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03.01- 10/18/91 - 02411

MARTIN MARIETTA ENERGY SYSTEMS, INC.

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October 18, 1991

Ms. Laurie Boucher
Atlantic Division, Code 1822
Naval Facilities Engineering Command
Norfolk, Virginia 23511-6287

Dear Ms. Boucher:

Review of Preliminary Draft Work Plan for the Remedial Investigation and Feasibility Study at Camp Lejeune Military Reservation (Sites 6, 48, 69), Jacksonville, North Carolina - September 1991
Contract No.: N62470-89-D-4814

The referenced work plan and associated documents have been reviewed in accordance with the document Naval Energy and Environmental Support Activity (NEESA) document Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program, NEESA 20.2-047B.

Work Plan

Please include a scale on all site maps.

Sampling and Analysis Plan (SAP)

1. P. 5-3: Please specify stabilization criteria for pH, conductivity, and temperature.

2. Documentation should be maintained for all certifiable materials used in the field. This may include solvents used in decontamination, well materials, and preservatives.

Quality Assurance Project Plan (QAPP)

1. P. 2-1: The methods cited to be used in this investigation include the March 1990 Contract Laboratory Program (CLP) Statements of Work (SOW) for Organics and Inorganics and other U.S. Environmental Protection Agency (EPA) methods. Please note that p. 5-30 of the work plan states that the 1985 Functional Guidelines will be used to validate data. These validation guidelines are not appropriate when using 1990 methods, which have been greatly modified.

   Please note that since March 1990 several revisions have been applied to the CLP SOWs. The most recent revision for organics was issued June 1991 and is referenced as 0lM01.6. This is the version referenced in this review.

2. P. 7-2: The holding time listed for volatiles in water on Table 7-1 is a contractual holding time from the CLP SOW. The appropriate holding times to apply to ensure data are not flagged during validation are 14 d, if preserved with hydrochloric acid to pH <2 or 7 d, if unpreserved. The same holding times apply to samples submitted for benzene, toluene, ethylbenzene, and xylene.

3. P. 7-3: The appropriate holding times for semivolatiles and pesticides/polychlorinated biphenyls in soil and sediment are 14 d to extraction; 40 from extraction to analysis. Table 7-2 currently lists 7 d to extraction.

   Please ensure that holding times listed in the Field Sampling and Analysis Plan (FSAP) are in agreement with holding times in QAPP.

4. P. 7-4: It is advised that an additional 8 oz. container of waste be obtained for the analysis of volatiles by Toxicity Characteristic Leaching Procedure. Although one jar may be sufficient, the sample to be extracted by zero headspace should undergo minimal disturbance prior to analysis.

5. P. 7-7: Please ensure that all chemical preservatives used are recorded on the Chain of Custody. The laboratory should verify preservation by checking and recording the pH of all samples upon receipt (except volatiles, which are checked at the bench if the 7-d unpreserved holding time is exceeded).

6. P. 8-4: Please note that under the March 1990 CLP SOW, System Performance Check Compounds and Calibration Check Compounds are no longer utilized. Please refer to p. E-17 of the SOW for calibration criteria.

7. P. 8-4: Inductively Coupled Plasma (ICP) is not required to undergo a five-point calibration. According to CLP, ICP is calibrated with one standard and a blank. Because ICPs have such a wide linear range this is all that is required. The instrument must, however, undergo quarterly linearity checks. Please refer to p. E-10 of the CLP SOW for more information.

   CLP requires one blank and at least three standards in the appropriate range for Graphite Furnace Atomic Absorption (GFAA) calibration, with one standard at the Contract Required Detection Limit (CLP SOW, p. E-9).

8. PP. 8-5, 8-6: The acceptable correlation coefficient for virtually all chemical analyses is 0.995.

9. P. 8-5: The QAPP currently states that 15 percent is acceptable for all metals, except mercury. The calibration verification acceptance criterion, as specified in the CLP SOW (p. E-11), is as follows:

- ICP/GFAA	90 to 110 percent of true value
- Cold Vapor AA	80 to 120 percent of true value
- Cyanide	85 to 115 percent of true value

10. P. 9-2: Please note that vinyl acetate is no longer included on the CLP Target Compound List. It should also be noted that methods 624 an 625 have different compound lists than CLP and are not applicable to soil. It is recommended that the method be listed as CLP without a reference to 624 and 625.

11. P. 9-7: It is not clear why so many metals have both ICP and GFAA referenced. Traditionally, the only metals analyzed by GFAA are arsenic, cadmium, lead, selenium, thallium, and sometimes antimony.

12. P. 10-2: Data validation must be independent of the laboratory. During data review, the laboratory applies data flags based on the guidance provided by CLP. During data validation, an independent validator will flag data as usable, estimated, or unusable. The only flag that may remain from the laboratory flags is the "u" signifying the analyte of interest was not detected above the quantitation limit. The validator also evaluates field quality control samples such as the agreement between field duplicates (which may be blind to the laboratory) and overall project completeness.

13. P. 11-3: According to the NEESA program, which is in agreement with the CLP SOW, a matrix spike and matrix spike duplicate are to be run at a rate of one per 20 samples for organics. A matrix spike and a unspiked duplicate are to be analyzed at the rate of 1 per 20. This applies whether or not the matrix is soil or water.

    Please note that the laboratory duplicate or spiked duplicate are required to be analyzed in addition to field duplicates.

14. P. 11-4: Under the NEESA program and CLP SOW guidelines, the laboratory is never to correct for blank contamination. The flagged sample result and the blank result are both to be reported and the data validator is to determine the need to correct values for blank contamination.

15. P. 11-4: Although it is a good idea to try to reprepare and reanalyze all samples associated with a contamination blank, holding times may not permit this corrective action.

16. P. 11-7: Field blanks are to be collected from each source of water used in the decontamination process (source water and final rinse water). These samples are to be submitted once per event as defined in NEESA 20.2-047B. Field duplicates are to be obtained at a rate of ten percent. The exception to this may be tissue samples or waste samples which may be collected at a rate of five percent. In the FSAP, rates at which these samples are to be collected are in agreement with NEESA 20.2-047B.

    Please note that the word "volatiles" is misspelled on Table 11-2.

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

Sincerely,

Marilew H. Bartling
Project Manager

MHB:mpl

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Letter File
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