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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Ocean Resources Conservation and Assessment
Hazardous Materials Response and Assessment Division
Coastal Resources Coordination Branch

c/o USEPA Waste Division
345 Courtland Street, NE
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NAS PENSACOLA
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24 September 1992

Commander, Southern Division
Naval Facilities Engineering Command
Post Office Box 10068
2155 Eagle Drive
Charleston, SC 29411-0068

Attention: Linda Martin, Project Manager, NAS Pensacola

Dear Ms. Martin:

Review of the subject documents for the Pensacola Naval Air Station (PNAS), Pensacola, Escambia County, Florida was conducted by technical representatives of the Natural Resource Trustee for the National Oceanic and Atmospheric Administration, U.S. Department Of Commerce. The following comments are offered for your consideration.

Documents Reviewed:

See attached list.

Comments:

Interim Data Reports:

General Comments:

The purpose of the Phase I Remedial Activities Investigation was to identify contaminants of concern and their principal source areas, and to provide a basis for developing subsequent phases of investigation. In general, sampling was limited to soil and groundwater samples within the identifiable limits of the sites. Surface water and sediment samples were collected only at those sites near surface water bodies.

Surface water, soil/sediment and groundwater samples were analyzed for trace elements, VOCs, total PAHs, phenols, some pesticides, and total PCBs. Not all samples were analyzed for the same compounds; analytes were selected on the basis of known site-related activities. Tables 1 and 2 (attached) present the maximum concentrations of contaminants detected in soil and groundwater samples. For comparison, the average trace element concentration for U.S. soils and the marine chronic ambient water quality criteria (AWQC) values are included. Concentration levels for several analytes significantly exceed these reference values. Such concentrations represent potential threats to natural resources under NOAA jurisdiction.

Two general problems associated with the Phase I investigation are limited analyses for all samples and high detection limits. Detection limits used often were too high to measure contaminants at concentrations known to cause adverse environmental effects. Detection limits for PCBs, pesticides and some trace elements exceeded the screening guidelines used to identify contaminants that might pose a threat to NOAA trust resources (Tables 1 & 2). Analytical methods with detection limits less than or equal to screening criteria are needed for the results to be environmentally meaningful. Detection limits used for analysis of water and soil/sediment samples should be as low as the chronic AWQC and effects range-low (ER-L) concentrations, respectively, for the results to be useful for assessing the effects on aquatic organisms.

High concentrations of contaminants reported in the groundwater at several sites were not consistent with the lower concentrations found in soils. Because of this, results from the temporary monitoring wells were considered unreliable. Groundwater contamination at some sites should be re-evaluated during Phase II sampling.

In general, little consideration was given to characterizing surface water pathways, ostensibly because the highly permeable, sandy soils present on the facility are considered to limit run-off. However, some surface run-off is likely from most sites. Along with pathways of known discharge via drainage ditches or other water management structures, this pathway should be investigated thoroughly in Phase II studies.

With the designation of operable units for Ecological Risk Assessment (ERA), PNAS has de-coupled the development of onsite, source control measures for individual sites from the evaluation of ecological risks resultant from off-site contaminant migration. Potentially, this could result in base risk assessments for individual sites that put forth cleanup levels not protective of off-site ecological receptors. All sites should be specifically evaluated for their potential for off-site contaminant migration and, where appropriate, site remediation and source control must consider the threat from off-site receptor exposure.

Contaminants associated with sites at PNAS are considered to represent a significant threat to NOAA trust resources. Data collected during Phase I should be used only as initial screening for identifying contaminated areas. Because sampling and analyses were limited in scope, Phase I data solely should not be used to eliminate areas as potential sources of contamination.

Site Specific Comments:

Site 3 - Crash Crew Training Area:

Soil concentrations of cadmium, lead, and PAH exceeded the average U.S. soils concentrations used as screening guidelines. The concentration of cadmium in soils (0.82 mg/kg) exceeded the screening guidelines by more than one order of magnitude. Elevated concentrations of phenols and total recoverable petroleum hydrocarbons (TRPH) also were noted. In groundwater, concentrations of copper and lead exceeded the recommended marine chronic ambient water quality criteria (AWQC) by more than 10 times. Although specific AWQC values are not available for PAH, phenols, and TRPH, elevated concentrations were observed. Lead concentrations (180 mg/kg) in sediments exceeded the ER-L concentrations (35 mg/kg). Concentrations of all compounds detected in surface water were below the recommended AWQC guidelines.

