

1.0 INTRODUCTION

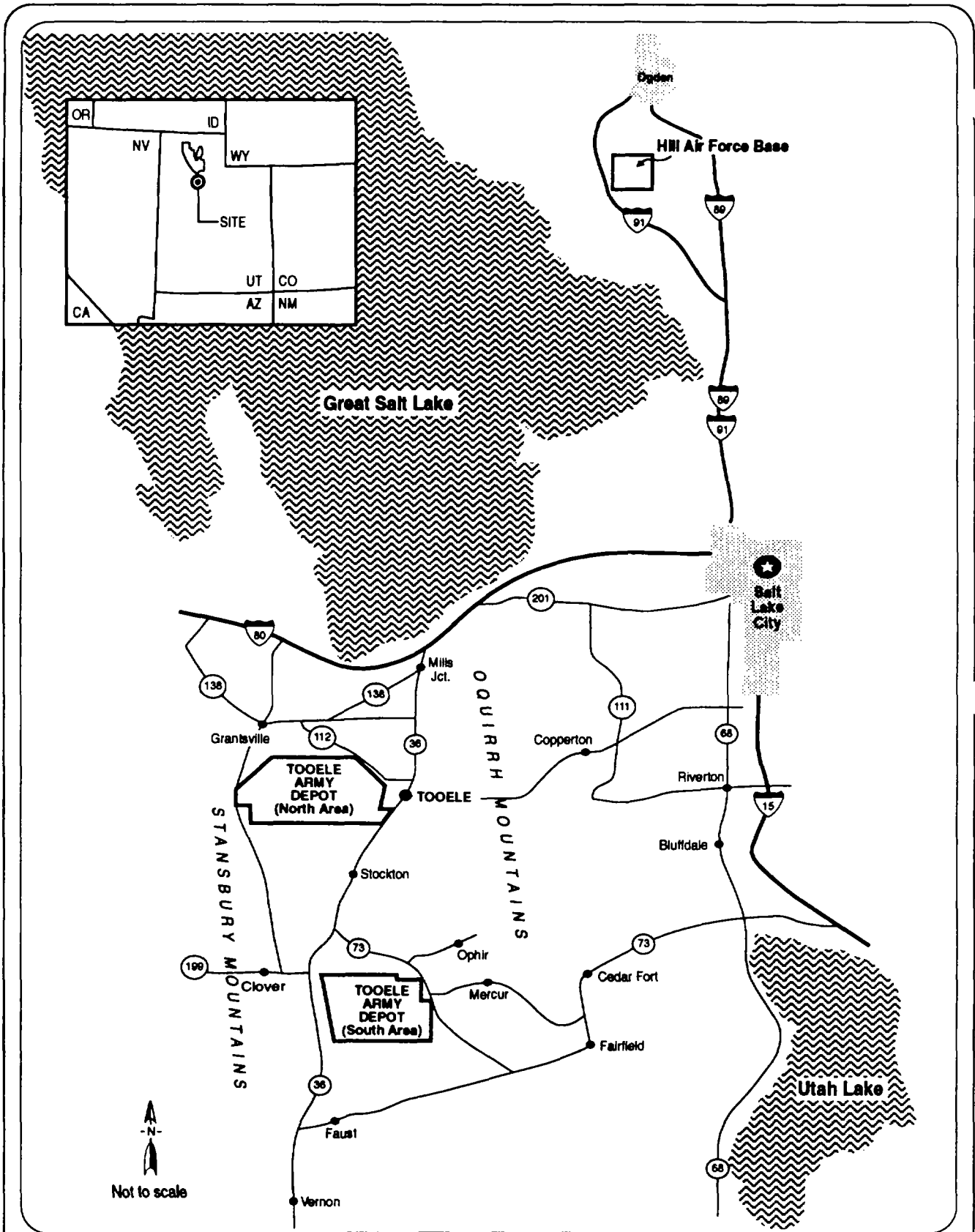
1.1 BACKGROUND

Tooele Army Depot (TEAD) consists of three separate areas in West Central Utah (Figure 1.1-1). The South Area (TEAD-S), which is the subject of this investigation, encompasses 19,355 acres approximately 35 miles (mi) southwest of Salt Lake City and 30 mi south of the shore of the Great Salt Lake. TEAD-S has been used by the U.S. Army since the 1940s, primarily for the storage of chemical agent.

