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LETTER OF TRANSMITTAL AND U S NAVY RESPONSES TO RESTORATION ADVISORY
BOARD COMMUNITY MEMBER COMMENTS ON RESOURCE CONSERVATION AND
RECOVERY ACT FACILITY INVESTIGATION NAS KEY WEST FL
3/20/1997
BROWN AND ROOT ENVIRONMENTAL



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March 20, 1997

Project Number HK 7046

Via FedEx

Mr. Phillip Williams
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Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0007

Subject: Responses to Robin Orlandi's Comments on the RFI/RI Report, Rev. 1

Dear Mr. Williams:

At the request of Mr. Dudley Patrick, Naval Facilities Engineering Command, Southern Division, Brown & Root Environmental is pleased to transmit the enclosed responses to Robin Orlandi's comments on the RFI/RI Report for the High-Priority sites at NAS Key West, Rev. 1. I assume that NAS Key West would prefer to deliver these responses to Ms. Orlandi and other Restoration Advisory Board (RAB) members at the 31 March 1997 RAB meeting. I have enclosed a diskette containing a computer file of the responses. The file is formatted in Word for Windows, version 6.0c and the diskette was scanned for viruses prior to submitting to you. A printout of the virus scan results is enclosed for your reference.

Please call me at (803) 649-7963, ext. 345 should you have any questions regarding the enclosed responses.

Sincerely,

Chuck Bryan
Task Order Manager

CMB:psm

Enclosures

cc w/o diskettes:
D. Patrick, SOUTHDIV
File 7046-3.2

Orlandi Comment Responses:

General Comment 1:

Page 1-8, *Concerning the site status, "final investigation completed": does this mean that no further monitoring of the site will be conducted? After the final investigation, how is the site assessed?*

Response: The term *final investigation* refers to the Supplemental RFI/RI. Based on the current data, the Navy does not anticipate any additional field investigation. At SWMUs 1, 2 and 9, the Navy will perform a Corrective Measures Study, developing a plan of action based on existing data. SWMU 3 was recommended for no further action. The Navy will seek public comments before implementing a final plan of action for any site.

General Comment 2:

Page 2-8, Table 2-2. *Do "Xs" indicate what was tested for or what was found?*

Response: The Xs indicate the parameter groups tested for in a sample. The text has been revised to clarify this.

General Comment 3:

In several charts, pesticide/PCB levels are characterized together, without Aroclor being broken out as a separate value from values for DDT, DDE, Aldrin, etc. Why?

Response: This is done because many of the laboratory methods used to analyze pesticides and PCBs use the same protocols to test for both classes of chemicals. The protocol used in these analyses in no way affects the results.

General Comment 4:

Page 4-4, *Re: "TCLP." Were leachate tests alone performed to determine soil contamination levels or were both leachate and direct soil testing used to evaluate levels of contaminants?*

Response: IT collected TCLP data only during the 1993 RFI/RI; three samples at SWMU 1 and one sample at SWMU 3 underwent this analysis. The TCLP data were not used in the Supplemental RFI/RI evaluation of soil contaminant levels because they indicate only the likelihood that contaminants will leach from soil into groundwater, and do not provide a direct measurement of soil contamination.

General Comment 5:

Page 4-5. *Data was "not validated." What does this mean and why does it add "conservatism" to the analysis?*

Response: Section 2.2 discusses data validation and the treatment of historical data. "Historical data were not subjected to any data quality assessment. They were assumed to have been assessed during their investigation activities and were accepted at face value, since records of validation were not available. While this assumption might not have been correct for all historical points, it is conservative. Questionable historical data points in the data set (data that otherwise might have been discarded as false positives or blank contamination if they had undergone a data quality assessment) only increase the potential for making a positive remedial determination for a particular SWMU."

General Comment 9:

Page 4-42. *How does the decline in metal levels in groundwater at SWMU 1, after peaking from 1990-93, compare with the timing of the (initial) excavation by current or previous cleanup contractors?*

Response: BEI conducted Interim Remedial Activities at SWMU 1 during the spring of 1996. It excavated the contaminated soil in the area defined by the dashed line on Figure 4-1. The 1993 RFI/RI conducted by IT detected several inorganics including arsenic, antimony, beryllium, cyanide, lead and mercury in one or more monitoring wells at levels that exceeded the most restrictive ARAR/SAL criteria. The 1996 Supplemental RFI/RI investigation detected only thallium and manganese in groundwater at levels in excess of the most restrictive ARAR/SAL criteria. The 1996 investigation also detected barium, arsenic, copper, and cyanide, but below the ARAR/SAL criteria. The data indicate that the magnitude and extent of inorganic contamination in the groundwater at SWMU 1 decreased between 1993 and 1996. However, the interim remedial action was performed after the January 1996 sampling. Thus, additional groundwater sampling was conducted at SWMU 1 during November 1996 to characterize current groundwater conditions for the Corrective Measures Study.

