

# TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
EXECUTIVE SUMMARY .....	ES-1
1.0 <u>INTRODUCTION</u> .....	1-1
1.1 <u>PURPOSE AND SCOPE OF REPORT</u> .....	1-4
1.2 <u>REPORT ORGANIZATION</u> .....	1-6
2.0 <u>BACKGROUND</u> .....	2-1
2.1 <u>PHYSICAL SETTING</u> .....	2-1
2.1.1 <u>Location</u> .....	2-1
2.1.2 <u>History</u> .....	2-3
2.1.3 <u>Geology and Soil</u> .....	2-4
2.1.4 <u>Surface Water</u> .....	2-11
2.1.5 <u>Groundwater</u> .....	2-12
2.1.6 <u>Climate</u> .....	2-16
2.1.7 <u>Vegetation and Wildlife</u> .....	2-16
2.1.8 <u>Demographics and Land and Water Use</u> .....	2-21
2.2 <u>PREVIOUS INVESTIGATIONS</u> .....	2-26
2.3 <u>BACKGROUND SOIL AND GROUNDWATER GEOCHEMISTRY</u> .....	2-29
2.3.1 <u>Soil</u> .....	2-29
2.3.1.1 <u>Developing the Data Set</u> .....	2-29
2.3.1.2 <u>Methodology and Results</u> .....	2-31
2.3.2 <u>Groundwater</u> .....	2-35
2.4 <u>GENERAL INFORMATION FOR ENVIRONMENTAL FATE AND TRANSPORT OF CONTAMINANTS</u> .....	2-38
2.4.1 <u>Potential Migration Pathways</u> .....	2-38
2.4.2 <u>Contaminant Mobility and Behavior</u> .....	2-40
3.0 <u>RFI-PHASE II FIELD INVESTIGATION</u> .....	3-1
3.1 <u>ECOLOGICAL INVESTIGATIONS</u> .....	3-1
3.1.1 <u>Vegetation Mapping</u> .....	3-2
3.1.2 <u>Key Species Identification</u> .....	3-2
3.2 <u>AIR QUALITY MONITORING</u> .....	3-3
3.3 <u>EXPLOSIVE RISK DETERMINATION</u> .....	3-14
3.4 <u>CHEMICAL AGENT MONITORING</u> .....	3-14
3.5 <u>SOIL GAS SAMPLING</u> .....	3-14

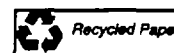


TABLE OF CONTENTS  
(continued)

<u>Section</u>	<u>Page</u>
3.6 GEOPHYSICAL SURVEY .....	3-19
3.6.1 <u>SWMU 30 Geophysics</u> .....	3-19
3.6.2 <u>SWMU 5 Geophysics</u> .....	3-23
3.6.3 <u>SWMU 9 Geophysics</u> .....	3-23
3.7 SOIL SAMPLING .....	3-24
3.7.1 <u>Soil Sampling Locations</u> .....	3-24
3.7.1.1 SWMU 3 .....	3-32
3.7.1.2 SWMU 5 .....	3-32
3.7.1.3 SWMU 8 .....	3-35
3.7.1.4 SWMU 9 .....	3-37
3.7.1.5 SWMU 30 .....	3-45
3.7.1.6 SWMU 31 .....	3-45
3.7.2 <u>Soil Sample Collection</u> .....	3-50
3.7.3 <u>Soil Sample Chemical Analyses</u> .....	3-50
3.7.4 <u>Soil Sample Geotechnical Analyses</u> .....	3-55
3.8 SURFACE WATER SAMPLING .....	3-55
3.9 MONITOR WELL INSTALLATION AND DEVELOPMENT .....	3-55
3.9.1 <u>Drilling Methods</u> .....	3-58
3.9.2 <u>Borehole Sampling</u> .....	3-58
3.9.3 <u>Well Construction</u> .....	3-58
3.9.4 <u>Monitor Well Installation Activities</u> .....	3-61
3.9.4.1 SWMU 5 .....	3-61
3.9.4.2 SWMU 9 .....	3-61
3.9.5 <u>Well Development</u> .....	3-61
3.10 GROUNDWATER SAMPLING .....	3-62
3.10.1 <u>Monitor Well Surveying</u> .....	3-63
3.10.2 <u>Groundwater Elevation Measurements</u> .....	3-63
3.11 AQUIFER TESTING .....	3-67
3.11.1 <u>Aquifer Test Procedure</u> .....	3-67
3.11.2 <u>Aquifer Test Data Analysis</u> .....	3-69
3.12 PRESENT AND REASONABLE FUTURE USE INVESTIGATION .....	3-70
3.13 DATA VALIDATION AND MANAGEMENT .....	3-70
3.13.1 <u>Chemical Analytical Program</u> .....	3-70
3.13.2 <u>Field Quality Assurance/Quality Control</u> .....	3-70
3.13.2.1 Trip Blanks .....	3-72
3.13.2.2 Rinse Blanks .....	3-72
3.13.2.3 Field Sample Duplicates .....	3-78



TABLE OF CONTENTS  
(continued)

<u>Section</u>	<u>Page</u>
3.13.3 <u>Laboratory Quality Assurance/Quality Control</u> .....	3-80
3.13.3.1 USAEC Method Quality Assurance/Quality Control .....	3-80
3.13.3.2 Matrix Spike and Matrix Spike Duplicate Evaluation .....	3-81
4.0 <u>RFI-Phase II RFI RESULTS</u> .....	4-1
4.1 SWMU 3 .....	4-1
4.1.1 <u>Background</u> .....	4-1
4.1.1.1 Site History and Description of SWMU 3: Impounding Bay/Disposal Pit (Southeast of Area 2) .....	4-1
4.1.1.2 Geology and Soil at SWMU 3 .....	4-9
4.1.1.3 Hydrology at SWMU 3 .....	4-10
4.1.2 <u>Nature and Extent of Contamination</u> .....	4-10
4.1.2.1 Soil Contamination Assessment .....	4-10
4.1.2.2 Groundwater Contamination Assessment .....	4-19
4.1.2.3 Air Contamination Assessment .....	4-26
4.1.3 <u>Contaminant Fate and Migration</u> .....	4-28
4.2 SWMU 5 .....	4-31
4.2.1 <u>Background</u> .....	4-31
4.2.1.1 Site History and Description of SWMU 5: Building 600 Foundation, Drainage Pond, and Ditch .....	4-31
4.2.1.2 Geology and Soil at SWMU 5 .....	4-39
4.2.1.3 Hydrology at SWMU 5 .....	4-41
4.2.2 <u>Nature and Extent of Contamination</u> .....	4-45
4.2.2.1 Soil Contamination Assessment .....	4-45
4.2.2.2 Groundwater Contamination Assessment .....	4-59
4.2.2.3 Air Contamination Assessment .....	4-70
4.2.3 <u>Contaminant Fate and Transport</u> .....	4-72
4.2.3.1 Soil .....	4-72
4.2.3.2 Groundwater .....	4-73
4.3 SWMU 8 .....	4-75
4.3.1 <u>Background</u> .....	4-75
4.3.1.1 Site History and Description of SWMU 8: Surveillance Test Site .....	4-75
4.3.1.2 Geology and Soil at SWMU 8 .....	4-81
4.3.1.3 Hydrology at SWMU 8 .....	4-81
4.3.2 <u>Nature and Extent of Contamination</u> .....	4-82
4.3.2.1 Soil Contamination Assessment .....	4-82



