



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GA 30303-8960

February 27, 2002

4WD/FFB

TDEC - Division of Superfund  
Attn: Clayton Bullington, RPM  
5th Floor, L & C Annex  
401 Church Street  
Nashville, TN 37243-1538

Subject: RCRA Facility Investigation Report, Assemblies G and H, Revision 1, Naval Support Activity Mid-South, Millington, TN.

Dear Mr. Bullington,

The Environmental Protection Agency (EPA) has completed review of the subject document. Discussion of fate and transport for the SWMUs looks good. The majority of comments relate to human health and ecological risk.

If you have any questions please contact me at 404-562-8513.

Sincerely,

A handwritten signature in cursive script that reads "Jennifer Herndon".

Jennifer Herndon  
Remedial Project Manager

cc: Rob Williamson, Public Works Office  
Jim Morrison, TDEC - Memphis  
Jim Reed, SOUTHDIV  
John Stedman, Ensafe - TOM  
Jack Carmichael, USGS

Please note that the comments below apply to all SWMUs. The substance of these comments should be considered and applied generally to the document even though specific examples are provided.

**Major Comments:**

**1) The Concentration Term.**

The concentration term should be linked to the exposure unit. For Superfund-type risk assessments, an exposure unit is the geographical area in which a receptor exists and may be exposed to a contaminated medium during the time period of interest. Environmental sampling provides information about the contamination within and around an exposure unit. For example, a child in a residential scenario will have an exposure unit the size of a residential lot - about 0.25 to 0.5 acres. A maintenance worker at a large industrial facility may have an exposure unit the size of the entire facility.

☞ *Defining the exposure unit is critical to the calculation of the concentration to which receptors are exposed.*

In the subject document, discussion of the choice of exposure unit for the various receptors was notably absent. This discussion should be included in the revised document.

**2) Uncertainty Discussion.**

The discussion of uncertainty throughout the document is misleading. These uncertainty discussions should be removed. An example is the presentation of uncertainty in exposure factors in section 3.8.6.2.

Another example occurs on page 4-14. The text reads: "An anomalously high detection of lead and location 114X000101 (2405 mg/kg) ..." Why is this value considered anomalous? Unless there is a specific reason, e.g. laboratory analytical uncertainty, this sample result has equal validity as the others. To brand a sample result as anomalous because the result is larger than all the others is not valid.

On page 4-15, the exposure frequency and exposure duration for the construction worker are called "speculative and conservative." What does this mean? In any case, this section should not be included in the revised document.

**3) Format for Ecological Risk Assessment.**

The ecological risk assessment should be performed according to the guidance document, *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments*. Interim Final. U.S. EPA. 1997, called the process document. The screening in steps 1 and 2 was mixed up with the problem formulation step. Because these sites will not have further ecological risk assessment

activities, steps 1, 2 and 3a should be presented here. The organization should follow the format suggested in the process document.

4) **Risk to Earthworms, etc.**

There appears to be confusion about assessment endpoints and measurement endpoints. EPA does not wish to assess the risk to earthworms *per se*. EPA is concerned about nutrient cycling as a reflection of the health of an ecosystem or natural community. Assessment endpoints do not refer to specific organisms or species but rather to guilds or groups that share common life strategies that would cause them to be exposed to and possibly affected by the site contaminants.

The avian piscivore would be an example of an assessment endpoint and this guild might be represented by the green heron. The measurement endpoint corresponding to this assessment endpoint might be modeled or measured concentrations in forage fish.

5) **Risk Characterization Statements.**

The document makes sweeping risk characterization statements. For example, on page 4-46, the text states that the average concentrations of several inorganic chemicals are less than the background RCs. The document then concludes that the risk due to these chemicals is "probably minimal." This statement is not correct. The correct statement would be that the risk due to these chemicals is similar to background levels of risk.

On page 4.2-86, the text states: "The HHRA concluded there are no residential receptors and it is unlikely future land use will be residential." The risk assessments should refrain from making statements about future land use. Such a statement is part of risk management activities, and hence, inappropriate in the risk assessment.

In addition, recommendations for future activities should also not appear in the risk assessment part of the document.

6) **Data Quality Objectives**

On page 4.2-15, the text states that the sample quantification limit for arsenic in soil for the single nondetect at SWMU 41 was 50 mg/kg. The detections ranged from 3.9 to 7.3 mg/kg. The contract-required quantification limit in the Statement of Work for the CLP contract for arsenic in soil is 3 mg/kg. Additional explanation is needed as why the SQL for this sample is elevated to such an extent.

More generally, what was decided about quantification limits in the work plan or sampling and analysis plan? Were these arsenic detections "J" values? The reviewer looked at the analytical data in appendix C and could not find reported results for inorganic chemicals.

***Minor Comments:***

- 1) **Use of the Region 3 RBCs.**  
Please note that Region 4 now uses the Region 9 PRGs for screening COPCs. A hazard quotient of 0.1 and a cancer risk of  $1E-6$  are appropriate screening risk levels. Because the document needs to be revised, COPC screening can be redone with the Region 9 PRGs.
- 2) **Exposure of Residential Receptors to the entire soil column.**  
On page 4-7, the text states that both surface and subsurface soil were considered for the residential exposure point concentration. Although this might be appropriate if houses with basements were constructed, the future residential scenario also includes mobile homes. The residential scenario exposure concentrations generally consider surface soil only, unless the home/basement scenario becomes certain.
- 3) **Use of BEQs for Ecological Risk Assessment.**  
BEQs are only used for human health risk assessment. Total PAHs should be used for ecological risk assessment. Please refer to page 4-47.
- 4) **Page numbering format.**  
The page number format changes from "4-42" to "4.2-7" (examples) midway through the document. This is confusing and should be revised.