General Comment 10:

Page 4-45. *"Pesticides and semivolatiles are not expected to migrate significantly." How much weight does this factor carry in determining whether any further site excavation/cleanup is necessary?*

Response: The field investigation used this assumption to some extent to determine its limits, although if earlier investigations detected contamination in unexpected areas, later investigations made efforts to provide better characterizations of those portions of the site. Recommendations for a plan of action at each site were based on the findings of the human health and ecological risk assessments. Because the data used in the risk assessments resulted from the field efforts, the migration assumption indirectly affects the results; however, the assumption of "no significant migration" was not used to discount or eliminate existing data during the risk assessment process.

General Comment 11:

Page 4-69. *The biological receptor testing does not include bottom dwelling crustaceans such as crab or lobster which would be in direct contact with sediment and also constitute a potential vector for human exposures. Will any testing of additional biological receptors take place at SWMU 1 or in marine waters downgradient from the site?*

Response: Surface water at SWMU 1 consists of shallow water approximately 1 to 4 inches deep, and three small ponds. The ponds are 2 to 3 feet deep, 12 to 15 feet wide, and 40 to 80 feet long. Intensive fishing efforts during January 1996 revealed that the only fish at SWMU 1 are minnows. There are no crustaceans, shellfish, or other aquatic organisms at SWMU 1 to serve as potential vectors for human exposures.

The Corrective Measures Study (in progress) for SWMU 1 is considering additional biological monitoring of the receptors there.

General Comment 12:

Page 4-77. *"COPCs in SWMU 1 media were not present a sufficient concentrations to cause adverse non-carcinogenic health effects." If this statement is made relative to individual COPCs, is any testing applicable to evaluate the risk for multiple chemical exposure scenarios at this site? Also, if state or Federal environmental laws governing risk assessment are amended to include newly recognized risk factors such as endocrine system disruption, how will that affect the future status of this site?*

studies had characterized interior portions of each site. The average depth of monitoring wells ranges from 5 to 12 feet, although two wells at SWMU 9 are 20 to 25 feet deep. Appendix K of the Supplemental RFI/RI Report contains exact information on depths and screen intervals for wells that B&R Environmental installed. For wells installed during previous field investigations, depth and screen information is available in the reports that described those activities. The wells were screened to obtain samples from the surficial aquifer. As described in Section 2.2.6 of the Workplan (ABB 1995), "the surficial aquifer is the principal aquifer of concern in the area because it is used as a potable water resource to a limited extent and because it exists as a groundwater to surface water contaminant migration route."

General Comment 17:

Page 4-107. *Is the gravel road assumed to contain both surface and groundwater migration from contamination areas to the north?*

Response: Although surface-or groundwater transport might be responsible for contamination north of the gravel road, the Navy believes that the origin of the contamination is no longer the issue at SWMU 1. Rather, it is more important to perform an accurate characterization of the remaining contamination and develop a plan of action for the site. The groundwater data gathered at SWMU 1 during the Supplemental RFI/RI appear to conflict with data from previous investigations, so to correlate this unexpected data with historical data, the Corrective Measures Study analyzes additional groundwater samples. At this point the existing data, along with the additional groundwater data discussed above, appear to provide an accurate characterization of the nature and extent of contamination at SWMU 1, and the Navy will use them in developing a plan of action for the site.

General Comment 18:

Page 4-133, Figure 4-9. *DDT and arsenic levels reported at the mouth of the main ditch (Z11) in 1995 are not included/updated in Figure 4-19 for 1996. Why? Will any testing in the lagoon beyond the mouth of the ditch be performed?*

Response: Figure 4-18 shows sediment concentrations in 1995 samples and Figure 4-19 shows concentrations in 1996 samples. In accordance with the approved Workplan and Sampling and Analysis Plan (ABB 1995), the 1996 sampling did not include sediments for chemical analysis from the mouth of the ditch.

The Corrective Measures Study (in progress) is considering additional sampling for this site.

General Comment 19:

In relation to SWMU 2. Page 4-109 of this document states: "The ditch is the only outlet from the lagoon and can transport water northward where it eventually discharges into Boca Chica Channel. The surface water gradient in the ditch fluctuates tidally." Section 4.2.8, the ecological risk assessment and accompanying maps do not note SWMU 2's outlet into Boca Chica Channel. Where is this potentially affected area located and has any contaminant or ecological receptor testing been done at the Boca Chica Channel outlet? Isn't this considered a potential path of migration?

Response: The surface water in the ditch rarely flows at all. The sentence referring to tidal fluctuations is in error and will be deleted in the Supplemental RFI/RI report. The outlet of the ditch is approximately 3,000 feet west of SWMU 2, in a mangrove swamp near Boca Chica Channel. Due to the distance from SWMU 2 and the minimal flow, no samples have been collected from that area. Ecological receptor testing is being considered in the Corrective Measures Study at SWMU 2.

