

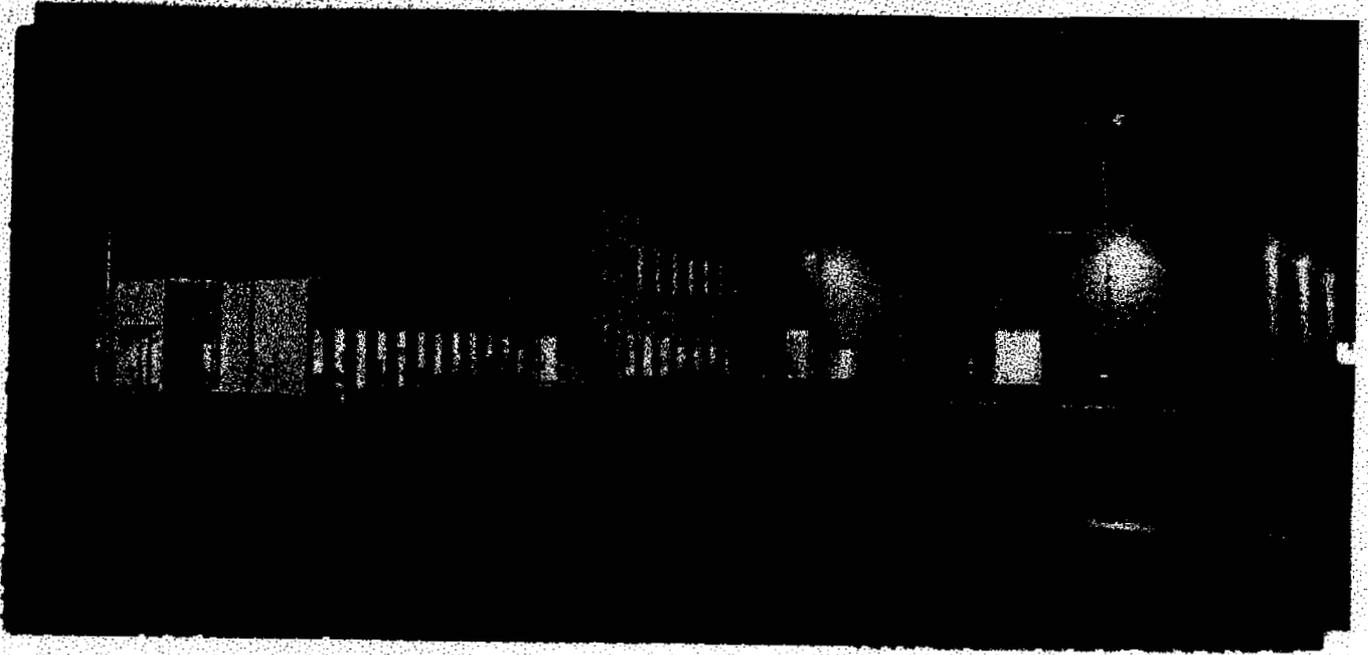
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STARMET
Metallurgical Excellence

**Trench-1
Temporary Structure
Dismantlement
Health and Safety Plan**

ADMIN RECCRD
BZ-1108-A-00063

1/98

ADMINISTRATIVE INFORMATION

Site: Rocky Flats Environmental Technology Site (RFETS), Golden, Colorado
Project Name: Trench 1 (Formerly IHSS 108) Temporary Structure Dismantlement.
Date Prepared: March, 1999
Effective Date: March 29, 1999

Approvals

I have read and approved this HASP with respect to project hazards and regulatory requirements.