TABLE OF CONTENTS  
(continued)

<u>Section</u>	<u>Page</u>
4.3.2.2 Air Contamination Assessment .....	4-95
4.3.3 <u>Contaminant Fate and Transport</u> .....	4-95
4.3.3.1 Organic Compounds .....	4-96
4.3.3.2 Inorganic Compounds .....	4-97
4.4 SWMU 9 .....	4-98
4.4.1 <u>Background</u> .....	4-98
4.4.1.1 Site History and Description of SWMU 9: Area 2 (Including Mustard Holding and Pit Areas) .....	4-98
4.4.1.2 Geology and Soil at SWMU 9 .....	4-102
4.4.1.3 Site Hydrogeology .....	4-107
4.4.2 <u>Nature and Extent of Contamination</u> .....	4-108
4.4.2.1 Soil Contamination Assessment .....	4-108
4.4.2.2 Groundwater Contamination Assessment .....	4-117
4.4.2.3 Air Contamination Assessment .....	4-124
4.4.3 <u>Contaminant Fate and Transport</u> .....	4-126
4.4.3.1 Soil .....	4-126
4.4.3.2 Groundwater .....	4-129
4.5 SWMU 30 .....	4-129
4.5.1 <u>Background</u> .....	4-129
4.5.1.1 Site History and Description of SWMU 30: CAMDS Landfill ..	4-129
4.5.1.2 Geology and Soil at SWMU 30 .....	4-131
4.5.1.3 Hydrogeology at SWMU 30 .....	4-134
4.5.2 <u>Nature and Extent of Contamination</u> .....	4-135
4.5.2.1 Soil Contamination Assessment .....	4-135
4.5.2.2 Groundwater Contamination Assessment .....	4-148
4.5.2.3 Air Contamination Assessment .....	4-148
4.5.3 <u>Contaminant Fate and Transport</u> .....	4-148
4.5.3.1 Organic Compounds .....	4-148
4.5.3.2 Inorganic Compounds .....	4-149
4.6 SWMU 31 .....	4-150
4.6.1 <u>Background</u> .....	4-150
4.6.1.1 Site History and Description of SWMU 31: Demilitarization Area (Northeast of SWMU 1) .....	4-150
4.6.1.2 Geology and Soil at SWMU 31 .....	4-156
4.6.1.3 Hydrogeology at SWMU 31 .....	4-157
4.6.2 <u>Nature and Extent of Contamination</u> .....	4-157
4.6.2.1 Soil Contamination Assessment .....	4-157

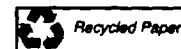


TABLE OF CONTENTS  
(continued)

<u>Section</u>	<u>Page</u>
4.6.2.2 Surface Water Contamination Assessment . . . . .	4-162
4.6.2.3 Air Contamination Assessment . . . . .	4-169
4.6.3 <u>Contaminant Fate and Transport</u> . . . . .	4-171
4.6.3.1 Soils . . . . .	4-171
4.6.3.2 Surface Water . . . . .	4-172
4.7 DITCH AND SEDIMENT SAMPLING . . . . .	4-173
4.7.1 <u>Previous Sampling Results</u> . . . . .	4-173
4.7.2 <u>RFI-Phase II Results</u> . . . . .	4-175
4.7.2.1 Organic Compounds . . . . .	4-175
4.7.2.2 Metals . . . . .	4-178
4.7.3 <u>Contaminant Fate and Transport</u> . . . . .	4-180
5.0 <u>BASELINE HUMAN HEALTH RISK ASSESSMENT</u> . . . . .	5-1
5.1 <u>METHODOLOGY</u> . . . . .	5-1
5.1.1 <u>Identification of Chemicals of Concern</u> . . . . .	5-1
5.1.1.1 Soil Chemicals of Concern . . . . .	5-1
5.1.1.2 Groundwater Chemicals of Concern . . . . .	5-3
5.1.1.3 Air Chemicals of Concern . . . . .	5-3
5.1.2 <u>Exposure Assessment</u> . . . . .	5-4
5.1.2.1 Identification of Exposure Pathways . . . . .	5-4
5.1.2.2 Estimation of Chemical Intakes . . . . .	5-4
5.1.2.3 Determination of Exposure Point Concentrations . . . . .	5-8
5.1.3 <u>Toxicity Assessment</u> . . . . .	5-10
5.1.3.1 Toxicity Information for Potential Carcinogenic Effects . . . . .	5-10
5.1.3.2 Toxicity Information for Potential Noncarcinogenic Effects . . . . .	5-12
5.1.3.3 Chemicals For Which No Toxicity Values Are Available . . . . .	5-12
5.1.4 <u>Risk Characterization</u> . . . . .	5-13
5.1.4.1 Risk Calculation Methodology for Current-Use Pathways . . . . .	5-13
5.1.4.2 Risk Calculation Methodology for Future-Use Pathways . . . . .	5-14
5.1.4.3 Interpretation of Risk Assessment Results . . . . .	5-18
5.2 <u>BASELINE HUMAN HEALTH RISK ASSESSMENT FOR SWMU 3</u> . . . . .	5-18
5.2.1 <u>Identification of Chemicals of Concern</u> . . . . .	5-18
5.2.2 <u>Exposure Assessment</u> . . . . .	5-32
5.2.3 <u>Risk Characterization</u> . . . . .	5-32
5.2.3.1 Current-Use Risks . . . . .	5-37
5.2.3.2 Potential Future-Use Soil Exposure Risks . . . . .	5-37
5.2.3.3 Potential Future-Use Groundwater Exposure Risks . . . . .	5-43

