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LETTER REGARDING REGULATORY REVIEW AND RISK ASSESSMENT COMMENTS ON
REV 1 OF REMEDIAL INVESTIGATION REPORT AT OPERABLE UNIT 2 (OU 2), MCCOY
ANNEX LANDFILL WITH ATTACHMENT NTC ORLANDO FL
11/8/2000
U S EPA REGION IV



UNITED STATES ENVIRONMENTAL PROTECTION
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

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ID 00100

November 8, 2000

4WD-FFB

Mr. Wayne J. Hansel
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
Charleston, SC 29419-9010

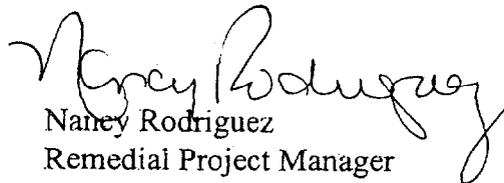
SUBJECT: Risk Review Comments for Ecological Aspects of the Revision 1 Remedial Investigation Report for OU2 McCoy Annex Landfill, Naval Training Center, Orlando, Florida

Dear Mr. Hansel:

The United States Environmental Protection Agency (EPA) has completed the review of the subject report. Please find attached EPA's additional comments.

If you have any questions about these comments, please call me at (404) 562-8536.

Sincerely,


Nancy Rodriguez
Remedial Project Manager

cc: Barbara Nwokike, SouthDiv
Dave Grabka, FDEP
Steve McCoy, Tt NUS

OU2

McCoy, Steven

From: Nancy Rodriguez [nancyrodz@yahoo.com]
Sent: Friday, September 15, 2000 3:29 PM
To: Steven McCoy
Subject: OU2



OU2 RI Report.doc

Hi Steve,

Please find attached some of our comments. Have a great weekend.

Nancy

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Nancy Rodriguez, P.E.
BRAC Remedial Project Manager
U.S. EPA, Region 4
Ph: (404)562-8536
rodriguez.nancy@epa.gov

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**Rev. 1 Remedial Investigation Report for OU2
McCoy Annex Landfill, Naval Training Center Orlando**

General Comments:

1. There is very little description provided of the interim removal actions. Details are provided in the human health section of the report versus in a main section. Plans regarding cover thickening or future land use are not described. This information is necessary to interpret potential risks.
2. The report is incomplete. Phase III data must be incorporated into the analysis of the ecological risk assessment. The interpretation of Phase III data must be incorporated into the conclusions. Currently, Tables 7-12A and B, which are presented after the conclusions, present a summary of the combined Phase I, II, and III data. The presentation does not facilitate a comparison with previous results, which were presented by north, central, and south sections.
3. Section 7.12 indicates that a qualitative analysis was provided for the Phase III data. The qualitative analysis is only good to an order of magnitude. It may be important for risk managers to know that a constituent is 10 times greater than background. However, the qualitative discussion presents comparisons to background and screening values as much as 9 times higher as within the same order of magnitude. For example, the qualitative analysis of aluminum in surface water indicated site concentrations of the same order of magnitude as background concentrations. However, the maximum concentration of aluminum at the site was 15,300 ug/L in Phase III at SW018, which was 8.7 times higher than the 2-times-average background screening value of 1,753 ug/L. The hazard quotient for mean lead in surface water was indicated to be only slightly greater than 1. However, lead in surface water had a maximum hazard quotient of 9.4 in the central section (SW001) and a maximum hazard quotient of 5.5 in the south section (SW018). The level of precision in the qualitative analysis is insufficient to allow interpretation of the risks.
4. Missing is the proper interpretation of the six upgradient stations, which were added to Phase III to evaluate potential upstream sources. The proper comparison is the maximum detected site concentration versus twice the average background concentration, as specified in Region 4's Supplemental Guidance. [Http://www.epa.gov/region4/wastepgs/offecser/otsguid.htm](http://www.epa.gov/region4/wastepgs/offecser/otsguid.htm)
5. The risk assessment makes a statement that metals and other constituents are not accumulating in sediments, however, sediments are routinely dredged. Elevated metals in surface water might be capable of accumulating in sediments

in the absence of dredging. The relatively low concentrations of constituents in sediments do not negate the potential risks of surface water contamination to ecological receptors in the canals and downstream habitats.

