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MCRD PARRIS ISLAND  
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LETTER OF TRANSMITTAL AND U S EPA REGION IV COMMENTS ON DRAFT REMEDIAL  
INVESTIGATION/RESOURCE CONSERVATION AND RECOVERY ACT FACILITY  
INVESTIGATION WORK PLAN FOR SITE 45 MCRD PARRIS ISLAND SC  
7/1/2000  
U S EPA REGION IV

19.01.45.0001

1D 214

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

7/00

4WD-FFB

Brigadier General Stephen A. Cheney  
Commander  
Marine Corps Recruiting Depot - Parris Island  
P. O. Box 19001  
Parris Island, SC 29906-9001

SUBJ: Draft Remedial Investigation/RCRA Facility Investigation Work Plan Site/SWMU 45  
U.S. Marine Corps Recruit Depot Parris Island, South Carolina  
EPA ID# SC6170022762

Dear General Cheney:

The U.S. Environmental Protection Agency (EPA) has received and reviewed the above referenced document. EPA's comments are enclosed. If you have questions about these comments, please call me at (404)562-8506.

Sincerely,

Robert H. Pope  
Federal Facilities Branch  
Waste Management Division

cc: Tim Harrington, MCRD  
Jerry Stamps, SCDHEC  
Don Hargrove, SCDHEC  
Art Sanford, NAVFAC

**Draft Remedial Investigation/RCRA Facility Investigation Work Plan**  
**Site/SWMU 45**  
**U.S. Marine Corps Recruit Depot Parris Island, South Carolina**  
**EPA ID# SC6170022762**

General Comments:

1. The general technical approach presented in the Work Plan is technically adequate, but there are concerns regarding the necessity of additional testing of air sparging, the contingencies for defining the nature and extent of contamination in surface soil and the Floridian aquifer, and the type(s) of groundwater model(s) to be used and the expected model inputs and outputs.
2. The development and presentation of Data Quality Objectives (DQOs) and the project Quality Assurance Plan (QAP) is inadequate to meet EPA requirements. While the planned data acquisition would seem to correspond to the more evident data needs, the lack of specific DQO problem statements makes this difficult to evaluate. Moreover, the quantity and quality of data proposed has not been substantiated (see specific comments), for example why is slug testing data being collected and how will it be used. The specific QAP requirements should reflect the established DQOs.

Specific Comments:

1. Page 1-5, Figure 1-2. The decision rules and limits on decision error are project specific, and should be included in the Work Plan. Reference to the Master Work Plan is not sufficient.
2. Page 2-1, section 2.2.1, 1st paragraph, 3rd sentence. Please include the depth below ground surface, as well as the elevation relative to mean sea level, for subsurface data.
3. Page 2-6, section 2.4. This problem statement is too general to support development of DQOs for this project. Multiple problems exist at this site that may require additional data to support decision making, such as: the nature and extent of surface soil contamination exceeding risk-based concentrations has not been defined, it has not been determined whether contaminant concentrations in subsurface soil are contributing to groundwater contamination, the extent of shallow groundwater contamination has not been defined, the presence or absence of DNAPL has not been determined, potential impacts to the Floridian aquifer have not been addressed, design data for optimizing the existing treatment system and/or assessing the potential for MNA have not been collected, and data of sufficient quality and quantity to assess human health and ecological risks from exposure to soil, groundwater or surface water have not been collected.