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Table of Contents

ADMINISTRATIVE INFORMATION	i
TABLE OF CONTENTS	iii
LIST OF FIGURES	v
LIST OF APPENDICES	v
LIST OF REFERENCES	v
LIST OF ACRONYMS	vii
1.0 INTRODUCTION	1
1.1 SCOPE OF WORK.....	1
2.0 PROJECT PERSONNEL RESPONSIBILITIES	2
FIGURE 2.1 ORG CHART.....	3
2.1 PROJECT MANAGER.....	4
2.2 TASK MANAGER.....	4
2.3 HEALTH AND SAFETY PROGRAM MANAGER	5
2.4 SITE SAFETY OFFICER	5
2.5 FIELD SUPERVISOR	6
2.6 RADIOLOGICAL CONTROL TECHNICIAN (RCT).....	6
2.7 SUBCONTRACTORS	7
2.8 ON-SITE PERSONNEL AND VISITORS	7
3.0 SITE INFORMATION	8
3.1 ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE (RFETS).....	8
3.1.1 RFETS Location.....	8
3.1.2 RFETS Background.....	8
3.1.3 RFETS Operations.....	8
FIGURE 3.1 LOCATION OF RFETS	9
3.2 TRENCH 1 SITE (IHSS 108).....	10
FIGURE 3.2 TRENCH 1 SITE LOCATION MAP	11
FIGURE 3.3 TRENCH T-1 TEMPORARY STRUCTURE CONSTRUCTION SITE.....	12
4.0 TEMPORARY STRUCTURE - CONSTRUCTION TASKS	13
4.1 TASK 1: MOBILIZATION.....	13
4.2 TASK 2: DISMANTLEMENT OF TEMPORARY STRUCTURE.....	13
4.3 TASK 3: DEMOBILIZATION OF EQUIPMENT	13
5.0 PROJECT ORIENTATION AND TRAINING	15
5.1 SITE-SPECIFIC HEALTH AND SAFETY ORIENTATION.....	15
5.2 GENERAL SAFETY AND HEALTH TRAINING REQUIREMENTS	16
5.3 SAFETY TRAINING	16
TABLE 5.1 SAFETY TRAINING SUMMARY	17
6.0 PERSONAL PROTECTION EQUIPMENT	18

7.0 EXPOSURE MONITORING	19
TABLE 7.1 MONITORING PROGRAM SUMMARY	19
TABLE 7.1 MONITORING PROGRAM SUMMARY (CONTINUED)	20
TABLE 7.1 MONITORING PROGRAM SUMMARY (CONTINUED)	21
7.1.1 Noise Monitoring	21
7.1.2 Wind Speed Monitoring	22
7.1.3 Heat Stress Monitoring	22
7.2.4 Cold Stress Monitoring	22
7.2.5 Radiological Monitoring	22
7.2.5.1 Anchor Rods and Drift Pin Monitoring	23
7.2.6 Respirable Dust Monitoring	23
7.2.7 Combustion Gases Monitoring	23
8.0 HAZARD ASSESSMENT	25
8.1 BIOLOGICAL HAZARD	25
8.1.1 Insects	25
8.1.2 Arachnids	25
8.1.3 Snakes	25
8.1.4 Mammals	26
8.1.5 Poisonous Plants	26
8.2 PHYSICAL HAZARDS	26
8.2.1 Heavy Equipment Hazards	26
8.2.2 Aerial Manlift Hazards	27
8.2.3 Noise Exposure Hazards	28
8.2.4 Heat and Cold Stress Hazards	28
8.2.5 Overhead Power Line Hazards	29
8.2.6 Vehicular Traffic Hazards	29
8.2.7 Portable Electric Generator Hazards	29
8.2.8 Hand Tool Hazards	30
8.2.9 Fork Truck Hazards	30
8.2.10 Hoisting and Rigging Equipment Hazards	31
8.2.11 Ladder Hazards	31
8.2.12 Elevated Work Hazards	32
8.2.13 Flammable or Combustible Liquid Storage Hazards	32
8.2.14 Adverse Weather Conditions	32
8.3 CHEMICAL HAZARDS	33
8.4 RADIOLOGICAL HAZARD	33
9.0 CONTROL OF DISMANTLEMENT SITE ACCESS	35
9.1 SITE CONTROL	35
10.0 HEALTH AND SAFETY BULLETIN BOARD	36
11.0 SANITATION	37
12.0 EMERGENCY RESPONSE	38
12.1 SITE EVACUATION	38
12.2 EMERGENCY SERVICES	38
12.2.1 Emergency Phone Numbers	38
12.2.2 Rocky Flats Occupational Health Medical Facility (Building 122)	38
12.2.2.1 Clinic Hours	39