This report contains the results of a Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) conducted at 27 suspected releases solid waste management units (SWMUs) at TEAD-S (Figure 1.1-2 and Plate 1). This RFI-Phase I is one of the requirements of Module VII - Corrective Action for Solid Waste Management Units in the TEAD-S, Chemical Stockpile Disposal Plant Permit. The RFI is being conducted by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) and USATHAMA's contractor, Ebasco Services Incorporated (EBASCO). EBASCO's work is being performed under Task Order 0003 of USATHAMA Contract No. DAAA15-88-D-0004 and Task Order 0002 of USATHAMA Contract No. DAAA15-91-D-0010.

This report is the Task I Report required under section VII.C.1.a. and Appendix A, Task I.D. in the Corrective Action Module. This report addresses suspected releases of hazardous wastes from each of the SWMUs listed in Table 16 of the permit, which is included in Table 1.1-1 of this report. The table has been altered to include an additional suspected releases unit that had not been identified at the time of the RFI Phase I field program. This unit has been designated as SWMU 37 - Slag Piles and Bomb Fragments. The names of several SWMUs have been slightly altered in the table to reflect information on these SWMUs that has been obtained during the RFI. The investigation of these SWMUs was conducted generally as outlined in the final RFI-Phase I Work Plan, which includes a Project Management Plan, Data Collection Quality Assurance Plan, Data Management Plan, and Health and Safety Plan (EBASCO 1990a, 1990b, 1990c, and 1991). Variances from the Work Plan are documented in the appropriate sections of the report.

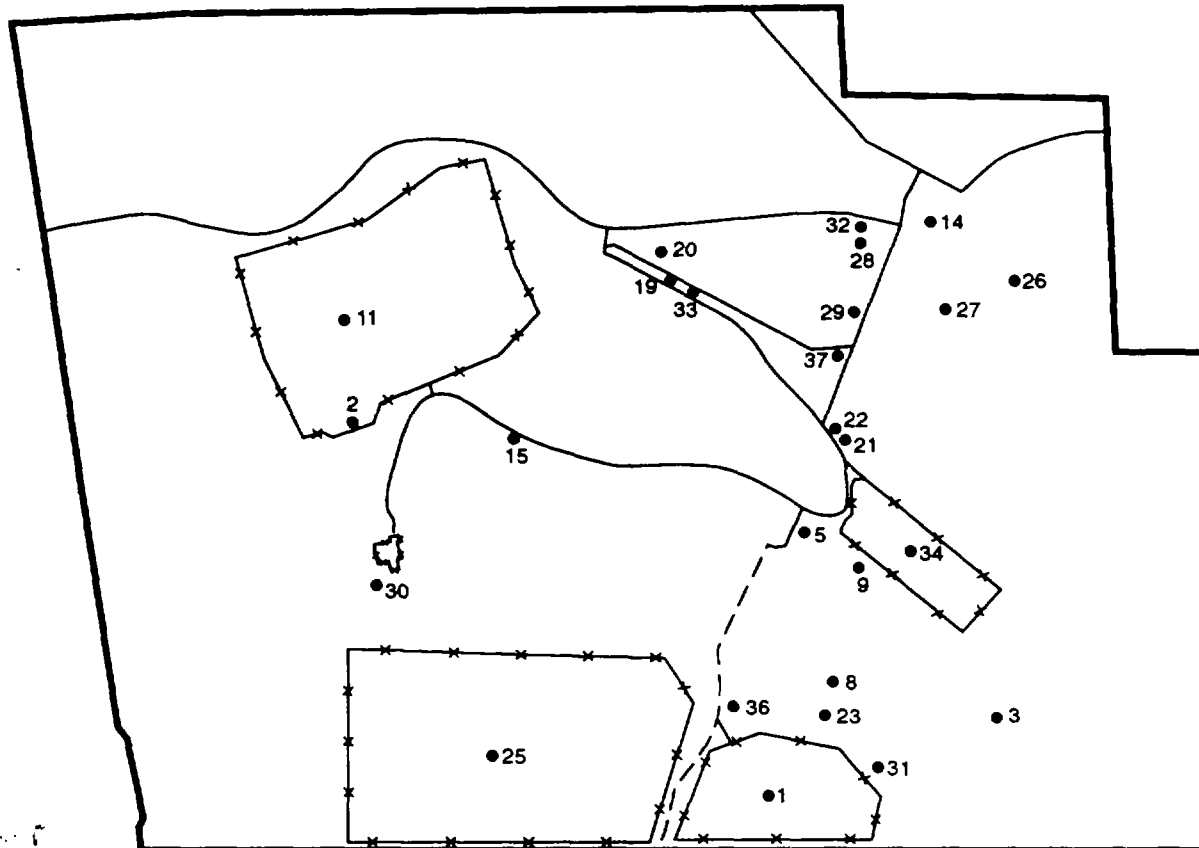
The purpose of Phase I of the RFI is to evaluate 27 suspected releases SWMUs at TEAD-S. For each SWMU, the report compiles all historical data and previous sampling results with the results of a limited RFI-Phase I sampling program. Table 1.1-2 provides a compendium of the SWMU histories. An additional sampling program was also conducted in June 1992 at selected SWMUs (SWMUs 2, 15, 19, 20, 21, 22, 23, 26, 27, 28, and 33) where original Phase I data were insufficient to support a recommendation of either a Phase II investigation or no action. On the basis of these data, the report evaluates the presence or absence of contamination at each SWMU, and makes recommendations of which SWMUs require additional investigation under Phase II of the RFI. Since potential contamination was reported at meteorological stations at TEAD-S after the Corrective Action Module was issued, these stations have also been included in the RFI-Phase I, although they are not named as SWMUs by the permit.