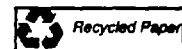


TABLE OF CONTENTS  
(continued)

<u>Section</u>	<u>Page</u>
5.2.3.4 Summary of SWMU 3 Human Health Risk Assessment Results .	5-45
5.3 BASELINE HUMAN HEALTH RISK ASSESSMENT FOR SWMU 5 . . . . .	5-45
5.3.1 <u>Identification of Chemicals of Concern</u> . . . . .	5-45
5.3.2 <u>Exposure Assessment</u> . . . . .	5-64
5.3.3 <u>Risk Characterization</u> . . . . .	5-64
5.3.3.1 Current-Use Risks . . . . .	5-64
5.3.3.2 Potential Future-Use Soil Exposure Risks . . . . .	5-72
5.3.3.3 Potential Future-Use Groundwater Exposure Risks . . . . .	5-72
5.3.3.4 Summary of SWMU 5 Human Health Risk Assessment Results .	5-76
5.4 BASELINE HUMAN HEALTH RISK ASSESSMENT FOR SWMU 8 . . . . .	5-76
5.4.1 <u>Identification of Chemicals of Concern</u> . . . . .	5-76
5.4.2 <u>Exposure Assessment</u> . . . . .	5-76
5.4.3 <u>Risk Characterization</u> . . . . .	5-89
5.4.3.1 Current-Use Risks . . . . .	5-89
5.4.3.2 Potential Future-Use Soil Exposure Risks . . . . .	5-89
5.4.3.3 Summary of SWMU 8 Human Health Risk Assessment Results .	5-95
5.5 BASELINE HUMAN HEALTH RISK ASSESSMENT FOR SWMU 9 . . . . .	5-95
5.5.1 <u>Identification of Chemicals of Concern</u> . . . . .	5-95
5.5.2 <u>Exposure Assessment</u> . . . . .	5-95
5.5.3 <u>Risk Characterization</u> . . . . .	5-116
5.5.3.1 Current-Use Risks . . . . .	5-116
5.5.3.2 Potential Future-Use Soil Exposure Risks . . . . .	5-116
5.5.3.3 Potential Future-Use Groundwater Exposure Risks . . . . .	5-120
5.5.3.4 Summary of SWMU 9 Human Health Risk Assessment Results .	5-122
5.6 BASELINE HUMAN HEALTH RISK ASSESSMENT FOR SWMU 30 . . .	5-122
5.6.1 <u>Identification of Chemicals of Concern</u> . . . . .	5-122
5.6.2 <u>Exposure Assessment</u> . . . . .	5-135
5.6.3 <u>Risk Characterization</u> . . . . .	5-135
5.7 BASELINE HUMAN HEALTH RISK ASSESSMENT FOR SWMU 31 . . .	5-140
5.7.1 <u>Identification of Chemicals of Concern</u> . . . . .	5-140
5.7.2 <u>Exposure Assessment</u> . . . . .	5-140
5.7.3 <u>Risk Characterization</u> . . . . .	5-140
5.8 UNCERTAINTY EVALUATION . . . . .	5-151
5.8.1 <u>Exposure Point Concentration</u> . . . . .	5-151
5.8.2 <u>Human Exposure Parameter Estimation</u> . . . . .	5-154
5.8.3 <u>Uncertainties Related to Toxicity Information</u> . . . . .	5-154
5.9 SUMMARY OF SWMU-SPECIFIC RISK ASSESSMENT RESULTS . . . . .	5-155

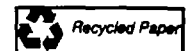


TABLE OF CONTENTS  
(continued)

<u>Section</u>	<u>Page</u>
6.0 <u>ECOLOGICAL EVALUATION</u> .....	6-1
6.1 INTRODUCTION .....	6-1
6.2 DETERMINATION OF POTENTIALLY EXPOSED BIOTA .....	6-2
6.2.1 <u>Characterization Of TEAD-S Habitats</u> .....	6-2
6.2.1.1 Upland Shrub Habitat .....	6-5
6.2.1.2 Upland Grass Habitat .....	6-5
6.2.1.3 Salt Shrub Habitat .....	6-6
6.2.1.4 Alkali Meadow Habitat .....	6-6
6.2.1.5 Riparian Habitat .....	6-6
6.2.1.6 Human-Altered Habitat .....	6-7
6.2.2 <u>Habitat Types in the Group 2 SWMUs</u> .....	6-8
6.2.3 <u>SWMU-Wide Wildlife Concerns</u> .....	6-13
6.2.4 <u>Potential Biota Receptors</u> .....	6-18
6.3 SELECTION OF ECOLOGICAL COCs .....	6-21
6.4 EXPOSURE ASSESSMENT .....	6-27
6.4.1 <u>Conceptual Site Model</u> .....	6-27
6.4.2 <u>Exposure Documentation</u> .....	6-29
6.5 TOXICITY ASSESSMENT .....	6-30
6.5.1 <u>Arsenic</u> .....	6-32
6.5.2 <u>Cadmium</u> .....	6-32
6.5.3 <u>Copper</u> .....	6-32
6.5.4 <u>Lead</u> .....	6-33
6.5.5 <u>Mercury</u> .....	6-33
6.5.6 <u>Silver</u> .....	6-33
6.5.7 <u>Zinc</u> .....	6-33
6.6 ECOLOGICAL RISK CHARACTERIZATION .....	6-34
6.6.1 <u>Potential Risk Characterization</u> .....	6-34
6.6.1.1 Characterization Based on Surficial Soil Data and Selected COCs	6-34
6.6.1.2 Characterization Based on Subsurface Soil, Groundwater, and	
Surface Water Data .....	6-39
6.6.2 <u>Ecological Significance of Identified Potential Risk</u> .....	6-40
6.6.2.1 Influence of COC Distribution Patterns .....	6-40
6.6.2.2 The Influence of Ecological Parameters .....	6-43
6.7 UNCERTAINTY IN POTENTIAL RISK CHARACTERIZATION .....	6-44
6.7.1 <u>Representation of Exposure Concentrations</u> .....	6-44
6.7.2 <u>Only COC Source Assumption</u> .....	6-45
6.7.3 <u>Uncertainties in the Literature Values Used</u> .....	6-45



TABLE OF CONTENTS  
(continued)