4. Page 4-1, section 4.0, 1st paragraph, 1st sentence. The word "No" appears to be incorrect, please clarify.
5. Section 4.0. The content of this section does not fully meet the requirements for DQOs. Planned data collection should correspond to specific data needs that support the decision making process. The Investigation Rationale should tie the identified data need together with the data type, quantity and quality proposed.
6. Page 4-1, section 4.1, 2nd bullet. Defining the horizontal and vertical extent of groundwater contamination must be an explicit objective of the RI.
- X 7. Page 4-2, section 4.2.1.1. Clarify what contingency approach will be used if the eight sample locations chosen do not adequately bound the area(s) of soil contamination.
- X 8. Page 4-3, section 4.2.1.2, 4th paragraph. Further develop the proposed rationale (i.e., develop decision rules) for siting the three permanent monitoring well clusters with regard to the following concerns: will the wells be sited and constructed to support dual use (monitoring and remediation), how will the locations be "based" on the initial sampling (i.e., co-located to provide more definitive data or located to fill remaining data gaps), and how will the monitoring interval(s) be selected. Finally, clarify what contingency there is for monitoring the upper Floridian aquifer if contamination is present in the Hawthorn formation below the source area(s).
- ⇒ 9. Page 4-3, section 4.2.1.3. Please include discussion of whether or not the previously observed contaminant concentrations are indicative of the presence of DNAPL, and what data (which borings at what depths) is expected to substantiate the presence or absence of DNAPL.
- ⇒ 10. Page 4-3, section 4.2.1.3, 6th sentence. Please clarify what fluorescent techniques will be used, how they will be applied, and what their limitations are (i.e., effective detection limits).
- X 11. Page 4-3, section 4.2.2. Specify which model(s) are planned for use, and how the modeling will be used to support the development and selection of remedial alternatives.
12. Section 4.2. Please add references to section 6.0 or to the relevant standard operating procedures in the descriptions of the various data collection activities, as applicable.
- X 13. Page 4-3, section 4.2.1.2, 3rd and 4th paragraphs. Clarify whether the data quality of the samples from the temporary wells will be sufficient to support risk assessment and whether it will be compared to the data from the permanent wells (i.e., a data quality comparison). If only the data from the permanent wells will be used for assessing risk from groundwater, please clarify how this limited sample population will be sufficient to for risk assessment.

14. Page 4-4, section 4.2.2.2. Additional description of the method(s) planned for performance and analysis of slug testing should be provided. Additionally, the rationale and use of the slug test data should be presented. Since a pump and treat system is in place, pump testing of the new and existing wells could easily be performed and would provide much higher quality aquifer characterization data.

Both

No

15. Page 4-6, section 4.2.5. Include an analysis of the deficiencies with the previous air sparging pilot test that necessitates further testing of this alternative.

EPA.

16. Page 4-8, Table 4-2. The text supporting the investigative summary does not clearly explain/reference all of the activities presented in this table (e.g., collection of shelby tube samples for testing of vertical hydraulic conductivity from the Hawthorn formation). The use/purpose of the data collected should be clearly explained, and the quantity and quality requirements for the data should be justified in the text. In general, RI data should be sufficient to use for definition of the nature and extent of contamination, support risk assessment, and allow for development of remedial alternatives.

✓

17. Page 5-1, section 5.1, 1st paragraph, 2nd sentence. Please clarify what current and historical data will be used to support the risk assessment (e.g., validated results from approved fixed-base laboratories that is less than three years old). Provide a summary table by media and analyte group of the population of data anticipated to comprise the BRA.

X

18. Page 5-1, section 5.1, 2nd and 3rd paragraph. A technical memorandum should be considered as an appendix to this plan describing and justifying the risk assessment approach (i.e., COC selection, pathways of concern, and receptors) following evaluation of the initial RI data.

No

19. Page 5-2, section 5.2, 1st paragraph. The project risk assessment approach should be agreed prior to completing the BRA (see specific comment 18). The technical approach to performing ecological risk assessment should reflect the results of the Partnering Team ecological risk subcommittee.

✓

20. Page 6-2, section 6.3.2, 2nd paragraph, 2nd sentence. Please further describe the "stainless steel drive rods" to be used for groundwater sampling. Is this a well point assembly or just an open ended drive rod?

✓

21. Page 6-4, section 6.4.1, 1st paragraph, 1st sentence. Clarify how stability of the groundwater field parameters will be established.

✓

22. Page 6-4 through 6-5, section 6.4.2. Provision for the development of the permanent monitoring wells should be included. The well development criteria should meet or exceed EPA standards as specified in Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EPA, 1996).

