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EVALUATION OF REVISED DRAFT
RCRA FACILITY INVESTIGATION REPORT
FOR OPERABLE UNIT 2 (SWMU 7/8)
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

Submitted to:

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has requested that the A.T. Kearney Team (Kearney Team) provide support to the Agency under Work Assignment No. R02020 for technical review of documents associated with the RCRA Facility Investigation (RFI) of the U.S. Naval Station Roosevelt Roads (NSRR) located in Ceiba, Puerto Rico.

The NSRR is located on the east coast of Puerto Rico in the municipality of Ceiba, approximately 33 miles southeast of San Juan. The primary mission of NSRR is to provide full support for the Atlantic Fleet weapons training and development activities. NSRR is currently operating under a Draft RCRA Corrective Action Permit that includes varying degrees of work at 28 Solid Waste Management Units (SWMUs) and three Areas of Concern (AOCs).

EPA requested the Kearney Team to review the *Revised Draft RCRA Facility Investigation Report for Operable Unit 2 (SWMU 7/8)*, prepared by Baker Environmental, Inc (Baker) dated June 1997. The Revised Draft RCRA Facility Investigation Report for Operable Unit 2 was prepared in response to EPA and A.T. Kearney Comments to the Draft RCRA Facility Investigation Report for Operable Unit 2 dated March 4, 1997.

The Kearney Team's report presents evaluations of the RFI report. The method and objective of this evaluation is presented in Section 2.0, general comments regarding the work plans are presented in Section 3.0, and specific comments regarding the RFI report are detailed in Section 4.0.

2.0 METHODOLOGY

Pursuant to the EPA Work Assignment Manager's (WAM's) Technical Directive dated June 16, 1997, the Kearney Team reviewed the revised draft in particular in regard to the completeness of site characterization for both the soils and groundwater, and all conclusions/recommendations. The focus of the Kearney Team's review was centered on ensuring that EPA comments to the RCRA Facility Investigation were adequately addressed. Only work plans for certain areas which have not been completely or adequately addressed are discussed in the Kearney Team document. The Kearney Team's review focused on evaluating technical adequacy of the responses, expansion of discussions, and new information and/or conclusions presented in the response to comments. Only outstanding issues or comments which have not been completely or adequately addressed are discussed in the Kearney Team document.

3.0 GENERAL COMMENTS

There is no discussion of whether the location of the background samples may have been impacted by contaminants from activities at the facility, no discussion on the representativeness and analytical results of the background samples and of the steps taken to verify that the background area had not been impacted by contamination. There should also be a discussion of

exceedences of Residential RBC's. The background sample locations should be included on a figure which also displays the relative distance from SWMU 7/8.

For clarity, the revised tables should include footnotes explaining what shaded, outlined, bolded, and/or underlined concentrations indicate for detected constituents.

PAGE SPECIFIC

Page 3-7, ¶2, Section 3.4

The text described the locations of the background monitoring as being the furthest point possible away from the Station activities that is in a direct upgradient ground water location based on regional hydrogeological information, but the regional hydrogeological information was not discussed. Please provide a description of the regional hydrogeological information.

Page 4-9, ¶ 5, Section 4.4.2

Table 4-2 was not revised as recommended to indicate the water bearing unit of each groundwater monitoring well included in the table.

Page 4-11, ¶2, Section 4.4.2.1

The text should specify what information presented on Figure 4-5 indicates that the seawalls do not appear to have a substantial impact on groundwater flow north of Forrestal Drive. Figure 4-5 should be revised to include the locations of the seawalls.

Page 4-11, ¶3, Section 4.4.2.12

The monitoring wells where the slug tests were performed were listed, however, the specific hydrogeologic units should also be indicated for each well utilized for slug testing.

Page 5-2, ¶4, Section 5.1.2

The nondetect values for dioxin in the samples included in Table 5-3 are higher than the concentrations listed for the RBCs for residential soil. Please discuss.

Page 5-16, ¶1, Section 5.4

The section references Table 5-26, which does not appear to be included in the report.

Page 5-16, ¶3, Section 5.4.1

The surface samples with high detections of organic compounds such as 23,000 ug/kg for Benzo(a)anthracene in 8-TP-02-01 are included in this section, but are not referenced in Section 5.3.1 SWMU 8, Surface Soil. The text should be reviewed and revised as appropriate.

Page 5-17, ¶3, Section 5.4.1

An isopleth map for all inorganic compounds detected at three or more points in the surface soil samples should be included in the report.

Page 5-18, ¶3, Section 5.4.2

There exists inconsistencies in both Tables 5-20 and referenced Table 6-2. The text states that the only subsurface soil inorganic results included in this section are from the RFI field effort, yet the constituents described in this section and included as COPCs in the risk assessment are not consistent. For example, Table 5-20 lists the range of exceeding values for chromium as blank (0-0), yet Table 6-2 indicates the range of positive detections as 4.1J-120J.

Page 5-20, ¶4, Section 5.4.3

The text states that the TPH subsurface soil data was not "graphically depicted because of the lack of data points and the fact that extensive analyses of groundwater were performed ... that provide information regarding the likely exposure pathway." Please clarify. The groundwater results would provide adequate information only if all these soil samples were saturated. If not, then the lack of data indicates that adequate characterization has not been completed. On page 7-2, ¶6, Section 7.0, the text states that further investigation is not needed to adequately characterize geologic and hydrogeologic conditions. On page 7-5, ¶6, Section 7.0, additional sampling of TPH is proposed for the CMS. Please clarify the text, the importance of collecting additional TPH samples, and the implication that the additional TPH sampling will further characterize the soil.