<u>Section</u>	<u>Page</u>
6.7.4 <u>Uncertainties Due to Chemical Variations</u> . . . . .	6-47
6.8 SUMMARY AND CONCLUSIONS . . . . .	6-47
7.0 <u>SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS</u> . . . . .	7-1
7.1 RFI SUMMARY AND CORRECTIVE ACTION EVALUATION . . . . .	7-1
7.1.1 <u>RFI Summary</u> . . . . .	7-1
7.1.2 <u>Corrective Action Evaluation</u> . . . . .	7-2
7.1.2.1 Evaluation of Risk Assessment Results . . . . .	7-2
7.1.2.2 Evaluation of Explosive Risk . . . . .	7-2
7.1.2.3 Application of the Principle of Nondegradation . . . . .	7-3
7.2 SWMU 3 . . . . .	7-3
7.2.1 <u>Human Health Risk Assessment Conclusions</u> . . . . .	7-4
7.2.2 <u>Ecological Risk Assessment Conclusions</u> . . . . .	7-5
7.2.3 <u>Explosive Risk Determination Conclusions</u> . . . . .	7-5
7.2.4 <u>Environmental Degradation Conclusions</u> . . . . .	7-5
7.2.5 <u>Recommendations for SWMU 3</u> . . . . .	7-5
7.3 SWMU 5 . . . . .	7-7
7.3.1 <u>Human Health Risk Assessment Conclusions</u> . . . . .	7-7
7.3.2 <u>Ecological Risk Assessment Conclusions</u> . . . . .	7-8
7.3.3 <u>Explosive Risk Determination Conclusions</u> . . . . .	7-8
7.3.4 <u>Environmental Degradation Conclusions</u> . . . . .	7-8
7.3.5 <u>Recommendations for SWMU 5</u> . . . . .	7-9
7.4 SWMU 8 . . . . .	7-9
7.4.1 <u>Human Health Risk Assessment Conclusions</u> . . . . .	7-10
7.4.2 <u>Ecological Risk Assessment Conclusions</u> . . . . .	7-10
7.4.3 <u>Explosive Risk Determination Conclusions</u> . . . . .	7-10
7.4.4 <u>Environmental Degradation Conclusions</u> . . . . .	7-10
7.4.5 <u>Recommendations for SWMU 8</u> . . . . .	7-11
7.5 SWMU 9 . . . . .	7-11
7.5.1 <u>Human Health Risk Assessment Conclusions</u> . . . . .	7-12
7.5.2 <u>Ecological Risk Assessment Conclusions</u> . . . . .	7-12
7.5.3 <u>Explosive Risk Determination Conclusions</u> . . . . .	7-12
7.5.4 <u>Environmental Degradation Conclusions</u> . . . . .	7-12
7.5.5 <u>Recommendations for SWMU 9</u> . . . . .	7-13
7.6 SWMU 30 . . . . .	7-13
7.6.1 <u>Human Health Risk Assessment Conclusions</u> . . . . .	7-13
7.6.2 <u>Ecological Risk Assessment Conclusions</u> . . . . .	7-14





TABLE OF CONTENTS  
(continued)

<u>Section</u>	<u>Page</u>
7.6.3 <u>Explosive Risk Determination Conclusions</u> .....	7-14
7.6.4 <u>Environmental Degradation Conclusions</u> .....	7-14
7.6.5 <u>Recommendations for SWMU 30</u> .....	7-14
7.7 SWMU 31 .....	7-14
7.7.1 <u>Human Health Risk Assessment Conclusions</u> .....	7-15
7.7.2 <u>Ecological Risk Assessment Conclusions</u> .....	7-15
7.7.3 <u>Explosive Risk Determination Conclusions</u> .....	7-15
7.7.4 <u>Environmental Degradation Conclusions</u> .....	7-16
7.7.5 <u>Recommendations for SWMU 31</u> .....	7-16
8.0 <u>REFERENCES</u> .....	8-1



## LIST OF PLATES

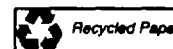
### Plate

- 1 Soil Types at TEAD-S
- 2 Topographic Map of TEAD-S
- 3 Vegetation Types at TEAD-S

## LIST OF APPENDICES

### Appendix

- A Field Data
  - A1 Soil Bore Logs
  - A2 Monitoring Well Bore Logs, Well Construction and Development Forms
  - A3 Water Quality Field Data Sheets
  - A4 Geotechnical Test Results
- B Slug Test Data
- C Monitoring Well Survey Data
- D Laboratory Records
- E Summary of Previous Investigations
- F Chemical Data
  - F1 Soil Data
  - F2 Groundwater Analytical Data
  - F3 Surface Water Data
  - F4 Air Quality Data
  - F5 Background Soil Analytical Data
- G Plant and Wildlife Species List
- H Toxicological Profiles
  - H1 Human Health Toxicological Profiles
  - H2 Ecological Toxicological Profiles
- I Air Monitoring
- J Geophysical Surveys
- K Risk Assessment Calculations
- L Soil Gas Survey Results



## LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1.0-1 Location Map of Tooele Army Depot . . . . .	1-2
1.0-2 Location of RFI-Phase II Group 2 SWMUs . . . . .	1-3
2.1-1 Location of TEAD-S in Rush Valley . . . . .	2-2
2.1-2 Geology of Tooele and Rush Valleys, Utah . . . . .	2-9
2.1-3 Surface Water at TEAD-S . . . . .	2-13
2.1-4 Potentiometric Surface and General Groundwater Flow Direction at TEAD-S, July, 1990 . . . . .	2-14
2.1-5 Windrose for TEAD-S, November 1, 1986 - October 31, 1987 . . . . .	2-19
2.1-6 Land Use Surrounding TEAD-S . . . . .	2-22
2.1-7 Location of Water Rights within 5 Miles of TEAD-S . . . . .	2-25
2.3-1 Phase II Background Soil Sample Locations at TEAD-S . . . . .	2-30
2.3-2 Distribution of Background Arsenic and Mercury in Vicinity of SWMU 3 . . . . .	2-34
2.3-3 Locations of Monitoring Wells Used for the Evaluation of Background Groundwater at TEAD-S for SWMUs 3, 5, 8, 9, 30, and 31 . . . . .	2-36
2.4-1 Fate and Transport Conceptual Model for SWMUs 3, 5, 8, 9, 30, and 31 . . . . .	2-39
3.2-1 Location of Air Monitoring and Meteorological Stations . . . . .	3-4
3.2-2 Typical Air Monitoring Station at SWMU 3 . . . . .	3-5
3.2-3 Composite Windrose for TEAD-S, September 5, 1993 - October 3, 1993 . . . . .	3-6
3.3-1 Location of UXO Inventory Transects at SWMUs 3, 5, 8, 9 and 31 . . . . .	3-15
3.3-2 Location on UXO Inventory Transects at SWMU 30 . . . . .	3-16