6. Routine dredging of the canals is not provided as a possible reason for relatively low concentrations of constituents in sediments. There is no discussion of whether dredging will continue into the future. Since sediments appear to have been subject to routine dredging throughout the study, it is unclear whether such dredging is necessary to prevent buildup of contaminant levels. If dredging does play a role in maintaining relatively low levels of constituents in sediments, it is uncertain whether this management activity is sufficient. Concentrations of several constituents increased in the central section in Phase III. Aluminum and iron, for which no screening values are available in sediments, approximately doubled in SD001. Copper, lead and zinc in SD001 increased from having hazard quotients below 1 to having hazard quotients slightly greater than 1. DDE increased in Phase III at SD005 from a hazard quotient of 1.1 to 2.5. Phase III sediment data, collected to measure the difference made by dredging the eastern canal, received little if any interpretation.
7. Although the canal might not provide significant habitat for ecological receptors, OU2 contains several wetlands and ponds that could potentially also intercept contaminated ground water. Limited sampling has been provided for these habitat areas. Potential impacts to wetlands and other habitat areas has not been assessed.
8. Several metals in surface water were elevated above State standards at multiple stations throughout the site. Additional downgradient sampling should be undertaken for constituents exceeding State standards that are associated with the landfill. A Phase II surface water sample from Lake Gillooly (SW022) contained zinc at levels above State standards. Also several nondetected metals had detection limits which exceeded State standards: aluminum, beryllium, chromium, lead, mercury, and silver. Concentrations in Phase II of aluminum, chromium, copper, lead, and zinc were highest in a sample 300 feet north of Lake Gillooly.
9. Phase III surface water data may not be comparable to Phases I and II because it was collected during baseflow conditions, as indicated by the report. The Phase I and II samples were collected after rainfall events. The concentrations in the canal may reflect antecedent conditions, being elevated a few days after a rainfall when shallow ground water discharges are at their peak. It may be misleading to substitute the Phase III data for earlier data due to differences in antecedent conditions, which cause the data to be incomparable. There is no reason to anticipate that conditions at the site have improved substantially with respect to metals in surface water.

10. The response to Ecological General Comment 4 stated that an interim removal action has been completed to address soil contamination in the southern section of OU2. An interim removal action involving excavation of soils in the vicinity of S103 was discussed for the northern section. No interim removal action has been presented for the southern section. Discrepancy with response to comments should be addressed.
11. Some of the highest concentrations of constituents in soil were detected in samples S02 and S04 in the southern section. The concentration of benzo(a)pyrene at S04 is 6.32 mg/kg compared to 2.62 mg/kg at S91 and 2.36 at S103, where interim removal was conducted for protection of human health. Concentrations at S04 are not only nearly three times as high as interim removal soils, but they occur in the vicinity of Hole #5 and several ponds and canals that may be attractive to both humans and wildlife. Models of average exposure may underestimate exposures in this area.
12. The brief qualitative discussion of Phase III data provided inadequate explanation for the selection of lead, mercury and zinc as chemicals of concern in surface water. It is unclear why the report summarizes that aquatic risks are present for lead, mercury, and zinc, versus other constituents. Constituents exceeding screening values and background in surface water are summarized below.