Target risks and carcinogenic risks are used to develop these concentrations. The footnote in question indicates the derivation of the RBCs from a target risk (hazard quotient) of 0.1 or a carcinogenic risk of 1×10^{-6} (normally abbreviated as 1E-06). A carcinogenic risk of 1×10^{-6} indicates that the exposed receptor has a one-in-a-million chance of developing cancer under the defined exposure scenario (one additional case of cancer in an exposed population of one million people). Carcinogenic and noncarcinogenic risks are discussed in Sections 3.2.5.1 and 3.2.5.2, respectively, of Appendix G. Section 3.2.7 of Appendix G discusses the use of RBCs, target risks, and carcinogenic risks in the adoption of Remedial Goal Options.

Representative Concentrations are the values used in the risk assessment to represent COPC concentrations in the media of interest at a particular SWMU. The calculation of a representative concentration for each COPC is based on the analytical data, following the latest risk assessment guidance from the U.S. Environmental Protection Agency. It is the lesser value of the one-sided 95-percent Upper Confidence Limit (UCL) and the maximum positive value in the data set. Section 3.2.2.5 of Appendix G contains a more complete description of the calculation of representative concentrations.

General Comment 24:

Page 4-183. *"Contaminants were eliminated as potential COCs if they failed to meet several criteria, including a maximum concentration less than a conservative benchmark." This phrasing makes it sound like chemicals that failed to have lower than benchmarks concentrations were eliminated as COCs (i.e., chemicals with high readings would fail the criteria and be eliminated). I assume that this is exactly the reverse of what its procedure intended.*

Response: The revised sentence reads as follows: "Contaminants were eliminated as COCs if they met several criteria, including a maximum concentration less than a conservative benchmark..."

General Comment 25:

Page 4-184, Table 4-56. *Aroclor 1260 is present in fish samples from SWMU 2, yet Aroclor was not detected in any test wells at SWMU 2. This seems to suggest an additional source of contamination or a possible oversight in testing procedures/results? Although, as stated in this document, PCBs are ubiquitous in the environment, background sample results for fish (Draft Background Report, June 1996, Table 10-2 through 10-5) indicate background PCB contaminant levels that are significantly lower and that have a lower frequency of detection than those reported at SWMU 2. This seems to suggest potential localized source(s) at the site. Because PCBs are a biologically significant contaminant and because of their biological and ecological persistence, it would seem prudent to conduct additional testing/investigation of PCBs at this site as part of post-IRA monitoring.*

Response: Sections 4.2.8 and 4.2.9 of the RFI/RI recommended long-term biomonitoring of pesticides in fish at SWMU 2; biomonitoring is one of the possibilities being considered in the Corrective Measures Study (in progress) for SWMU 2. Because the same analytical procedure measures both organochlorine pesticides and PCBs, the Navy anticipates that future biomonitoring studies at SWMU 2 will analyze both pesticides and PCBs.

General Comment 26:

Page 4-203. *"All Aroclor concentrations were less than the highest benchmark of 3000 mg/kg. Concentrations of PCBs in fish were low in relation to the highest available benchmark," what is this benchmark concentration and what source is it from? Also, on page 4-282, the highest benchmark is identified as 2,000 mg/kg. What is correct, and what is the most conservative benchmark?*

Response: Table 4-25 of the RFI/RI report lists four different benchmarks for Aroclor, ranging from 100 ppb to 3,000 ppb. The 3,000-ppb value (Eisler 1986) is a concentration that is considered to be protective

REFERENCES

ABB (ABB Environmental Services, Inc.), 1995, *Facility and Remedial Investigation NAS Key West, Workplan*, Volume 1 and *Sampling and Analysis Plan*, Volume 2, prepared for SOUTHNAVFACENGCOC, North Charleston, South Carolina, December.

BEI (Bechtel Environmental, Inc.), 1995, *Delineation Sampling Report for SWMU1, SWMU2, SWMU3, SWMU7, AOC-A, AOC-B, IR-1, and IR-2 at the Naval Air Station Key West Florida*, prepared for Department of the Navy, Southern Division, Naval Facilities Engineering Command, Oak Ridge, Tennessee.

Eisler, R., 1986, *Polychlorinated biphenyl hazards to fish, wildlife, and invertebrates: a synoptic review*, U.S. Fish and Wildlife Service Biol. Rep. 85 (1.7). 72 pp.

IT (IT Corporation), 1994, *RCRA Facility Investigation/Remedial Investigation, Final Report*, NAS Key West, Florida, prepared for SOUTHNAVFACENGCOC, Tampa, Florida, June.

Neely, W. B. and G. E. Blau, *Environmental Exposure from Chemicals*, Volume 1, CRC Press, Inc., Boca Raton, Florida.