Source:
NUS Corporation 1987

Figure 1.1-1
Location Map of Tooele Army Depot

Tooele Army Depot - South Area
Prepared by: Ebasco Services Incorporated

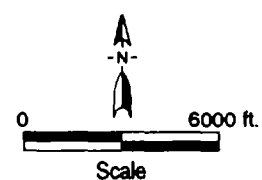


Solid Waste Management Units

- 1. East Demilitarization Area/Disposal Pits
- 2. Gravel Pit (Area 10)
- 3. Disposal Pit (Southeast of Area 2)
- 4. Mortar Pits (Southeast of Area 2) - Now thought to be part of SWMU 1
- 5. Building 600 Foundation, Drainage Pond, and Ditch
- 8. Surveillance Test Site
- 9. Old Area 2 (including Mustard Holding and Pit Areas)
- 11. Chemical Munitions Storage Area (Area 10)
- 14. Building S-108 (Former Motor Pool)
- 15. Old Demolition Pit (under Building C-4002, now designated Building C-8002)
- 19. Building 533 Foundation (Empty Drum Storage)
- 20. Building 521 (Crating Facility)
- 21. Incendiary Washout Operations (Building S-554)
- 22. Incendiary Washout Basins
- 23. Demilitarization Holding Area (North of SWMU 1)
- 25. West Demilitarization Area/Disposal Pits
- 26. Sanitary Landfill (Active and Inactive)
- 27. Sewage Treatment Plant
- 28. Inactive Landfill (Northeast Corner)
- 29. Metal Scrap Landfill
- 30. CAMDS Landfill
- 31. Demilitarization Area (Northeast of SWMU 1)
- 32. Railroad Scrap Yard
- 33. Building 536 (CAMDS Salt Storage)
- 34. Building 4105 (Carbon Storage)
- 36. Building 3200 and Surrounding Area
- 37. Slag Piles and Bomb Fragments

Legend

- Paved Road
- - - Unimproved Road
- x x x Fence
- Tooele Army Depot - South Area Boundary



Source:
 NUS Corporation 1987
 EBASCO Field Measurement

Figure 1.1-2
Location of Solid Waste Management Units (SWMUs) with Suspected Releases

Tooele Army Depot - South Area
 Prepared by: Ebasco Services Incorporated

Table 1.1-1 • Suspected Release Solid Waste Management Units (SWMUs) at Tooele Army Depot South Area

SWMU No.	SWMU Description
1	East Demilitarization Area/Disposal Pits
2*	Gravel Pit (Area 10)
3	Disposal Pit (Southeast of Area 2)
4	Mortar Pits (Southeast of Area 2) - Now thought to be part of SWMU 1
5*	Building 600 Foundation, Drainage Pond, and Ditch
8	Surveillance Test Site
9*	Old Area 2 (including Mustard Holding and Pit Areas)
11	Chemical Munitions Storage Area (Area 10)
14*	Building S -108 (Former Motor Pool)
15*	Old Demolition Pit (under Building C-4002)
19*	Building 533 Foundation (Empty Drum Storage)
20*	Building 521 (Crating Facility)
21	Incendiary Washout Operations (Building S-554)
22	Incendiary Washout Basins
23	Demilitarization Holding Area (North of SWMU 1)
25*	West Demilitarization Area/Disposal Pits
26*	Sanitary Landfill (Active and Inactive)
27	Sewage Treatment Plant
28	Inactive Landfill (Northeast Corner)
29	Metal Scrap Landfill
30	CAMDS Landfill
31*	Demilitarization Area (Northeast of SWMU 1)
32	Railroad Scrap Yard
33*	Building 536 (CAMDS Salt Storage)
34*	Building 4105 (Carbon Storage)
36	Building 3200 and Surrounding Area
37	Slag Piles and Bomb Fragments

* The name of this SWMU has been altered slightly to reflect information obtained during the RFI.