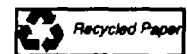
LIST OF FIGURES (continued)

<u>Figure</u>	<u>Page</u>
3.5-1 Soil Gas Survey Locations at SWMU 5 . . . . .	3-18
3.6-1 Total Field Magnetic Response at SWMU 30 . . . . .	3-21
3.6-2 EMI In-Phase Response at SWMU 30 . . . . .	3-22
3.6-2A SWMU 5 Location of GPR Surveys . . . . .	3-23A
3.6-3 EMI Quadrature Phase Response at SWMU 9 . . . . .	3-25
3.7-1 SWMU 3 Sample Location Map . . . . .	3-33
3.7-2 SWMU 5 Sample Location Map . . . . .	3-34
3.7-3 SWMU 8 Sample Location Map . . . . .	3-36
3.7-4 Pit Excavation (8-NTR-2) at North Trench in SWMU 3 . . . . .	3-38
3.7-5 SWMU 9 Sample Location Map . . . . .	3-39
3.7-6 Soil Boring Location (9-OA2-8) in Debris Near Former Treatment Unit in Old Area 2 at SWMU 9 . . . . .	3-42
3.7-7 Test Pit Excavation (9-TP-3) in Burn Trench Area at SWMU 9 . . . . .	3-43
3.7-8 Shallow Burn Area Excavation (9-BA-2) in Burn Trench Area at SWMU 9 . . . . .	3-44
3.7-9 SWMU 30 Sample Location Map . . . . .	3-46
3.7-10 Test Pit Excavation (30-TP-1) at East Trench in SWMU 30 . . . . .	3-47
3.7-11 SWMU 31 Sample Location Map . . . . .	3-48
3.7-12 Soil Sample Location (31-CS-1) in Detonation Pit at SWMU 31 . . . . .	3-49



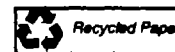
LIST OF FIGURES (continued)

<u>Figure</u>	<u>Page</u>
3.9-1 Generalized Well Construction . . . . .	3-60
3.10-1 Phase II Groundwater Elevations, November/December, 1993 . . . . .	3-65
3.10-2 Phase II Groundwater Elevations, April 26, 1994 . . . . .	3-66
3.10-3 Approximate Depth to Groundwater November/December 1993 . . . . .	3-68
4.1-1 Cultural Features Map at SWMU 3 . . . . .	4-2
4.1-2 Truck Decontamination Site (Bare Area) at SWMU 3 . . . . .	4-3
4.1-3 Mustard Leak Site (3-BLD-2-Stake) at SWMU 3 . . . . .	4-4
4.1-4 Metal Grating Stacks at SWMU 3 . . . . .	4-6
4.1-5 Open Section of Disposal Trench at SWMU 3 . . . . .	4-7
4.1-6 Covered Section of Disposal Trench at SWMU 3 . . . . .	4-8
4.1-7 Organic Compounds in Soil at SWMU 3 . . . . .	4-12
4.1-8 Arsenic in Soil at SWMU 3 . . . . .	4-14
4.1-9 Cadmium in Soil at SWMU 3 . . . . .	4-15
4.1-10 Chromium in Soil at SWMU 3 . . . . .	4-16
4.1-11 Copper in Soil at SWMU 3 . . . . .	4-17
4.1-12 Lead in Soil at SWMU 3 . . . . .	4-18
4.1-13 Mercury in Soil at SWMU 3 . . . . .	4-20
4.1-14 Zinc in Soil at SWMU 3 . . . . .	4-21



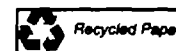
LIST OF FIGURES (continued)

<u>Figure</u>	<u>Page</u>
4.1-15 Organic Compounds in Groundwater at SWMU 3 .....	4-23
4.1-16 Total Metals in Groundwater at SWMU 3 .....	4-24
4.1-17 Anions in Groundwater at SWMU 3 .....	4-27
4.2-1 SWMU 5 Cultural Features Map .....	4-33
4.2-2 Location of Paint Spray Booths (foreground) and Fuse/Burster Removal Area (background) in Building 600 at SWMU 5 .....	4-34
4.2-3 Location of Acid Bath Tank in Building 600 at SWMU 5 .....	4-35
4.2-4 L-Shaped Sump in Building 600 at SWMU 5 .....	4-36
4.2-5 Drainage Pond at SWMU 5 .....	4-37
4.2-6 North-South Section of Drainage Ditch at SWMU 5 .....	4-38
4.2-7 Wooden Dock South of Building 600 at SWMU 5 .....	4-40
4.2-8 Geologic Cross Section A-A' .....	4-42
4.2-9 Location of Geologic Cross Section .....	4-44
4.2-10 Organic Compounds and Cyanide in Soil at SWMU 5 .....	4-47
4.2-11 Antimony in Soil at SWMU 5 .....	4-48
4.2-12 Arsenic in Soil at SWMU 5 .....	4-50
4.2-13 Cadmium in Soil at SWMU 5 .....	4-51
4.2-14 Chromium in Soil at SWMU 5 .....	4-52



LIST OF FIGURES (continued)

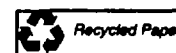
<u>Figure</u>	<u>Page</u>
4.2-15 Copper in Soil at SWMU 5 . . . . .	4-53
4.2-16 Lead in Soil at SWMU 5 . . . . .	4-55
4.2-17 Mercury in Soil at SWMU 5 . . . . .	4-56
4.2-18 Nickel in Soil at SWMU 5 . . . . .	4-57
4.2-19 Silver in Soil at SWMU 5 . . . . .	4-58
4.2-20 Vanadium in Soil at SWMU 5 . . . . .	4-60
4.2-21 Zinc in Soil at SWMU 5 . . . . .	4-61
4.2-22 Soil Gas Survey Results at SWMU 5 - Drainage Pond Enlargement . . . . .	4-62
4.2-23 Soil Gas Survey at SWMU 5 - Isoconcentration Map - Trichloroethylene . . . . .	4-63
4.2-24 Soil Gas Survey at SWMU 5 - Toluene Detections . . . . .	4-64
4.2-25 Organic Compounds in Groundwater at SWMU 5 . . . . .	4-66
4.2-26 Total Metals in Groundwater at SWMU 5 . . . . .	4-68
4.2-27 Anions in Groundwater at SWMU 5 . . . . .	4-71
4.3-1 SWMU 8 Cultural Features Map . . . . .	4-76
4.3-2 Concrete Pad on East Side of Drop Tower Site in SWMU 8 . . . . .	4-77
4.3-3 Munitions Debris on Ground East of Drop Tower Site in SWMU 8 . . . . .	4-78
4.3-4 Incendiary Bomblet Debris at Ground Scar in SWMU 8 . . . . .	4-79
4.3-5 Incendiary Munitions Debris in Drainage Ditch through SWMU 8 . . . . .	4-80





