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TIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2003
OAK RIDGE, TENNESSEE 37831
July 25, 1991

Ms. Laurie Boucher
Atlantic Division, Code 1822
Naval Facilities Engineering Command
Norfolk, Virginia 23511

Dear Ms. Boucher:

Review of the Site Assessment Report for Sites 6, 48, and 69 at Marine Corps Base Camp Lejeune, North Carolina - June 1991
Contract No.: N62470-83-C-6106

The report supplied has been reviewed in accordance with the Naval Energy and Environmental Support Activity document Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program, NEESA 20.2-047B. Requirements for Final Reports are provided on Page 70 of the document. The following comments are offered for your consideration.

1. Page 1-4: According to the text, malathion and diazinon were suspected contaminants at Site 69. These compounds are organophosphorus pesticides and are not covered under the organochlorine pesticide analysis. Although these compounds break down readily in the environment, it may be beneficial to the reader to discuss why samples were not analyzed for these compounds.
2. Page 1-4: Please define "HTH". This abbreviation is not familiar to the reviewer and is not defined in the acronym list.
3. Figure 1-4: There are two rectangular figures depicted within the boundary of Site 69. It is not clear what these figures represent. Please define if these are buildings or burial trenches.
4. Page 3-16: The text states that a referee sample was forwarded to a third independent laboratory for analyses, and EPA supplied spike and blank samples to the site assessment laboratories. This is the only discussion of this information. No information regarding the agreement between the referee laboratory and the site laboratory is provided.
5. Table 3-2: It is noted that trip blanks were not included in those coolers containing sediment samples to be analyzed for the full target compound list. Trip blanks should have been included under the NEESA guidelines.
6. Page 5-5: According to the text, acetone and toluene were reported as tentatively identified compounds (TICs). It is not clear if these compounds could be reported as TICs, when they are both on the target compound list. If these compounds are present, they should be reported as positive hits (not as TICs).

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This was noted throughout the discussions of the various sites that compounds (or metals, see page 5-15) included on the target compound list were reported as TICs. This is incorrect usage of the term.

7. Page 6-2: The text states that acetone, methylene chloride, and toluene were not considered potential contaminants of concern because they have been identified as possible laboratory contaminants. These should be dismissed only if the laboratory of field blanks have shown contamination. The validation guidelines provide a 10x rule for determining if contamination is attributable to blank contamination.
8. Page 6-13: It appears that no soil background soil samples were analyzed for Camp Lejeune. Because of the great variability in soils, site specific background samples are recommended to obtain a more accurate picture of the metals background levels in a particular area.
9. Table 6-9: In reviewing the table, it is not clear if the concentrations reported for the site 69 shellfish are based on wet weight or dry weight.
10. Page 6-37: A Remedial Investigation Report produced by ESE is cited as containing information regarding the analyses of equipment blanks. It would be extremely beneficial to have a short table displaying these equipment blank results.
11. Page 6-42: The section describing recommendations states that information on the extent and direction of contaminant plume migration and depth and extent of soil contamination are required for a complete risk assessment. On page 1-5, it is stated that the purpose of this investigation was to verify the nature and extent of contamination within the affected media. If the purpose of this investigation was to determine extent of contamination, it is not clear whether the goal was met or not. This discussion needs to be expanded as to specific information that has yet to be obtained for each site.
12. Appendix E: This section is labeled as a discussion of the QA/QC data. This section covers only field QA/QC data. There is no formal discussion of the laboratory QA/QC data. It is not clear if the project goals for precision, accuracy and completeness were met. If the data underwent validation, the validator's notes and comments should be provided.
13. Mr. Dahlin commented on the sometimes high variability of the aqueous field duplicates and attributed this to sediments in the samples. This, in all likelihood, is the primary source of the variability. The report, however, should include a discussion of why samples were not filtered and the possible effects of sediment loading on the routine samples. During the sampling and analysis of samples for Camp Lejeune, there was much correspondence in regards to sediment loading in the samples. It is not clear why this is not discussed anywhere in the report.

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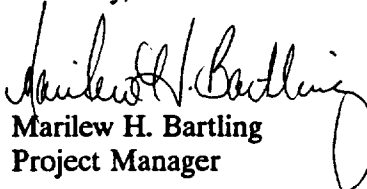
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14. It was not possible to assess the routine data with the information provided in the report. The following information must be available to fully review the data:
- Chain of custody forms to verify dates of sample collection and receipt. The chain of custody also provides documentation regarding the use of preservatives which influence holding times.
 - Dates of extraction and analysis for all routine and quality control samples. This information is required to verify that all validation holding times were met. This information is also needed to correlate samples with appropriate laboratory quality control information.
 - Laboratory quality control information is required. There was no information in regards to surrogate recoveries, matrix spikes, duplicates and blank analyses. Instrument information in regards to instrument tunes and calibration is also required.
 - Specific sample information is also required. This includes the size sample analyzed, any dilutions to the sample, sample preparation method and the percent moisture of soil samples.
15. In Appendix D, there several pages of EPA Spike Samples results. Some of the spikes have results and some do not. It is not exactly clear what information this is supposed to relay. Without the target values, this information is not useful to the reviewer.
16. Please ensure that the appendices are numbered. It is extremely hard to reference data without page numbers.

If there are any questions or comments, please call me at (615) 574-5270.

Sincerely,


Marilew H. Bartling
Project Manager

MHB:bsg

cc: A. R. Barnard-Hatmaker
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Letter File
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