NAVY REPONSE TO EPA COMMENTS DATED DECEMBER 8, 2006 ON THE DRAFT STEPS 3B AND 4 0F THE BASELINE ECOLOGICAL RISK ASSESSMENT FOR SOLID WASTE MANAGEMENT UNITS (SWMUs) 1 and 2
September 29, 2006
NAVAL ACTIVITY PUERTO RICO (NAPR)
CEIBA, PUERTO RICO

GENERAL COMMENTS

1. In their July 26, 2006, response to comments dated June 22, 2006, NAPR indicated that the results of the Summary Report for Environmental Background Concentrations of Inorganic Compounds (Background Report) would be utilized in implementing Steps 3b and 4 of the BERA for SWMUs 1 and 2. It is not clear whether this report has, in fact, been fully utilized. A number of inorganics were eliminated from further evaluation based on comparison to background in the May 18, 2006, Final Additional Data Collection Report (ADCR) and Screening Level Ecological Risk Assessment and Step 3A of Baseline Ecological Risk Assessment at SWMUs 1 and 2. It is not clear that the background data sets used in the ADCR are the same as those used in the October 17, 2006, Revised Final Background Report. Consequently, any differences between the background data set in the Revised Final Background Report and the background data set used in the ADCR could potentially impact the risk drivers selected for SWMUs 1 and 2. NAPR should clarify whether or not the results of the Revised Final Background Report have any impact on the inorganics previously eliminated, and therefore, the risk drivers selected for further analysis in Steps 3b and 4 of the Baseline Ecological Risk Assessment (BERA) for SWMUs 1 and 2.

   Navy Response:

   The background data sets identified in the Steps 3b and 4 BERA document represent expanded background data sets (additional data points added to the original data points used as background in Steps 1, 2, and 3a of the ERA process). Although the SWMUs 1 and 2 analytical data were not statistically evaluated using the expanded background data sets, a review of maximum, mean, and 95 percent UCL concentrations for the expanded and original background data sets indicates that use of the expanded background data sets would have no impact on the list of potential ecological risk drivers identified in Step 3a of the ERA process.

2. Section 5.2 indicates that one of the criteria to be used to determine whether the selected reference areas are acceptable is that reference area concentrations of potential ecological risk drivers must not be statistically elevated above background concentrations presented in the Revised Final Background Report. It is not clear that this approach will adequately confirm the acceptability of the proposed upland and estuarine wetland reference areas. The limited set of chemical risk drivers selected for SWMUs 1 and 2 may not adequately capture constituents that could be present in, and influence the toxicity test results of, media collected from the proposed reference areas. NAPR should include in the reference area analyses a suite of all parameters that could potentially impact the toxicity test results, and the determination of which analyses to include should be based on surrounding land uses and chemical fate and transport considerations.

   Navy Response:

   With regard to the proposed estuarine wetland reference areas, sediment samples have previously been collected from this location and analyzed for Appendix IX VOCs, SVOCs,

PCBs, organochlorine pesticides, organophosphorous pesticides, chlorinated herbicides, dioxins/furans, and metals. The analytical data for these samples (see Baker, 2006) show that theproposed estuarine wetland reference area is acceptable and sediment at this location does not contain Appendix IX parameters at ecologically important concentrations. As such, the Navy does not believe that estuarine wetland reference area sediment collected for use in the baseline ERA warrants analyses for chemicals beyond those identified as potential ecological risk drivers for SWMU 2 estuarine wetland sediment.

The proposed upland reference areas are located within undeveloped land, outside the potential influence of SWMUs 1 and 2 (i.e., topographically upgradient of impacted SWMUs 1 and 2 soils). Furthermore, the proposed reference areas are remote from other SWMUs/AOCs identified at NAPR. Although there is low potential for the presence of contaminated soil at the proposed reference areas, the Navy acknowledges that the unknown soil contaminants can be resent as these locations have not been sampled as part of any previous investigation conducted at NAPR. For this reason, the Navy agrees that soil samples collected from the proposed upland reference areas should be analyzed for additional parameters in order to demonstrate their adequacy for use in the Baseline ERA. As such, fifty percent of the soil samples collected from each of the proposed upland reference areas as part of the verification of the field sampling design (two surface soil and two subsurface samples per reference area) will be analyzed for the Appendix IX PAHs, organochloring pesticides, and metals. These chemical classes include the potential ecological risk drivers identified for SWMUs 1 and 2 surface and/or subsurface soil in Step 3a of the ERA process, as well as those parameters detected in SWMUs 1 and 2 surface and/or subsurface soil at a high frequency of detection. The text in Section 5.2, as well as other relevant sections and tables will be revised to reflect these additional parameters. The Navy does not believe that additional chemical classes as warranted based on available SWMUs 1 and 2 soil analytical data and surrounding land use (undeveloped, residential, and commercial land uses).

3. Given that SWMUs 1 and 2 fall within the designated critical habitat area for the yellow-shouldered blackbird *(Agelaius xanthomus)*, and that upland foraging habitat for this species exists at these SWMUs, the BERA problem formulatian should specifically discuss how the BERA will evaluate risks to this species. For example, if the American robin *(Turdus migratorius)* can be protectively used as a surrogate receptor to evaluate risks to the blackbird, this should be noted in relevant sections of the Steps 3b and 4 BERA document.