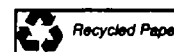
LIST OF FIGURES (continued)

<u>Figure</u>	<u>Page</u>
4.3-6 Organic Compounds and Cyanide in Soil at SWMU 8 . . . . .	4-84
4.3-7 Cadmium in Soil at SWMU 8 . . . . .	4-86
4.3-8 Chromium in Soil at SWMU 8 . . . . .	4-87
4.3-9 Copper in Soil at SWMU 8 . . . . .	4-88
4.3-10 Lead in Soil at SWMU 8 . . . . .	4-89
4.3-11 Mercury in Soil at SWMU 8 . . . . .	4-91
4.3-12 Nickel in Soil at SWMU 8 . . . . .	4-92
4.3-13 Silver in Soil at SWMU 8 . . . . .	4-93
4.3-14 Zinc in Soil at SWMU 8 . . . . .	4-94
4.4-1 Cultural Features at SWMU 9 . . . . .	4-99
4.4-2 Protective Equipment Sign in Open Storage Portion of Area 2 in SWMU 9 . . .	4-100
4.4-3 Partially Buried Metal Grating in Old Area 2 Within SWMU 9 . . . . .	4-101
4.4-4 Steel Frame Used to Hold CK-Filled Bombs in Old Area 2 Within SWMU 9 .	4-103
4.4-5 Suspected Dunnage Burn Pit Location South of Old Area 2 in SWMU 9 . . . .	4-104
4.4-6 Geologic Cross Section B-B' . . . . .	4-106
4.4-7 Organic Compounds and Cyanide in Soil at SWMU 9 . . . . .	4-111
4.4-8 Arsenic in Soil at SWMU 9 . . . . .	4-113
4.4-9 Cadmium in Soil at SWMU 9 . . . . .	4-114



LIST OF FIGURES (continued)

<u>Figure</u>	<u>Page</u>
4.4-10 Copper in Soil at SWMU 9 . . . . .	4-115
4.4-11 Lead in Soil at SWMU 9 . . . . .	4-116
4.4-12 Mercury in Soil at SWMU 9 . . . . .	4-118
4.4-13 Zinc in Soil at SWMU 9 . . . . .	4-119
4.4-14 Organic Compounds in Groundwater at SWMU 9 . . . . .	4-121
4.4-15 Total Metals in Groundwater at SWMU 9 . . . . .	4-122
4.4-16 Anions in Groundwater at SWMU 9 . . . . .	4-125
4.5-1 SWMU 30 Cultural Features Map . . . . .	4-130
4.5-2 June 26, 1966 Aerial Photograph of SWMU 30 Showing Burn Trenches and Open Storage Area . . . . .	4-132
4.5-3 Typical Construction Debris at CAMDS Landfill on East Side of SWMU 30 . .	4-133
4.5-4 Organic Compounds and Cyanide in Soil at SWMU 30 . . . . .	4-137
4.5-5 Arsenic in Soil at SWMU 30 . . . . .	4-139
4.5-6 Cadmium in Soil at SWMU 30 . . . . .	4-140
4.5-7 Chromium in Soil at SWMU 30 . . . . .	4-141
4.5-8 Copper in Soil at SWMU 30 . . . . .	4-142
4.5-9 Lead in Soil at SWMU 30 . . . . .	4-144
4.5-10 Nickel in Soil at SWMU 30 . . . . .	4-145



LIST OF FIGURES (continued)

<u>Figure</u>	<u>Page</u>
4.5-11 Silver in Soil at SWMU 30, .....	4-146
4.5-12 Zinc in Soil at SWMU 30 .....	4-147
4.6-1 Open Detonation of High Explosives at SWMU 31 as seen From SWMU 5 ..	4-151
4.6-2 SWMU 31 Cultural Features Map .....	4-152
4.6-3 Pallets of Munitions in Bottom of Detonation Pit at SWMU 31 .....	4-153
4.6-4 Incendiary Material in Soil at SWMU 31 .....	4-154
4.6-5 Burn Pan used for Propellant Burns at SWMU 31 .....	4-155
4.6-6 Organic Compounds and Cyanide in Soil at SWMU 31 .....	4-159
4.6-7 Cadmium in Soil at SWMU 31 .....	4-160
4.6-8 Copper in Soil at SWMU 31 .....	4-161
4.6-9 Mercury in Soil at SWMU 31 .....	4-163
4.6-10 Nickel in Soil at SWMU 31 .....	4-164
4.6-11 Zinc in Soil at SWMU 31 .....	4-165
4.6-12 Organic Compounds and Cyanide in Surface Water at SWMU 31 .....	4-168
4.6-13 Total Metals in Surface Water at SWMU 31 .....	4-170
4.7-1 Locations of Sediment and Soil Samples Collected from Drainage Ditches at SWMUs 8, 9, and 31 .....	4-174
4.7-2 Organic Compounds Detected in Ditch Sediment and Soil Samples at SWMUs 8, 9, and 31 .....	4-177



LIST OF FIGURES (continued)

<u>Figure</u>	<u>Page</u>
4.7-3 Metals Detected Above Background in Ditch Sediment and Soil Samples at SWMUs 8, 9, and 31 . . . . .	4-179
6.2-1 Vegetation Map SWMUs 3, 5, and 9 . . . . .	6-10
6.2-2 Vegetation Map SWMUs 8 and 31 . . . . .	6-11
6.2-3 Vegetation Map SWMU 30 . . . . .	6-12
6.4-1 TEAD-S Conceptual Model for Biota Receptors at SWMUs 3, 5, 8, 9, 30, and 31 . . . . .	6-28
7.2-1 Proposed Background Soil Sampling for SWMU 3 . . . . .	7-9