Page 5-23, ¶2, Section 5.4.4

The section should be reworded to state that the groundwater samples had detected concentrations which exceeded the "MCL, the maximum background groundwater detected...", not surface soil samples. It is not clear what the statement "The other groundwater sample detected concentrations did not exceed the MCL levels or either of the background levels." implies because there are several groundwater samples included in Table 5-24. Please clarify the text. In addition, isopleth maps should be prepared for all inorganic constituents (total) detected in groundwater at three or more points.

Page 5-23, ¶4, Section 5.4.4

The section should be reworded to state that the groundwater samples had detected concentrations which exceeded the "tap water RBC...and the maximum background groundwater detected...", not surface soil samples. Table 5-25 referenced in this section should be revised to include the quantitation limits for the non-detected values for the maximum groundwater background concentration detected, as there are detections listed which exceed these unknown concentrations.

Page 5-23, ¶4

Isopleth maps should be prepared for all inorganic constituents (dissolved) detected in groundwater at three or more points.

Table 5-1

The detection limit was elevated in samples BGMW02-00, BGMW03-00, and BGM04-00. Please provide a discussion explaining why this detection limit value was elevated and whether this elevated detection limit would impact exceedences of residential and industrial RBCs.

Tables 5-1, 5-2, 5-3, 5-4

There are columns on these tables that are labeled as Industrial Soils and Residential Soils. The table lists the numbers in the columns as concentrations in mg/kg, but there is no indication of what these concentrations mean or the significance of these concentrations. Please explain what these values represent.

Tables 5-5 and 5-6

The significance of the values listed in column labeled Tap Water was not indicated. Please explain what these values represent.

Table 5-15

The depth for sample 8-TP03-01 is listed as "1", however, on Table 5-19, the depth range is presented as "3.00-3.00". Similarly, the depth for 8-TP03-02 is labeled as "NA" on Table 5-15, however on Table 5-19, the depth is indicated as "4.00-5.00". Please clarify inconsistencies.

Table 5-17

For clarity, Table 5-17 referenced in this section should be revised to include bolded and/or shaded detections, as necessary. In addition, the elevated detection limits in samples 8-TP02-01D, 8-TP03-00, and 8-TP07-00 should be discussed and the potential impact to identify exceedences of RBCs should be evaluated.

Table 5-5, 5-7, 5-9, 5-11, and 5-15

Elevated detection limits should be discussed and the potential impact to identify exceedences of RBCs should be evaluated. This includes the following samples: Table 5-5, BGMW01, BGMW02, BGMW04; Table 5-7, 7MW02-00, 7MW02-04, 7SB01-00, 7SB02-00, 7SB03-00; Table 5-9, 7-SB02-06, 7-SB02-07, 7-SB01-12, 7MW02-11, 7MW02-11D, 7MW02-17, 7MW03-04, 7MW03-04D, 7MW03-06, 7MW04-07, 7MW04-07D; Table 5-11, 7MW02, 7MW03, GW03, 7GW04, UGW-3; and Table 5-15, 8TP01-04, 8TP02-01, 8TP02-01D, 8TP03-00, 8TP03-02, 8TP04-02, 8TP06-01, 8TP06-04, 8TP07-00, 8TP04-03, 8TP06-01, 8TP0-04.

Appendix P Tables 2, 8, and 11

The equations for ILCR and HQ incorrectly use the "CDI" value rather than the calculated DAD value. Review and revise.

Appendix P Table 11

Verify that the concentrations of the chemicals in water for naphthalene, 2-Methyl naphthalene, Phenanthrene, Dissolved Arsenic, and Dissolved Barium are consistent with the values presented in Table 10 or Appendix M.

Table 6-1

The selection rationale for contaminants of potential concern (COPC) is presented in this Table. It is unclear why chrysene was also not selected as a COPC as the maximum detected concentration of this chemical exceeded the listed Residential RBC screening value. It appears that this RBC is presented incorrectly. Please verify.

Page 6-7, ¶1, Section 6.1.2

Frequencies of detection presented in this paragraph for volatiles differ from the frequencies presented in Table 6-2. Please correct or clarify this discrepancy.

Page 6-7, ¶2, Section 6.1.2

Frequencies of detection presented in this paragraph for semivolatiles differ from the frequencies presented in Table 6-2. Please correct or clarify this discrepancy.

Page 6-7, ¶3, Section 6.1.2

Frequencies of detection presented in this paragraph for inorganics differ from the frequencies presented in Table 6-2. Please correct or clarify this discrepancy.

Page 6-30, ¶2, Section 6.4.3

The text states that potentially unacceptable risks were estimated for future construction workers while current on-site workers were estimated to have no unacceptable risks. However, based on Table 6-9, current on-site workers are the receptors having potentially unacceptable risk. Please correct.

Page 6-42, ¶3, Section 6.6.2

The text states that potentially unacceptable carcinogenic risks were estimated for future residents. The text needs to be corrected to reflect the potentially unacceptable risks that were also estimated for current construction workers, primarily from dermal exposures to benzo(a)pyrene and beryllium in the surface soil.