Metals Above Background and Screening Values in Surface water		
Section	Phases I & II	Phase III
Northern	Aluminum, chromium, iron, lead, mercury, zinc	Zinc
Central	Aluminum, copper, iron, lead, zinc	Aluminum, copper, iron, lead
Southern	Aluminum, chromium, iron, lead, mercury, zinc	Aluminum, chromium, iron, lead

13. A more complete analysis of Phase III ground-water data and its interaction with surface water may be warranted given the uncertainties associated with this exposure pathway. Ground water concentrations in Phase III appear to have declined. A question has been raised regarding association of certain metals in ground water with particulates. A detailed analysis of ground water and surface water interactions may be needed to support OU2 decision making.
14. Toxicity profiles for the constituents of potential concern were not included in the report. If correct toxicity information cannot be provided, at least inaccurate or misleading information must be removed. The statement that manganese is an

essential nutrient on Page 7-70 should be removed. The term essential nutrient has a certain connotation in risk assessment and for this purpose includes the following metals: magnesium, sodium, potassium, and calcium. Vanadium cannot be considered to be nontoxic in the environment. The toxicity of vanadium will depend on the form in soil or sediment. It has been identified with a hazard quotient greater than 1 in the food chain models for small mammals.

Specific Comments:

1. *Executive Summary, Page ES-6, Lines 4-6.* The executive summary presents risks to terrestrial wildlife from soil contamination as associated with hot spots, primarily in one or two adjacent samples. This description of the contaminant distribution is inaccurate. The contamination in the southern section is found in soil samples S02 and S04, which are not adjacent. An alternative interpretation is that the entire northwestern edge of Area 3 is subject to conditions of unacceptable risk. Better justification is required for a decision not to address hot spot contamination.
2. *Executive Summary, Page ES-6, Lines 9-10.* The executive summary states that there are risks to terrestrial receptors due to PAHs in the southern section. The summary suggests that the interim removal of soils at S103 and S91 will reduce risk in the southern section. The area removed was part of the northern section of OU2 and is on the eastern side. The effect of this action on the receptors of the southern part of OU2 on the western side near Area 3 is unclear. The ecological risk assessment divided OU2 into the three sections due to habitat differences and corresponding differences in receptors. Action taken at S103 might not protect ecological receptors on the opposite side of OU2.
3. *Figure 7.1, Conceptual Site Model - OU2.* The shading on Figure 7.1 needs to be included or the figure caption reference to the shading removed.
4. *Section 7.2.2., Major Chemical Sources and Migration Pathways, Page 7-8.* The section does not explain differential transport mechanisms of various types of constituents. Include a comparative discussion of the relative contributions to the canals from surface soils versus ground water discharge for SVOCs, pesticides, and inorganics. For example, explain how PAHs are adsorbed to soils and thus can be transported to sediments by erosion. This type of discussion is most effective when there is a separate paragraph for each class of compound. Include in the discussion whether the constituent class tends to accumulate into the tissues of organisms. Include a general discussion of ecotoxicity by class of chemical, emphasizing the connection between physical-chemical properties and exposure to the assessment endpoints.

5. *Section 7.3.2, Toxicity Reference Values, Page 7-15, Line 6.* Correct spelling of *separate*.
6. *Section 7.6.1.1, Northern Section Surface Water, Page 7-28, Line 1.* Remove iron from list of COPCs without Region 4 screening values.
7. *Section 7.7.1, Northern Section, Pages 7-68 through 7-72.* According to the response to comments on the draft report (Ecological Specific Comment 16), a discussion was to be added of the connection between PAHs detected in surface water and elevated PAHs in surface soil in the Hole 7 area. The text has not been modified as agreed in the response to comments.
8. *Section 7.12, Assessment of Phase III Data, Page 7-96, Line 4.* An EPA screening value and State standard is available for iron in surface water, and it is exceeded by Phase III data.
9. *Section 7.12, Assessment of Phase III Data, Page 7-96, Lines 1 through 4.* The appropriate comparison for the screening assessment is the maximum detected concentration, not the average.
10. *Section 7.7.1, Page 7-70.* Better justification is needed for elimination of vanadium. A general statement that vanadium and other chemicals lacking screening values are non-toxic is insufficient. Hazard quotients greater than 1 for vanadium were predicted for small mammals in food chain analysis. This comment points to the need for toxicity profiles for chemicals of potential concern as in General Comment 14.