

1.0 INTRODUCTION

1.1 SCOPE

This Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report is the result of an agreement between the U.S. Army Environmental Center (USAEC) and Rust Environment and Infrastructure (Rust E&I), as stated under Task Order 0001 of USAEC Contract DAAA15-90-D-0007. It provides full documentation of Rust E&I's investigations conducted for two known releases Solid Waste Management Units (SWMUs) at Tooele Army Depot-South Area (TEAD-S): SWMU 13, the Chemical Agent Munitions Disposal System (CAMDS), and SWMU 17, the Deactivation Furnace/Mercury Contamination (DF/MC) area. Rust E&I performed these investigations in the early summer of 1991 and the late summer of 1993. The work was conducted in accordance with USAEC- and State of Utah-approved work plans.

The 1984 Hazardous and Solid Waste Amendments (HSWA) corrective-action process for facilities subject to RCRA protocol requires that those facilities seeking a permit must identify and mitigate hazardous-substance releases. The investigation process includes the RCRA Facility Assessment (RFA) and RFI, both of which lead to the selection and implementation of corrective measures. The RFA identifies areas of contamination, assesses the release or continuing release of hazardous substances, pinpoints which areas may impact human health and/or the environment, and designates those areas as SWMUs. The RFI characterizes the nature, extent, and rate of migration of known releases, assesses the potential risks to human health and the environment from these releases, and provides conclusions and recommendations as to whether interim corrective measures and/or a Corrective Measures Study (CMS) may be necessary.

On June 30, 1989, TEAD was issued a RCRA Part B permit to construct and operate the Chemical Stockpile Disposal Plant in the South Area. Attached to the permit was a Corrective Action Permit (CAP) that required actions at 28 SWMUs. Under the CAP, investigations of known or suspected releases are required. A Phase I RFI was conducted in 1990 by Ebasco Services, Inc. (Ebasco 1991), to investigate the SWMUs at TEAD-S. On the basis of the Phase I RFI, Ebasco prepared work plans for a Phase II RFI, which included the characterization of SWMUs 13 and 17 as known releases units. Rust E&I was tasked with implementing those work plans and preparing a Phase II RFI Report.

In addition to satisfying the conditions of the RCRA CAP, work performed at TEAD-S was consistent with the National Environmental Policy Act (NEPA) and applicable State of Utah laws.

1.2 OBJECTIVES

The objectives of the Phase II RFI investigation at SWMUs 13 and 17 are to (1) verify contaminants previously identified, (2) define the horizontal and vertical extent of known

releases, (3) assess the extent to which the underlying aquifer had been contaminated and the rate of contaminant movement, (4) compare contamination values to regulatory standards, (5) assess potential risks to human health and the environment through exposure to identified contaminants, and (6) make recommendations for any future action. This report presents the information necessary to fulfill these objectives.

Recommendations for future actions were identified pursuant to Section R315 of the Utah Hazardous Waste Rules. Specifically, the recommendations were based on the provisions of R315-101-6 "Risk Management: Site Management Plan Approval and Closure Equivalency." This rule allows pursuit of a no action option only if the levels of cancer risk and noncarcinogenic hazard present at a site based on future land use conditions (residential scenario) are below 1E-06 and "less than one," respectively. If this criterion is met, a request for risk-based closure may be submitted. Otherwise, if this criterion is not met, then the site is to be included in a site management plan that shall be submitted (in the form of a CMS Work Plan) to the Executive Secretary within 60 days of approval of the Phase II RFI Report. In addition, if the level of cancer risk is less than 1E-04 under actual land use conditions but greater than 1E-06 under future land use and the noncarcinogenic hazard is "less than one" under both exposure scenarios, the site management may contain, but is not required to contain, procedures for corrective action. In this event, the site management plan shall contain appropriate management activities such as monitoring, deed notations, site security, or post closure care. However, the site management plan must contain procedures for corrective action if the cancer risk present at the site exceeds 1E-04 or if the hazard index is "greater than one" based on the results of the evaluation under actual land use conditions.

1.3 REPORT ORGANIZATION

This RFI Report consists of 10 sections and 6 appendices. Section 1.0 (this section) is the Introduction, which summarizes the purpose and scope of the RFI. Section 2.0 is the Site Background, which addresses location, demographics, history, and water use of TEAD-S as it relates to this RFI Report. Section 3.0, Environmental Setting, describes meteorology, geology, hydrology, hydrogeology, and the terrestrial ecology and biota of TEAD-S and its surrounding area. Section 4.0, SWMU Descriptions, Previous Investigations, and Phase II RFI Data Collection Methodologies, summarizes site descriptions, waste generation, and previous investigations, and discusses the Phase II RFI Field Program. Section 5.0, Background Concentrations of Metals and Anions, gives background concentrations of inorganic analytes and anions in soils and groundwater. Section 6.0, Risk Assessment Methodology, presents both human health and ecological risk assessment methodologies. Sections 7.0 and 8.0 are the SWMU characterizations for 13 and 17, respectively; they discuss site geology and hydrogeology, previous sampling results, contamination assessment, risk assessment results, conclusions, and recommendations for each site. Section 9.0, Conclusions and Recommendations, provides a summary of conclusions and recommendations from previous sections and Section 10.0, References, lists documents referenced in the text.