23. Page 7-2, section 7.3.1, 2nd sentence. The site-specific Quality Assurance Plan (section 8.0) does not contain the referenced information, but does further cross-reference to section 10.0 where the container requirements are specified. Please reference the appropriate section, and see specific comment 27 regarding the required content for a project QAP.
24. Page 7-3, section 7.3.4, 3rd sentence. The referenced standard operating procedure may need to be changed to SA-6.3 for sample custody. It should be noted that the definition of custody and specific requirements for the maintenance of custody are not specified in either SOP.
25. Page 7-5, Table 7-1. This presentation of planned soil data collection is helpful in discriminating the locations and data types for the "nature and extent" and the "groundwater modeling" borings. The text in sections 4.0 and 7.0 should more closely/clearly correspond with this table. The quantity, type, locations and sample identifiers should be presented in the text, and these should correspond to the DQOs.
26. Page 7-6 and 7-7, Table 7-2. Please include TCL VOAs for the permanent monitoring wells on this table.
27. Page 8-1, section 8.0. This section, including the referenced information, does not meet EPA Quality Assurance Plan (QAP) requirements. A review of the Master QAP indicates that appropriate generic/sitewide content (e.g., audit and corrective action processes) is included, however there remains significant project-specific content that is not presented in the project Work Plan. An EPA QAP checklist is attached to assist the Navy in meeting the relevant requirements. If the project QAP content will be presented across various portions of the project Work Plan and Master Work Plan, it is recommended that a crosswalk table be prepared to facilitate evaluation.
28. Page 9-1, section 9.1. Figure 9-1 was missing from the review copy of the Work Plan provided.
29. Page 10-1, section 10.0, 1st sentence. Clarify what "DQO statements" are being referred to. It is agreed that the project QC requirements should be the result of data needs identified during the DQO process. That this is the case is not clear.
30. Page 10-1, Table 10-1. Clarify whether these QC requirements are intended to be applied to geotechnical samples as well. Also, clarify what site conditions might require the use of field blanks.
31. Page 10-3, section 10.7. The extent of data validation should also be a result of the DQO process.

**DESIGNATED APPROVING OFFICIAL (DAO)  
QAPP CHECKLIST (QA/G-5 AC.2)  
USEPA - REGION 4  
OFFICE of QUALITY ASSURANCE & DATA INTEGRATION (OQADI)**

Facility Name: \_\_\_\_\_ Location: \_\_\_\_\_  
QAPP Date: \_\_\_\_\_ Receipt Date: \_\_\_\_\_ Review Date: \_\_\_\_\_

Title	Signature	Date
Designated Approving Official		
First Line Supervisor		

P = Present & Acceptable; NP = Not Present; I = Incomplete; NA = Not Applicable  
@ - element added to checklist by OQADI (with reference to appropriate DQO step)

ELEMENT	DQO STEP (QA/R-5 A.3)	COMMENTS (P, NP, I or NA)
<b>A1. Title and Approval Sheet</b>		
Title ✓		
Organization's name ✓		
Dated signature of project manager ✓		
Dated signature of quality assurance officer ✓		
Other signatures, as needed		
<b>A2. Table of Contents</b>		
<b>A3. Distribution List</b>		
<b>A4. Project/Task Organization</b>	1	
Identifies key individuals, with their responsibilities (data users, decision-makers, project QA manager, subcontractors, etc.) ✓		
Organization chart shows lines of authority and reporting responsibilities ✓		
<b>A5. Problem Definition/Background</b>	1 & 2	
Clearly states problem or decision to be resolved ✓		
Provides historical and background information ✓		
<b>A6. Project/Task Description</b>	1, 2, 3, & 6	
Lists measurements to be made ✓		
Cites applicable technical, regulatory, or program-specific quality standards, criteria, or objectives ✓		
Notes special personnel or equipment requirements ✓		
Provides work schedule ✓		