TABLE 12.1 EMERGENCY TELEPHONE NUMBERS.....	40
12.3 ACCIDENT/INJURY.....	41
FIGURE 12.1 MAP TO RFETS MEDICAL – BUILDING 122.....	42
12.3.1 EMERGENCY MEDICAL PROCEDURES.....	43
12.3.2 <i>Fire/Explosion</i>	43
12.3.3 <i>Natural Disasters</i>	43
12.4 EMERGENCY EQUIPMENT.....	43
12.5 UNANTICIPATED HAZARDS OR CONDITIONS.....	44
13.0 SPILL CONTROL.....	46
13.1 SPILL RESPONSE PLANNING.....	46
13.2 INCIDENTAL SPILL OPERATION.....	46
13.3 EMERGENCY SPILL OPERATION.....	47
14.0 RECORD KEEPING REQUIREMENTS.....	49
14.1 ORIENTATION AND TRAINING RECORDS.....	49
14.2 DAILY HEALTH AND SAFETY MEETINGS.....	49
14.3 ACCIDENT/INCIDENT REPORTING.....	49
14.4 HEALTH AND SAFETY LOGBOOKS.....	50

List of Figures

- Figure 2.1 Organizational Chart
Figure 3.1 Location of the Rocky Flats Environmental Technology Site
Figure 3.2 Trench 1 Site Location Map
Figure 12.1 Map to RFETS Medical Building 122

List of Appendices

- Appendix A Activity Hazard Analysis
Appendix B Heat and Cold Stress Guidelines
Appendix C Project Personnel Phone List
Appendix D Health and Safety Documentation Forms

List of References

- American Conference of Governmental Industrial Hygienists Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, 1995-1996
- American National Standards Institute ANSI A92.5-1980 Boom-Supported Elevating Work Platforms
- American National Standards Institute ANSI A92.6 1979 Self-Propelled Elevated Work Platforms
- Department of Energy (DOE) Order 5480.9A, Construction Project Safety and Health Management
- Department of Energy (DOE) Form F5480.4, Complaint Form

- Department of Energy (DOE) Form 5484.3, Individual Accident/Incident Report
- DOE Title 10 CFR 855 Occupational Radiation Protection
- NIOSH Pocket Guide to Chemical Hazards, 1994
- OSHA Title 29 CFR 1904 Recording and Reporting Occupational Injuries and Illnesses
- OSHA Title 29 CFR 1910 Safety and Health Regulations for General Industry
- OSHA Title 29 CFR 1926 Safety and Health Regulations for Construction
- Rocky Flats Environmental Technologies Site Administrative Procedures Manual
- Sciencetech, Inc. Health and Safety Program(HASP)
- HASP 9 – Personal Protective Equipment
- HASP 10 - Fall Protection
- HASP 16 - Use and Care of Ladders
- HASP 19 - Elevated Work Platforms
- HASP 23 - Hazard Communication
- HASP 28 - Electrical Safety
- HASP 22 – Industrial Hygiene Program
- ADM-16.01 Occurrence Reporting Process
- Rocky Flats Environmental Technologies Site Conduct of Operations Manual
- COOP-006 - Operating Area Logs and Records
- Rocky Flats Environmental Technologies Site Field Operations Manual
- Rocky Flats Environmental Technologies Site Health and Safety Practices Manual
- HSP-2.08 Lockout/Tagout
- HSP-Section 4 - Medical Program
- HSP-9.06 Powered Industrial Trucks
- HSP-12.10 Hand and Portable Power Tools
- HSP-21.04 Emergency Response and Spill Control
- Rocky Flats Environmental Technologies Site Soil Disturbance Permit #CB0310SD, “Trench T-1 Accelerated Action”