Navy Response:

Based on aspects of the feeding ecology of American robins and yellow-shouldered blackbird, as well as exposure assumptions specified in the Steps 3b and 4 BERA document (see items listed below), the American robin can be protectively used as a surrogate receptor for the yellow-shouldered blackbird.

- *The diet of the American robin in Step 3b and 4 of the baseline ERA was assumed to be 90.1 percent invertebrates (i.e., earthworms) and 9.1 percent soil. Available literature (USFWS, 1996) indicates that the diet of the yellow shouldered blackbird is 90 percent invertebrates and 10 percent plant material. Soil consumption by the yellow shouldered blackbird is assumed to be negligible based on their aboreal feeding behavior (see second bullet item below). As such, the assumed diet of the American robin (90.9 percent invertebrates and 9.1 percent soil) will result in a conservative estimate of food web exposures for the yellow shouldered blackbird.*

- *The American robin forages primarily on the ground for soft-bodied invertebrates (e.g., earthworms), whereas the yellow shouldered blackbird is an aboreal feeder that forages within the canopy and sub-canopy layers of trees (USFWS, 1996). As discussed in Section 4.4 of the step 3b and 4 BERA document, prey items consumed by the American robin are assumed to be 100 percent earthworms. Because earthworms are in direct contact with soil, they will bioaccumulate soil contaminants at higher concentrations than aboreal invertebrates. Therefore, modeled dietary intakes based on the ingestion of earthworms will result in conservative estimate of food web exposures for the yellow shouldered blackbird.*

Relevant sections of the Steps 3b and 4 BERA document will be revised to indicate that the American robin can be protectively used as a surrogate receptor to evaluate risks to the yellow shouldered blackbird.

SPECIFIC COMMENTS
Table 5-3

1. Laboratory parameters for estuarine wetland sediment listed in this table include copper, lead, and zinc, but do not include mercury. Because mercury is a risk driver for upper trophic level food web exposures in the estuarine wetland, and fiddler crab tissue from the estuarine wetland will be analyzed for mercury, it would also be useful to include mercury in the list of sediment analytes. These data will allow NAPR to better quantify mercury exposure to avian receptors via direct ingestion of sediment, and to better relate crab tissue concentrations to sediment concentrations if calculated risks indicate the need for remedial action. Table 5-3 and other relevant tables and text sections should be revised to include analysis of mercury in SWMU 2 estuarine wetland sediment samples.

   Navy Response:

   The Navy agrees with this comment. The 24 sediment samples collected from the 25-foot by 25-foot sampling grid described in Section 5.3.2.2 will be analyzed for total mercury. All relevant text and tables will be revised to reflect inclusion of total mercury as an estuarine wetland sediment analyte for SWMU 2. It is noted that the total mercury data will not be quantitatively evaluated for risks to benthic invertebrates (total mercury was not identified as a potential ecological risk driver for the SWMU 2 estuarine wetland benthic macroinvertebrate community) unless the toxicity test results can not be explained by the analytical data for the estuarine wetland sediment risk drivers identified in Step 3a of the ERA process (i.e., total copper, lead, and zinc) In this case the mercury data will be evaluated to determine if the observed dose response was influenced by detected mercury concentrations.

2. Because the ADCR reported detection limits that exceeded screening levels for the majority of organic analytes in SWMU 2 estuarine wetland sediments, NAPR may wish to consider analyzing a broader suite of parameters in the sediment samples collected from this area. NAPR should understand that, if toxicity is observed in the benthic invertebrate toxicity tests that cannot be attributed to the selected risk drivers, then additional evaluation may be needed to ensure that site-related constituents are not the cause of the toxicity. Inclusion of a broader suite of analytes in the current effort may prevent unnecessary additional toxicity testing in the future.

Navy Response:

The Navy acknowledges that reporting limits for many organic compounds exceeded sediment screening values. However, the majority of non-detected chemicals with maximum reporting limits greater than sediment screening values were not detected in upgradient SWMU 2 surface or subsurface soil. Based on the absence of detections in SWMU 2 surface and subsurface soil, there is no indication that they are associated with historical site activities. Therefore, there is no indication that they would be migrating to SWMU 2 estuarine wetland sediment at ecological important concentrations. As there is no indication that they are site-related, the Navy does not believe that analyzing for a broader suite of parameters in the sediment samples collected from the estuarine wetland downgradient from SWMU 2 is necessary.

Appendix C

3. If available, a list of plant species observed at the central area, as well as the relative abundances of plant species observed at the SWMUs and the control areas, should be included in Appendix C. These data would better support the conclusion in Section 3.3 that the plant community at SWMUs 1 and 2 have not been unacceptably altered.
Navy Response:

Navy Response:

The information requested by this comment (list of plant species observed at the control area and the relative abundances of plant species observed at the SWMUs and control areas) was not compiled by Geo-Marine, Inc. and is therefore not available for inclusion into Appendix C.