ELEMENT	DQO STEP (QA/R-5 A.3)	COMMENTS (P, NP, I or NA)
Notes required project and QA records/reports		
A7. Quality Objectives and Criteria for Measurement Data	4, 5, & 6	
States project objectives and limits, both qualitatively and quantitatively ✓		
States and characterizes measurement quality objectives as to applicable action levels or criteria ✓		
States appropriate temporal and spatial boundaries@ ✓		
States "scale of decision making"@ ✓		
A8. Special Training Requirements/Certification Listed ✓		
States how provided, documented, and assured ✓		
A9. Documentation and Records	3 & 7	
Lists information and records to be included in data report (e.g., raw data, field logs, results of QC checks, problems encountered) ✓		
States requested lab turnaround time ✓		
Gives retention time and location for records and reports ✓		
B1. Sampling Process Design (Experimental Design)	5 & 7	
States the following:		
Type and number of samples required ✓		
Sampling design and rationale ✓		
Sampling locations and frequency ✓		
Sample matrices ✓		
Classification of each measurement parameter as either critical or <del>needed</del> for information only ✓		
Appropriate validation study information, for nonstandard situations ✓		
B7. Sampling Methods Requirements	3 & 7	
Identifies sample collection procedures and methods ✓		
Lists equipment needs ✓		
Identifies support facilities ✓		
Identifies individuals responsible for corrective action ✓		
Describes process for preparation and decontamination of sampling equipment ✓		
Describes selection and preparation of sample containers and sample volumes ✓		
Describes preservation methods and maximum holding times ✓		
B3. Sample Handling and Custody Requirements		
Notes sample handling requirements ✓		
Notes chain-of-custody procedures, if required ✓		

ELEMENT	DQO STEP (QA/R-5 A.3)	COMMENTS (P, NP, I or NA)
B4. Analytical Methods Requirements	3 & 7	
Identifies analytical methods to be followed (with all options) and required equipment		
Provides validation information for nonstandard methods		
Identifies individuals responsible for corrective action		
Specifies needed laboratory turnaround time		
B5. Quality Control Requirements	3	
Identifies QC procedures and frequency for each sampling, analysis, or measurement technique, as well as associated acceptance criteria and corrective action		
References procedures used to calculate QC statistics including precision and bias/accuracy		
B6. Instrument/Equipment Testing, Inspection, and Maintenance Requirements	3	
Identifies acceptance testing of sampling and measurement systems		
Describes equipment preventive and corrective maintenance		
Notes availability and location of spare parts		
B7. Instrument Calibration and Frequency	3	
Identifies equipment needing calibration and frequency for such calibration		
Notes required calibration standards and/or equipment		
Cites calibration records and manner traceable to equipment		
B8. Inspection/Acceptance Requirements for Supplies and Consumables		
States acceptance criteria for supplies and consumables		
Notes responsible individuals		
B9. Data Acquisition Requirements for Nondirect Measurements	1 & 7	
Identifies type of data needed from nonmeasurement sources (e.g., computer databases and literature files), along with acceptance criteria for their use		
Describes any limitations of such data		
Documents rationale for original collection of data and its relevance to this project		
B10. Data Management	3 & 7	
Describes standard record-keeping and data storage and retrieval requirements		
Checklists or standard forms attached to QAPP		

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ELEMENT	DQO STEP (QA/R-5 A.3)	COMMENTS (P, NP, I or NA)
Describes data handling equipment and procedures used to process, compile, and analyze data (e.g., required computer hardware and software)		
Describes process for assuring that applicable Office of Information Resource Management requirements are satisfied		
<b>C1. Assessments and Response Actions</b>	<b>7</b>	
Lists required number, frequency and type of assessments, with approximate dates and names of responsible personnel (assessments include but are not limited to peer reviews, management systems reviews, technical systems audits, performance evaluations, and audits of data quality)		
Identifies individuals responsible for corrective actions		
<b>C2. Reports to Management</b>		
Identifies frequency and distribution of reports for:		
Project status		
Results of performance evaluations and audits		
Results of periodic data quality assessments		
Any significant QA problems		
Preparers and recipients of reports		
<b>D1. Data Review, Validation, and Verification</b>	<b>7</b>	
States criteria for accepting, rejecting, or qualifying data		
Includes project-specific calculations or algorithms -		
<b>D2. Validation and Verification Methods</b>	<b>3</b>	
Describes process for data validation and verification		
Identifies issue resolution procedure and responsible individuals		
Identifies method for conveying these results to data users		
<b>D3. Reconciliation with User Requirements</b>	<b>7</b>	
Describes process for reconciling project results with DQOs and reporting limitations on use of data		

X

Project

**DQO Steps**

- 1 - State the Problem
- 2 - Identify the Decision
- 3 - Identify Inputs to the Decision
- 4 - Define the Study Boundaries
- 5 - Develop a Decision Rule
- 6 - Specify Limits on Decision Error
- 7 - Optimize the Design

7/10/00