

APPENDIX D

EVALUATION OF DATA QUALITY OBJECTIVES ATTAINMENT

| Activity | Objectives | Action | Objective Attained? | Recommendations |
|--|---|--|---------------------|-----------------|
| Objective 1: Meet TNRCC Requirements for Site Closure | | | | |
| Attainment of Risk Reduction Standard Number 1: Closure/Remediation to Background | | | | |
| | Remove all hazardous and nonhazardous waste and waste residues and contaminated design and operating system components such as liners, leachate collection systems, and dikes from the unit or area of the unauthorized discharge. For remediation of media that have become contaminated by releases from a waste management unit or by other unauthorized discharge of hazardous or nonhazardous waste, the contaminated media must be removed or decontaminated to cleanup levels specified in this section (30 TAC 335.554(b) and (c)). | A soil gas survey, geophysical survey, surface and subsurface sampling were conducted to determine if there is evidence of buried waste at the site. | No | Excavation. |

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| | <p>Determine compliance with RRS1 closure requirements by comparing to background as represented by results of analyses of samples taken from media that are unaffected by waste management or industrial activities. If the practical quantitation limit (PQL) is greater than background, then the PQL rather than background shall be used as the cleanup level provided that the person satisfactorily demonstrates to the executive director that lower levels of quantitation of a contaminant are not possible (30 TAC 335.554(d)).</p> | <p>Contaminant concentrations were compared to levels found in the Second Revision to the Evaluation of Background Metals Concentrations in Soil Types (Parsons ES, February 2002).</p> | <p>Metals (zinc, lead, cadmium, arsenic and copper) were evident in the top one foot of soil throughout the site at concentrations exceeding the RRS1 closure criteria.</p> | <p>Additional excavation of surface soils at the site is recommended.</p> |
| | <p>Attainment of cleanup levels shall be demonstrated by collection and analysis of samples from the media of concern (30 TAC 335.554(e)).</p> | <p>Surface and subsurface samples were collected at SWMU BLDG 43.</p> | <p>No. Since results of the surface sampling exceeded RRS1 closure criteria, definition of the lateral extent of contamination is necessary. At that point, further excavation and sampling is necessary.</p> | <p>Further sampling to define the lateral extent of contamination should be conducted. Excavation and resampling should be conducted in order to close under RRS1 standards.</p> |

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| Objective 2: Meet Requirements of 3008(h) Order for RFI | | | | |
| RFI Workplan Requirements | | | | |
| Field Sampling <i>(Detailed listing of methods and procedures are provided in project plans which are incorporated by reference).</i> | Conduct field sampling in accordance with procedures defined in the project work plan, SAP, QAPP, and HSP. | All sampling was conducted in accordance with the procedures described in the project plans. | Yes. | NA |
| Facility Investigation | | | | |
| Characterization of Environmental Setting - Hydrogeology (B.3.A.1) | Evaluate hydrogeologic conditions at the site. | Not included in this phase of the RFI at SWMU BLDG-43. Shallow groundwater was not encountered during drilling at the site. Groundwater of the Trinity Aquifer is being addressed through the Groundwater Investigation. | NA | NA |
| Characterization of Environmental Setting- Soils (B.3.A.2) | Characterize soils in accordance with USCS soil classification system (B.3.A.2(a)). | Soil types at the site are based on the SCS Bexar County Soil Survey (USDA, 1991) and are described in Section 1.2.1. | Yes | NA |

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| | Identify soil profile, including ASTM classification of soils; directional relative permeability; bulk density; particle size distribution; infiltration (field test); storage capacity; mineral content; and soil conductivity (B.3.A.2(b), (c), (d), (f), (h), (i), (j), (k)) | Soil types at SWMU BLDG-43 are based on the SCS Bexar County Soil Survey (USDA, 1991) and are described in Section 1.2.1. | Yes | NA |
| | Determine soil pH (B.3.A.2(e)). | The pH of each of the soil types evaluated as part of the background metals concentration study was determined through laboratory analysis. According to those analyses, the pH of Tarrant Association soils is 7.94. | Yes. | NA |
| | Determine moisture content (B.3.A.2(g)). | The moisture content of each sample was analyzed. Moisture content values are provided in laboratory analyticals. | Yes. | NA |
| Characterization of Environmental Setting – Surface Water and Sediment (B.3.A.3) | Characterize marshes, creeks, wetland areas, or ditches at the site. | No marshes, creeks, wetland areas, or ditches are present at the site. Direction of runoff flow has been evaluated to be toward the south. | | |
| Source Characterization (B.3.B) | Identify the source area (B.3.B.1). | A description of the source area is provided in Section 1.1.2. | Surface soil contamination was detected, and samples collected evidence that metals concentrations are decreasing with depth. | NA |