Source: Module VII - Corrective Action for Solid Waste Management Units in TEAD-S, Chemical Stockpile Disposal Plant Permit

Table 1.1-2 • SWMU History Summary Page 3 of 3

SWMU No.	SWMU Description
1. East Demilitarization Area/Disposal Pits	This area has been used for the destruction and disposal of explosive and chemical munitions. The demolition area contains approximately 27 known pits.
2. Gravel Pit (Area 10)	This SWMU is located at the southwestern corner of the Chemical Storage Area (SWMU 11). It is within the fence line and is the burial site of various chemical munitions and explosives.
3. Disposal Pit (Southeast of Area 2)	This area consists of a disposal trench that has been partially back-filled but remains open at the southern end. The open trench contains 10 to 15 corroded and empty 55-gallon drums. The area near the trench reportedly served as a holding area for leaking chemical munitions pending disposal and was the site of a possible VX spill in the 1960s.
4. Mortar Pits (Southeast of Area 2)	This SWMU, allegedly located just north of SWMU 3, was not found during EBASCO's initial site visit in August 1989. TEAD personnel indicate that SWMU 4 is actually a pit within SWMU 1.
5. Building 600 Foundation, Drainage Pond, and Ditch	This SWMU consists of a concrete building foundation, an earthen drainage pond, and a ditch. This SWMU was used for munitions washout and later for spray painting and paint blasting. Also at this SWMU, trucks that removed leaking mustard bombs from SWMU 9 to SWMU 1 were decontaminated with DANC and hosed down, with the effluent directed into the pond and ditch.
8. Surveillance Test Site	This SWMU is adjacent to SWMU 31. It is the site of a former drop tower where grenade and mortar testing took place. Two open pits near the former drop tower area contain smoke pots, grenades, and napalm cans.
9. Old Area 2 (including Mustard Holding and Pit Areas)	Mustard-containing munitions and various other agents were stored in part of Area 2 pending disposal. Old Area 2 reportedly contained leaking mustard munitions that have been disposed of in adjacent burial pits..
11. Chemical Munitions Storage Area (Area 10)	The Chemical Storage Area is a secure fenced facility where off-specification products and unusable munitions and wastes are stored. Reinforced concrete storage igloos are designed and closely monitored to minimize the potential for agent release.
14. Building S-108 (Former Motor Pool)	This SWMU currently serves as the Chemical Surety Administrative Office. Formerly, it was the site of a motor pool operation where vehicles were repaired and maintained. This building was also once used for processing M12 (machine gun) links and welding.

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Table 1.1-2 • SWMU History Summary, Page 2 of 3

SWMU No.	SWMU Description
15. Old Demolition Pit (under Building C-4002)	Former TEAD employees state that this was the site of a one-time explosion of munitions that were improperly stored in the area, creating a sizable crater. Currently Building C-4002 is built over the regraded pit.
19. Building 533 Foundation (Empty Drum Storage)	This SWMU stored empty drums used to contain 3X and other wastes. TEAD personnel indicate this building was used previously for railroad car maintenance.
20. Building 521 (Crating Facility)	This SWMU was originally a carpentry shop, then a LCL (less-than-carload) facility where small smoke pot shipments were processed for transport. The facility was idle for a few years, then was occupied by surveillance workshops. At that time, a septic tank was installed.
21. Incendiary Washout Operations (Building S-554)	These SWMUs are adjacent. Munitions including incendiary bombs were disassembled and washed out in Building S-554. The wastewater was collected in the basins and then channeled under the parking lot to a ditch. Sludge from the basins was removed to the demolition area (probably SWMU 25) where it was burned and buried.
22. Incendiary Washout Basins	
23. Demilitarization Holding Area (North of SWMU 1)	This SWMU was a fenced area where munitions en route to the demolition area were held. Types of munitions were not documented, but probably included conventional and chemical munitions.
25. West Demilitarization Area/Disposal Pits	A variety of demilitarization and disposal activities were conducted at SWMU 25. The site consists of covered burning and disposal trenches similar to those in SWMU 1, large scrap piles, and a number of deep explosion craters where open burning and detonation took place.
26. Sanitary Landfill (Active and Inactive)	Although the wastes historically disposed of in this SWMU include solid waste, paper, and construction debris, an ex-TEAD employee alleged that 300 to 400 drums of solvents and waste oil transported from the TEAD North Area were disposed of at this site. Another TEAD employee familiar with depot operations disputes this event. Other possible fill includes packing material for white phosphorous munitions, rocket parts, and projectiles.
27. Sewage Treatment Plant	This SWMU consists of an Imhoff tank and two sewage lagoons. This sewage system serves the administration area to the northeast and once served the housing, barracks, commissary, and support facilities formerly located in the northeastern quadrant of TEAD. The system is designed to handle only domestic wastes.