Site 7 - Firefighting School Area

At Site 7, only concentrations of lead (130 µg/l) and copper (53 µg/l) in groundwater exceeded the screening guidelines (ten-times marine chronic AWQC) of 5.6 µg/l and 2.9 µg/l, respectively. All other contaminant concentrations were below screening guidelines.

Site 9 - Navy Yard Disposal Area

Concentrations of cadmium in soils (0.62 mg/kg) at Site 9 exceeded the average U.S. soil concentration (0.06 mg/kg). Concentrations of copper and lead in groundwater exceed the AWQC based screening guidelines.

Site 10 - Commodore's Pond

The concentrations of copper and lead exceeded the screening guidelines in groundwater. Phenol concentrations in groundwater collected from Site 10 were elevated (17,000 µg/l), but did not exceed ten times the lowest observed effect level (LOEL) concentration (2,560 µg/l).

Site 21 - Sludge at Fuel Tank Area

Soil concentrations of copper, lead, silver and zinc exceeded the average U.S. soil concentrations. Copper, lead, zinc, and TRPH concentrations in groundwater also were elevated with lead concentrations exceeding the AWQC by a factor of more than 200.

Site 23 - Chevalier Field Pipe Leak Area

Both groundwater and soils collected from Site 23 contained very high concentrations of cadmium, copper, lead, nickel, silver, and zinc; all exceeding screening values. Concentrations of copper (10,000 µg/l), lead (35,000 µg/l), and zinc (48,000 µg/l) in groundwater were some of the highest concentrations measured during the investigation conducted at PNAS

Site 25 - Radium Spill Area

The concentrations of lead and nickel in soils at Site 25 slightly exceeded screening guidelines. Cadmium concentrations, however, were well above the U.S. average soil concentrations.

Site 27 - Radium Dial Shop Sewer

The concentrations of lead and nickel in soils at Site 27 slightly exceeded screening guidelines. Again, cadmium concentrations were well above the U.S. average soil concentrations. Only one sediment sample was taken at Site 27; contaminant concentrations did not exceed the ER-L values.

Site 29 - Soil South of Building 3460

Many of the inorganic substances and organic compounds detected at other sites were not detected in soils collected from Site 29. Those contaminants that were detected in soils were below screening guidelines. Groundwater, on the other hand, contained elevated concentrations of several trace elements. Copper (1350 µg/l), lead (1780 µg/l), and nickel (3010 µg/l) concentrations all exceeded the appropriate AWQC by more than two orders of magnitude.

Site 31 - Soil North of Building 648

Cadmium concentration in soil was the second highest recorded in the Phase I investigation (5.7 mg/kg). This concentration was almost two orders of magnitude above the average U.S. background concentration (0.06 mg/kg). Mercury concentrations in groundwater (0.3 µg/l) at this site also were two orders of magnitude above the screening criterion (0.025 µg/l).

Site 34 - Solvent North of Building 3557

With the exception of cadmium concentrations in soils (0.55 mg/kg), contaminant concentrations at Site 34 did not exceed screening guidelines.

Site 36 - Industrial Waste Treatment Plant Sewer

Contaminant concentrations in both groundwater and soils collected from Site 36 consistently exceeded screening guidelines. Concentrations of nearly all contaminants were elevated with some concentrations exceeding screening guidelines by as much as four orders of magnitude. Cadmium concentration in soil was the highest recorded in the Phase I investigation (23 mg/kg). There may be "hot spots" associated with Site 36 because mercury was not analyzed for in most Phase I samples.

Work Plans

General Comments

The phased approach proposed for sampling is reasonable for these sites because of the large area of potential contamination. The time period between phases, however, could add up to a significant period. The schedules did not include the overall time frame for RI/FS activities. To protect against the potential for further resource injury, it is desirable that any required removal action take place as soon as possible.

Overall, the sampling locations seemed appropriate for source characterization. However, the suitability of the locations of sampling sites with regard to upgradient/downgradient influences is difficult to determine. In general, surface water and sediment samples should be collected from all drainage ditches, canals and other waterways that permit off-site migration of contaminants to areas of concern. Pathways and contaminant migration need to be fully defined and characterized. Additional sampling in storm drains and drainage pathways should be included in Phases III and IV as necessary to delineate the extent of contamination if elevated contaminant concentrations are found at the sites.

Coordination of data collection between sites is minimal and may lead to incomplete analyses of site related contamination. As with Phase I investigations, detection limits used for Phase II may be too high for depicting environmental effects for selected contaminants.

Because of the number of phases and iterations that have occurred in the environmental investigations, it would be useful if Phase I and Phase II data were combined and discussed collectively in the Phase II Report. The current workplans propose to summarize only Phase II data if Phase III investigations are necessary. For discussion purposes, it may be useful to

combine Sites 11, 12, 26 and 30 since a single stream flowing to Bayou Grande appears to drain all of these sites.