## LIST OF TABLES

<u>Table</u>	<u>Page</u>
1.0-1 SWMU Summary . . . . .	1-5
2.1-1 Typical Explosives and Propellants Demilitarized at Tooele Army Depot . . . . .	2-5
2.1-2 Chemical Agents at Tooele Army Depot . . . . .	2-8
2.1-3 Climatological Data for TEAD-S (1982-87) . . . . .	2-17
2.1-4 First and Last Frost Dates for TEAD-S (1982-87) . . . . .	2-18
2.1-5 Water Rights Within 5 Miles of TEAD-S . . . . .	2-23
2.3-1 Summary of Background Soil Results . . . . .	2-33
2.3-2 Ranges of Total (Unfiltered) Metals and Anions in Background Groundwater at TEAD-S for SWMUs 3, 5, and 9 . . . . .	2-37
3.2-1 Analyte List and Detection Limits . . . . .	3-7
3.3-1 Ordnance and Ordnance Debris at Group 2 SWMUs . . . . .	3-17
3.7-1 Soil Sampling During the Phase II RFI at SWMUs 3, 5, 8, 9, 30, and 31 . . . . .	3-26
3.7-2 Rationale for SWMU 9 Sample Locations . . . . .	3-41
3.7-3 Subsurface Soil Collection Methods at Group 2 SWMUs . . . . .	3-51
3.7-4 Preservation Methods and Soil Sample Container Requirements . . . . .	3-54
3.8-1 Preservation Methods and Water Sample Container Requirements . . . . .	3-56
3.8-2 Groundwater and Surface Water Sampling During the Phase II RFI at SWMUs 3, 5, 8, 9, 30, and 31 . . . . .	3-57
3.9-1 Well Construction Summary for RFI-Phase II, TEAD-S, Task 3 . . . . .	3-59
3.9-2 Preservation Methods and Water Sample Container Requirements . . . . .	3-69



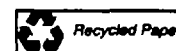
LIST OF TABLES (continued)

<u>Table</u>	<u>Page</u>
3.10-1 Tooele South Groundwater Measurements . . . . .	3-64
3.13-1 Summary of Approved Methods USAEC/EPA Method Equivalents . . . . .	3-71
3.13-2 Summary of Analytical Results for Water (Well 1-S) . . . . .	3-73
3.13-3 Summary of Analytical Results for Rinse Blanks . . . . .	3-74
3.13-4 Field Sample/Duplicate Relative Percent Difference . . . . .	3-79
4.1-1 Chemical Analytical Detections Above Background in Soil Samples from SWMU 3 . . . . .	4-21A
4.1-2 Water Quality Characteristics of Groundwater at SWMU 3 . . . . .	4-25
4.1-3 Chemical Analytical Detections Above Background in Groundwater Samples from SWMU 3 . . . . .	4-27A
4.1-4 Physical and Chemical Properties of Organic Contaminants of Concern in Soil and Groundwater at SWMU 3 . . . . .	4-29
4.2-1 Chemical Analytical Detections Above Background in Soil Samples from SWMU 5 . . . . .	4-61A
4.2-2 Water Quality Characteristics of Groundwater at SWMU 5 . . . . .	4-69
4.2-3 Chemical Analytical Detections Above Background in Groundwater Samples from SWMU 5 . . . . .	4-71A
4.3-1 Chemical Analytical Detections Above Background in Soil Samples from SWMU 8 . . . . .	4-94A
4.4-1 Chemical Analytical Detections Above Background in Soil Samples from SWMU 9 . . . . .	4-119A



LIST OF TABLES (continued)

<u>Table</u>	<u>Page</u>
4.4-2 Water Quality Characteristics of Groundwater at SWMU 9 . . . . .	4-123
4.4-3 Chemical Analytical Detections Above Background in Groundwater Samples from SWMU 9 . . . . .	4-125A
4.5-1 Chemical Analytical Detections Above Background in Soil Samples from SWMU 30 . . . . .	4-148A
4.6-1 Chemical Analytical Detections Above Background in Soil Samples from SWMU 31 . . . . .	4-165A
4.6-2 Summary of Analyses for Surface Water at SWMU 31 . . . . .	4-166
4.7-1 Summary of Organic and Inorganic Detections in Ditch Sediment and Soil Samples at SWMUs 8, 9, and 31 . . . . .	4-176
5.1-1 Summary of Pathways Excluded from Quantitative Evaluation for Group 2 SWMUs . . . . .	5-5
5.1-2 Summary of RBSLs for Soil and Groundwater: Hypothetical Residential Future-Use Pathways . . . . .	5-15
5.2-1 Identification of COCs for SWMU 3 Soil . . . . .	5-19
5.2-2 Identification of Potential COCs for SWMU 3 Groundwater Samples . . . . .	5-26
5.2-3 Summary of COCs Selected for SWMU 3 Media . . . . .	5-31
5.2-4 Potential Pathways of Exposure to COCs at SWMU 3 . . . . .	5-33
5.2-5 EPCs Used to Evaluate SWMU 3 Exposure Pathways . . . . .	5-35
5.2-6 Assumptions Used to Evaluate SWMU 3 Current-Use Exposure Pathways . . . . .	5-36



LIST OF TABLES (continued)

<u>Table</u>	<u>Page</u>
5.2-7 Cancer Risks and Hazard Indices Calculated for SWMU 3 Current-Use SWMU-Wide Exposure Pathways . . . . .	5-38
5.2-8 Cancer Risks and Hazard Indices Calculated for SWMU 3 Current-Use Location-Specific Exposure Pathways . . . . .	5-40
5.2-9 Cancer Risks and Hazard Indices Calculated for SWMU 3 Hypothetical Future-Use Soil Exposure Pathways . . . . .	5-42
5.2-10 Cancer Risks and Hazard Indices Calculated for SWMU 3 Hypothetical Future-Use Groundwater Exposure Pathways . . . . .	5-44
5.3-1 Identification of COCs for SWMU 5 Soil . . . . .	5-46
5.3-2 Identification of Potential COCs for SWMU 5 Groundwater Samples . . . . .	5-57
5.3-3 Summary of COCs Selected for SWMU 5 Media . . . . .	5-63
5.3-4 Potential Pathways of Exposure to COCs at SWMU 5 . . . . .	5-65
5.3-5 EPCs Used to Evaluate SWMU 5 Exposure Pathways . . . . .	5-67
5.3-6 Assumptions Used to Evaluate SWMU 5 Current-Use Exposure Pathways . . . . .	5-69
5.3-7 Cancer Risks and Hazard Indices Calculated for SWMU 5: Current-Use Location-Specific Soil Exposure Pathways . . . . .	5-70
5.3-8 Cancer Risks and Hazard Indices Calculated for SWMU 5 Hypothetical Future-Use Soil Exposure Pathways . . . . .	5-73
5.3-9 Cancer Risks and Hazard Indices Calculated for SWMU 5 Hypothetical Future-Use Groundwater Exposure Pathways . . . . .	5-75
5.4-1 Identification of COCs for SWMU 8 Soil . . . . .	5-77