Table 1.1-2 • SWMU History Summary, Page 3 of 3

SWMU No.	SWMU Description
28. Inactive Landfill (Northeast Corner)	This landfill reportedly received solid waste, paper, and building debris, possibly including asbestos-contaminated building materials. It was abandoned in the early 1970s. There are no signs of debris at the surface of this SWMU.
29. Metal Scrap Landfill	This SWMU was a borrow pit for gravel. It now contains scrap metal banding, steel, and numerous 2-1/2 gallon buckets containing a white powder (probably sodium hydroxide used for decontamination). The buckets are badly rusted. They are labeled with corrosivity warnings.
30. CAMDS Landfill	This SWMU was used for wood and dunnage disposal until the early 1970s. Currently the landfill receives construction debris such as soil, asphalt, and PVC pipe.
31. Demilitarization Area (Northeast of SWMU 1)	This SWMU is an active open burning and detonation area. Waste munitions and explosives-contaminated scrap are disposed of there.
32. Railroad Scrap Yard	This SWMU is adjacent to SWMU 28. A variety of scrap metal waste was seen on the ground adjacent to the railway tracks during EBASCO's initial site visit. Drums containing an unknown fluffy material were also observed. All of the scrap was later removed by the installation.
33. Building 536 (CAMDS Salt Storage)	This building is designated as the CAMDS Salt Storage Facility. Building 536 was used as a storage facility for approximately 1470 drums of "dried organic salts" resulting from agent demilitarization at CAMDS. Formerly, the building was a storage area for vehicles and vehicle parts.
34. Building 4105 (Carbon Storage)	This SWMU is within Area 2, next to SWMU 9. It is a RCRA-permitted storage area for CAMDS-related carbon wastes.
36. Building 3200 and Surrounding Area	This SWMU consisted of a small building with two drainage pits. At one time the building may have been used by employees for changing clothes before swimming in the pits. The building had a shower and boiler in it. Near the building, FS smoke was stored in drums as recently as 1986. The drums were removed and the surrounding soil was excavated until metals and sulfite were below analytical detection limits.
37. Slag Piles and Bomb Fragments	This SWMU is located between SWMUs 5 and 29. It is a large gravel pit with slag piles and scattered bomb fragments on the north side. The origin of the slag and fragments is unknown, but may be from a deactivation furnace.

As required by the National Environmental Policy Act (NEPA), recommendations for further investigations have been made after weighing the need for additional data against the minor environmental impacts expected to be associated with data collection at the site. Further investigation is needed where the presence or absence of contamination has not been conclusively determined or where contamination is found to be present but is not adequately characterized for determining the potential effect on human health or the environment. The environmental effects of obtaining additional data during the RFI to characterize contamination are expected to be only those associated with the temporary presence on-site of a small number of additional personnel and equipment required for soil, water, and air quality sampling, ecological habitat mapping, and key species identification. All RFI data will be incorporated as appropriate in characterizing the affected environment when the impact of additional sampling or corrective action is assessed. By incorporating these NEPA requirements in the RFI, the RCRA process serves as the functional equivalent of NEPA.

This introductory section of the report is followed by:

- Section 2.0 – Description of the installation layout, history, and environmental characteristics
- Section 3.0 – Summary of previous investigations and the RFI-Phase I field program
- Section 4.0 – Analysis of background levels of inorganic analytes
- Section 5.0 – Assessment of the presence or absence of contamination and data gaps at each suspected release SWMU and meteorological station
- Section 6.0 – Summary of recommendations for further investigation under Phase II of the RFI
- Section 7.0 – Reference list
- Appendix A – Field boring logs
- Appendix B – Well completion diagrams and groundwater elevation data
- Appendix C – Well development and presampling records
- Appendix D – Field survey data and methods
- Appendix E – Physical and chemical characteristics and common uses or sources of detected potential contaminants

- Appendix F – RFI-Phase I Chemical analytical data
- Appendix G – Additional Analytical Results for SWMU 15
- Appendix H - Geotechnical Test Results