Site Specific Comments:

Group D:

From the information given, it appears that Sites 15 (Pesticide Rinsate Disposal Area) and 24 (DDT Mixing Area) are inland and do not have surface pathways to habitats of concern. However, possible disposal to or migration via storm drains were not reported nor refuted in the workplan. Phase II investigations should examine the possibilities for pesticide migration via storm drains; if transport via this pathway is not a possibility, it should be stated.

Group F:

Although indications of contamination frequently were noted in the drainage ditch in the vicinity of the Group F sites, surface water and sediment sampling was not proposed. It should be considered.

Group J:

Sites 19 and 20 were not included in the Phase I interim data reports. If Phase I screening has not been conducted, it should be included in the Phase II investigation. Data collection should include the following:

- A visual field inspection of the site, including preliminary air monitoring.
- A surface emissions survey using a HNU photo-ionization detector or Organic Vapor Analyzer (OVA).
- A geophysical survey using an electromagnetic terrain conductivity survey and magnetometer survey.
- Identification of off-site migration pathways.
- Sampling of soil, sediment, groundwater, surface water and other relevant media.
- A walkover survey to identify plant and animal species, and habitat type.

If it is shown during field screening that surface water from Site 19 flows to one of the nearby wetland areas or Bayou Grande, surface water and sediment samples should be collected along the drainage path to determine if contaminants have migrated to those areas.

Group K:

Because of the short distance to Pensacola Bay from Site 21, and the significant contamination in soil and groundwater found during Phase I, sediment samples should be taken at the shoreline during Phase II to determine if contaminants have migrated to the Bay. This also may be true of Site 20.

Group M:

Soil and groundwater sampling results from Site 31 show elevated concentrations of trace elements. Surface water and sediment in the drainage path to Bayou Grande should be sampled to determine the extent of contamination.

Thank you for providing NOAA the opportunity to comment on this site and for keeping me appraised of ongoing activities. I will be happy to discuss any questions or comments pertaining to this review that you may have. My telephone number is (404) 347-5231.

Sincerely yours,

Waynon Johnson
Coastal Resource Coordinator
NOAA, Region IV

Enclosures

cc: Allyson Drew

Documents Reviewed:

1. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Crash Crew Training Area (Site 3), Interim Data Report. Naval Air Station Pensacola, Pensacola, Florida. April 1992*

2. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Firefighting School Area (Site 7), Interim Data Report. Naval Air Station Pensacola, Pensacola, Florida. April 1992*

3. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Navy Yard Disposal Area (Site 9), Interim Data Report. Naval Air Station Pensacola, Pensacola, Florida*

4. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Commodore's Pond (Site 10), Interim Data Report. Naval Air Station Pensacola. April 1992*

5. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Sludge at Fuel Tanks Area (Site 21), Interim Data Report. Naval Air Station Pensacola. April 1992*

6. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Chevalier Field Pipe Leak Area (Site 23), Interim Data Report. Naval Air Station Pensacola. April 1992*

7. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Radium Spill Area (Site 25), Interim Data Report. Naval Air Station Pensacola. April 1992*

8. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Radium Dial Shop Sewer (Site 27), Interim Data Report. Naval Air Station Pensacola. April 1992*

9. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Soil South of Building 3460 (Site 29), Interim Data Report. Naval Air Station Pensacola. April 1992*

10. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Soil North of Building 648 (Site 31), Interim Data Report. Naval Air Station Pensacola. April 1992*

11. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Solvent North of Building 3557 (Site 34), Interim Data Report. Naval Air Station Pensacola. April 1992*

12. *Final Draft Contaminant Assessment/Remedial Activities Investigation, Industrial Waste Sewer (Site 36), Interim Data Report. Naval Air Station Pensacola. April 1992. Volumes I, II, III, IV, V.*

13. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group A, Naval Air Station Pensacola. July 1992*

14. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group B, Naval Air Station Pensacola. July 1992*

15. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group C, Naval Air Station Pensacola. July 1992*

16. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group D, Naval Air Station Pensacola. July 1992*

17. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group E, Naval Air Station Pensacola. July 1992*

18. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group F, Naval Air Station Pensacola. April 1992*

19. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group G, Naval Air Station Pensacola. April 1992*

20. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group H, Rifle Range Disposal Area (Site 8); Refueler Repair Shop (Site 22). Naval Air Station Pensacola. July 1992*

21. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group I, Transformer Storage Yard (Site 17), PCB Spill Area (Site 18). Naval Air Station Pensacola. July 1992*

22. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group J, Naval Air Station Pensacola. April 1992*

23. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group K, Naval Air Station Pensacola. April 1992*

24. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group M, Naval Air Station Pensacola. April 1992*

25. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group N, Naval Air Station Pensacola. April 1992*

26. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group P, Building 71 (Site 38). Naval Air Station Pensacola. July 1992*

27. *Contaminant Assessment/Remedial Activities Investigation Work Plan - Group Q, Oak Grove Campground (Site 39). Naval Air Station Pensacola. July 1992*

28. *Final Draft Contaminant Assessment/Remedial Activities Investigation Work Plan, Crash Crew Training Area (Site 3). Naval Air Station Pensacola, Pensacola, Florida April 1992*

Table 1. Maximum concentrations (mg/kg wet weight) of contaminants in soils at NAS Pensacola. Data were presented in the Interim Data Reports.

Contam.	Sites													
Trace element	3	7	9	10	21	23	26	27	29	31	34	36	Detect. Limits	US Avr. Soils
As	N/D	12	8.6	N/D	96	8.0	N/D	13	N/D	N/D	N/D	6.4	6.0	5
Cd	0.62	N/D	0.62	N/D	1.1	1.2	1.4	1.5	N/D	5.7	om.	23	0.5	0.06
Cr	2.3	1.6	5.2	1.6	4.9	180	64	10	2.4	8.7	7a	46	1.0	100
Cu	26	N/D	4.9	N/D	89	150	9.3	5.8	N/D	N/D	N/D	1100	2.5	30
Pb	71	14	76	3	360	500	180	120	17	12	24	12,000	40	10
N	N/D	N/D	13	N/D	6.0	5.1	N/D	6.1	N/D	N/D	N/D	39	4.0	40
Ag	N/D	N/D	N/D	N/D	1.1	1.0	N/D	N/D	N/D	N/D	N/D	3.0	1.0	0.05
Zn	13	6.6	16	7.8	240	340	810	70	9.9	7.8	20	6100	2.0	50
Other														
PAH	11	N/D	2.0	1.5	6.9	35	<1.0	2.1	6.2	<1.0	N/D	300	1.0	NA
Phenols	380	N/D	N/D	1200	260	59	N/D	76	N/D	2.6	N/D	560	2.0	NA
TRPH	19,000	120	180	N/D	25,000	18,000	290	6700	74	94	7.7	6400	5.0	NA
PCB	N/D	N/D	N/D	N/D	N/D	N/D	14	N/D	N/D	N/D	N/D	N/D	1.0	NA
Dieldrin	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	1.0	1.0	NA

N/D: Not Determined NA: Not Available

Table 2. Maximum concentrations (µg/l) of contaminants in groundwater at NAS Pensacola. Data were presented in the Interim Data Reports.

Contam.	Sites													
Trace element	a	7	9	10	21	29	25	27	29	31	34	36	Detect. Limits*	Marine AWQC
As	N/D	N/D	N/D	N/D	N/D	98	N/D	110	110	N/D	2.4	100	60	36
Cd	16	10		46		110	10	8.4	N/D	6.8	3.3	2100	5.0	9.3
Cr	150	86	39	450	390	210	100	76	103	42	62.0	3100	10	50
Cu	100	53	110	170	400	10,000	41	6.5	1350	28	5.8	6300	25	2.9
Pb	1800	130	84	520	2000	35,000	110	120	1780	11.2	58		40	5.6
Hg	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	0.3		37,000	0.2	0.025
Ni	64	N/D		420	42	360	99	N/D	3010	10.6	11.7	N/D	40	8.3
Ag	N/D	N/D	N/D	N/D	N/D	67	N/D	N/D	N/D	N/D	N/D	50	10	NA
Zn	84	660	180	700	3600	48,000	170	60.6	66	91.8	290	24,000	20	50
Other														
PAH	200	190	N/D	N/D	260	<100	N/D	N/D	N/D	N/D	190	700	100	NA
Phenols	3700	<100	N/D	17,000	2700	370	N/D	620	N/D	N/D	960	1700	100	NA
TRPH	11,000	N/D	1200	N/D	63,000	4900	N/D	23,000	12,000	N/D	1200	170,000	100	NA
PCB	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	<10	10	0.03
Dieldrin	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	N/D	<5.0	5.0	0.0019

*: Detection limits were not consistent from site to site. Limits presented are the maximums from all sites within NAS Pensacola.
N/D: Not determined NA: Not Available