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| | Identify the location of the unit/disposal area (B.3.B.2(a)). | In 1999, points along the boundary of each site were surveyed with a Rockwell Plugger GPS unit (estimated accuracy of ± 25 feet). The measurement points were identified by the CSSA Environmental Coordinator. The boundary of the site was reviewed during preparation of this report and adjusted, if necessary, based on observations made during the field investigation. | Yes. Although the accuracy of the boundary survey of the site is estimated to have an approximate error of 25 feet, this accuracy is sufficient for closure under RRS1. | NA |
| | Identify the type of unit/disposal area (B.3.B.2(b)). | The type of unit/disposal area was identified in the Environmental Assessment and by aerial photo review, visual observation of waste management activities in the field and records review. | Yes. The type of disposal was verified based on records review, interviews with base personnel, and aerial photo review and field observations. | NA |
| | Identify design features (B.3.A.2(c)). | Information regarding design features was obtained during the Environmental Assessment (ES, 1992 and through visual observation during the field investigation. All available information regarding the design of the disposal site is provided in Section 1.1.2. | Yes | NA |
| | Identification of past and present operating practices, period of operation, age of unit/disposal area, and method used to close the unit/disposal area (B.3.B.2(d), (e), (f), and (h)). | All known information regarding these items is provided in Section 1.1.2.1. This information is from the Environmental Assessment, records review, interviews, aerial photo review, and visual observations. | To the extent possible with the data available. | NA |

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| | Determine general physical conditions of the site (B.3.B.2(g)) | The general physical condition of the site was determined during the field investigation. This information is presented in Section 1.1.2.1. | Yes. | NA |
| | Identify waste characteristics, including type of waste placed in the unit, physical and chemical characteristics of the wastes, and migration and dispersal characteristics of the waste (B.3.B.3). | Records regarding historic waste disposal practices at CSSA are very limited. All known information, derived from the Environmental Assessment, records review, interviews, and visual observations at the site is provided in Section 1.1.2. | Yes | NA |
| Contamination Characterization – Groundwater (B.3.C.1) | Characterize the vertical and horizontal extent of groundwater contamination. | Not included in this phase of the RFI at SWMU BLDG-43. Shallow groundwater was not encountered during drilling at the site. Groundwater of the Trinity Aquifer is being addressed through the Groundwater Investigation. | NA | NA |
| Contamination Characterization – Soil (B.3.C.2) | Determine vertical and horizontal extent of contamination (B.3.C.2(a)). | Surface samples and borings were advanced in areas thought to contain contamination. | Yes, the vertical extent of contamination has been established, as the surface (to one foot bgs) soils exceeded RRS1 closure criteria for metals. The subsurface soil samples only had two slight exceedances for barium and nickel. The horizontal extent of contamination has not yet been determined. Concentrations of metals detected in samples collected from deeper intervals demonstrate that the concentrations are decreasing with depth. | Additional sampling to define the lateral extent of contamination. |

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| | Describe contaminant and soil properties with the contaminant source area, including contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation, and other factors that might affect contaminant migration and transformation (B.3.C.2(b)). | See Characterization of Environmental Setting- Soils (B.3.A.2), above. | Yes | NA |
| | Describe soil properties (B.3.C.2(c)). | See “Characterization of Environmental Setting – Soils” above. | Yes | NA |
| | Identify the direction of contaminant movement (B.3.C.2(d)). | No actions taken. | NA | NA |
| | Extrapolate future contaminant movement (B.3.C.2(e)). | No actions taken. | NA | NA |

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| | Implement a soil boring investigation to determine the extent of soil contamination. Soil gas monitoring will be performed during drilling of all borings. Laboratory analysis of borings for contaminants of potential concern will be performed on soils at depths where either visual contamination is evident, or soil gas concentrations indicate contamination. All boreholes shall be properly abandoned. | Six soil borings were advanced to determine the extent of soil contamination. Eighteen soil samples were collected and analyzed for metals, VOCs, SVOCs and explosives. The soil borings were properly abandoned upon completion of field activities. | No, the lateral extent of soil contamination has not been defined. | Additional sampling to define the lateral extent of surface contamination. Additional excavation of surface soils that exceed RRS1 standards is recommended. |
| | Prepare a map of all areas included in the investigation (B.3.C.2(i)). | Figures included in this report show all areas included in this investigation. | Yes | NA |
| | All reporting limits should be below regulatory criteria. | RLs were approved by TNRCC on October_5, 1999. SQLs based on these RLs are considered RRS1 standards for all analytes except metals. | Yes | NA |
| | Perform all analyses in accordance with the AFCEE QAPP. | All analyses were performed in accordance with the AFCEE QAPP and approved variances. | Yes | NA |

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| | | All data flagged with “U,” “F,” “M,” and “J” are considered usable for site characterization purposes. | Yes. “J” flagged data are also considered usable. The estimation of quantitation does not significantly affect the sample results and all data flagged “M” are considered usable as the matrix interference is minimal and does not significantly affect the sample results. | NA |
| | | No data was flagged with “R”. | Yes | NA |
| Contaminant Characterization – Sediment and Surface Water (B.3.C.3) | Characterize the extent of sediment and surface water contamination. | NA. There are no creeks or marshes located at SWMU BLDG-43. Therefore, surface water and sediments were not sampled as part of the SWMU BLDG-43 investigation. | NA | NA |
| Potential Receptors (B.3.D). | Collect the information necessary to describe the human populations and environmental systems that are susceptible to contamination exposure from the Facility. | Potential receptors are discussed in Section 1.2.5 of this report. | Yes | NA |