0 COMMUNITY RELATIONS**

**6.8 RESPONSIVENESS SUMMARY**

EPA will not participate in the issuance of the Responsiveness Summary.

**6.9 PUBLIC BRIEFINGS**

EPA has no plans to conduct public briefings regarding an EECA prepared by the Navy. However, EPA can attend such briefings at the Navy's request.

**APPENDIX F - DRAFT ACTION MEMORANDUM**

EPA is not a party to the subject Action Memorandum.

The Action Memorandum should be consistent with the Final EECA.

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

Sincerely,



Darius Ostrauskas  
Remedial Project Manager

cc: Tom Ames, NAWC  
Ben Mykijewycz  
Brian Nishitani