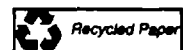
LIST OF TABLES (continued)

<u>Table</u>	<u>Page</u>
5.4-2 Summary of COCs Selected for SWMU 8 Soil . . . . .	5-84
5.4-3 Potential Pathways of Exposure to COCs at SWMU 8 . . . . .	5-85
5.4-4 EPCs Used to Evaluate SWMU 8 Exposure Pathways . . . . .	5-87
5.4-5 Assumptions Used to Evaluate SWMU 8 Current-Use Exposure Pathways . . . . .	5-88
5.4-6 Cancer Risks and Hazard Indices Calculated for SWMU 8 Current-Use SWMU-Wide Soil Exposure Pathways . . . . .	5-90
5.4-7 Cancer Risks and Hazard Indices Calculated for SWMU 8 Current-Use Location-Specific Soil Exposure Pathways . . . . .	5-92
5.4-8 Cancer Risks and Hazard Indices Calculated for SWMU 8 Hypothetical Future-Use Soil Exposure Pathways . . . . .	5-94
5.5-1 Identification of COCs for SWMU 9 Soil . . . . .	5-96
5.5-2 Identification of Potential COCs for SWMU 9 Groundwater Samples . . . . .	5-107
5.5-3 Summary of COCs Selected for SWMU 9 Media . . . . .	5-111
5.5-4 Potential Pathways of Exposure to COCs at SWMU 9 . . . . .	5-112
5.5-5 EPCs Used to Evaluate SWMU 9 Exposure Pathways . . . . .	5-114
5.5-6 Assumptions Used to Evaluate SWMU 9 Current-Use Exposure Pathways . . . . .	5-115
5.5-7 Cancer Risks and Hazard Indices Calculated for SWMU 9 Current-Use Soil Exposure Pathways . . . . .	5-117
5.5-8 Cancer Risks and Hazard Indices Calculated for SWMU 9 Hypothetical Future-Use Soil Exposure Pathway . . . . .	5-119



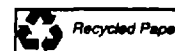
LIST OF TABLES (continued)

<u>Table</u>	<u>Page</u>
5.5-9 Cancer Risks and Hazard Indices Calculated for SWMU 9 Hypothetical Future-Use Groundwater Exposure Pathway . . . . .	5-121
5.6-1 Identification of COCs for SWMU 30 Soil . . . . .	5-123
5.6-2 Summary of COCs Selected for SWMU 30 Soil . . . . .	5-134
5.6-3 Potential Pathways of Exposure to COCs at SWMU 30 . . . . .	5-136
5.6-4 Cancer Risks and Hazardous Indices Calculated for SWMU 30 Current-Use Location Specific Soil Exposure Pathways . . . . .	5-138
5.6-5 Cancer Risks and Hazardous Indices Calculated for SWMU 30 Hypothetical Future-Use Soil Exposure Pathways . . . . .	5-138
5.7-1 Identification of COCs for SWMU 31 Soil . . . . .	5-141
5.7-2 Summary of COCs Selected for SWMU 31 Media . . . . .	5-147
5.7-3 Potential Pathways of Exposure to COCs at SWMU 31 . . . . .	5-148
5.7-4 Exposure Point Concentrations Used to Evaluate SWMU 31 Current- and Future-Use Exposure Pathways . . . . .	5-150
5.7-5 Summary of SWMU 31 Risk Assessment Results for Current- and Future-Use Pathways . . . . .	5-152
5.9-1 Summary of Risk Assessment Results for Group 2 SWMU Current-Use Exposure Pathways . . . . .	5-156
5.9-2 Summary of Risk Assessment Results for Group 2 SWMU Future Residential Use Pathways . . . . .	5-158
6.2-1 Habitat and Vegetation Types of TEAD-S . . . . .	6-3



LIST OF TABLES (continued)

<u>Table</u>	<u>Page</u>
6.2-2 Habitat and Vegetation Types of the Group 2 SWMUs . . . . .	6-9
6.2-3 TEAD-S Habitats Compared to Bureau of Land Management Vegetation Classes . . . . .	6-14
6.2-4 Federal and State of Utah Status for TEAD-S Species of Concern . . . . .	6-17
6.2-5 Selection of Representative Biota Receptors for SWMUs 1 and 25 . . . . .	6-19
6.3-1 Initial Screening of Surficial Soil Analytes for SWMUs 3, 5, 8, 9, 30, and 31 Using Exposure Criteria . . . . .	6-23
6.3-2 Final Screening of Potential Surficial Soil COCs for Group 2 SWMUs Using Toxicological Criteria . . . . .	6-26
6.5-1 Critical Exposure Concentrations and Conversion Factors to Calculate Actual Exposure and Toxicity Reference Values . . . . .	6-31
6.6-1 Comparison of Exposure Concentrations and Toxicity Reference Values . . . . .	6-35
6.6-2 Ecological Risk Ranking Relative to Average Surficial Soil Concentrations . . . . .	6-38
6.7-1 Information to Aid in Assessing Risk Underestimation . . . . .	6-46
6.8-1 Synopsis of Chemicals of Interest for Ecological Risk Characterization . . . . .	6-48
7.2-1 Corrective Action Decision-Making Criteria and Recommendations for SWUM 3 . . . . .	7-8
7.3-1 Corrective Action Decision-Making Criteria and Recommendations for SWUM 5 . . . . .	7-13
7.4-1 Corrective Action Decision-Making Criteria and Recommendations for SWUM 8 . . . . .	7-17



LIST OF TABLES (continued)

<u>Table</u>		<u>Page</u>
7.5-1	Corrective Action Decision-Making Criteria and Recommendations for SWUM 9 .....	7-20
7.6-1	Corrective Action Decision-Making Criteria and Recommendations for SWUM 30 .....	7-23
7.7-1	Corrective Action Decision-Making Criteria and Recommendations for SWUM 31 .....	7-26