- Rocky Mountain Remediation Services Field Implementation Plan for the Source Removal at the Trench T-1 Site, IHSS 108
- Rocky Mountain Remediation Services Heat Stress Monitoring Procedure (Discussed in letter #RJC-014-96.)
- Rocky Mountain Remediation Services Integrated Work Control Package T0097265
- Rocky Mountain Remediation Services Proposed Action Memorandum for the Source Removal at the Trench T-1 Site, IHSS 108
- Section 01700-1 Subcontractor Health and Safety Requirements (9/23/96)

List of Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute
CPM	Counts Per Minute
dB	Decibels
DOE	Department of Energy
FIP	Field Implementation Plan
FO	Field Operations Manual
GFCI	Ground Fault Circuit Interrupter
HASP	Health and Safety Plan
HSP	Health and Safety Practices Manual
HSS	Health and Safety Specialist
IH	Industrial Hygiene
IHSS	Individual Hazardous Substance Site
KH	Kaiser-Hill
MSDS	Material Safety Data Sheet
NIOSH	National Institute of Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PAM	Proposed Action Memorandum
PPE	Personal Protective Equipment
RCT	Radiological Control Technician
RFETS	Rocky Flats Environmental Technology Site
RSP	Radiological Safety Practices Manual
RMRS	Rocky Mountain Remediation Services

RWP	Radiological Work Permit
SAP	Sampling and Analysis Plan
SEG	Scientific Ecology Group
SSO	Site Safety Officer
SSOC	Safe Site of Colorado
WBG	Wet Bulb Globe Thermometer

1.0 Introduction

This site specific Health and Safety Plan (HASP) establishes guidelines to protect project personnel, collocated workers, the general public, equipment, and the environment during dismantlement of the Trench 1 temporary structure located at the Rocky Flats Environmental Technology Site (RFETS). The safety organization, procedures, and protective equipment described below have been defined based upon an analysis of potential hazards associated with the planned project activities. Specific hazard control methodologies have been evaluated and selected to minimize the potential for accident or injury. The HASP is compliant with DOE Order 5480.9A, "Construction Project Safety and Health Management"; OSHA Title 29 CFR 1910, "Safety and Health Regulations for General Industry"; OSHA Title 29 CFR 1926, "Safety and Health Regulations for Construction"; and Starmet Health and Safety Policies.

This HASP prescribes the procedures that must be followed during the referenced project activities. HASP changes that could affect the health and safety of personnel, the community, or the environment, will not be made without the prior approval of the Project Manager, the Project Health & Safety Officer, the RMRS Project Manager, and the RMRS Health and Safety Supervision. The provisions of this plan are mandatory requirements for all personnel and subcontractors assigned to the project. All visitors to the work site must abide by the requirements of the plan.

RMRS Construction Subcontractors shall manage and perform work in accordance with a documented Safety Management System that complies with the Kaiser-Hill Integrated Safety Management System (ISMS) Program by utilizing ISMS concepts as outlined in 1-MAN-016-ISM - Integrated Safety Management Systems Manual. Prior to commencement of work, the subcontractor shall develop and implement plans for performing work safely at the site by utilizing the five following ISMS guiding principals: Define the Scope of work, Identify and Analyze Hazards, Identify and Implement Controls, Perform the Work, and Provide Feedback.

1.1 Scope of Work

Starmet has been contracted to dismantle the Sprung Instant Structures, Inc. (70' X 444') freestanding, temporary structure previously erected over the Trench 1 (T-1) environmental remediation site at RFETS. Starmet will furnish all supervision, labor, equipment, and materials necessary to dismantle the temporary structure. All engineering designs and construction activities will be conducted in accordance with RMRS-approved health and safety and quality assurance plans. The scope of work includes the mobilization of equipment and material, dismantlement of the temporary structure and demobilization of equipment and material from the T-1 site.

The specific activities to be performed are defined in Section 4.0 of this HASP. The health and safety guidelines and requirements presented are based on a review of available information and an evaluation of potential hazards.

2.0 Project Personnel Responsibilities

The responsibilities and authorities of each individual relating to health and safety issues are presented in this section. The project organization is shown in Figure 2.1.

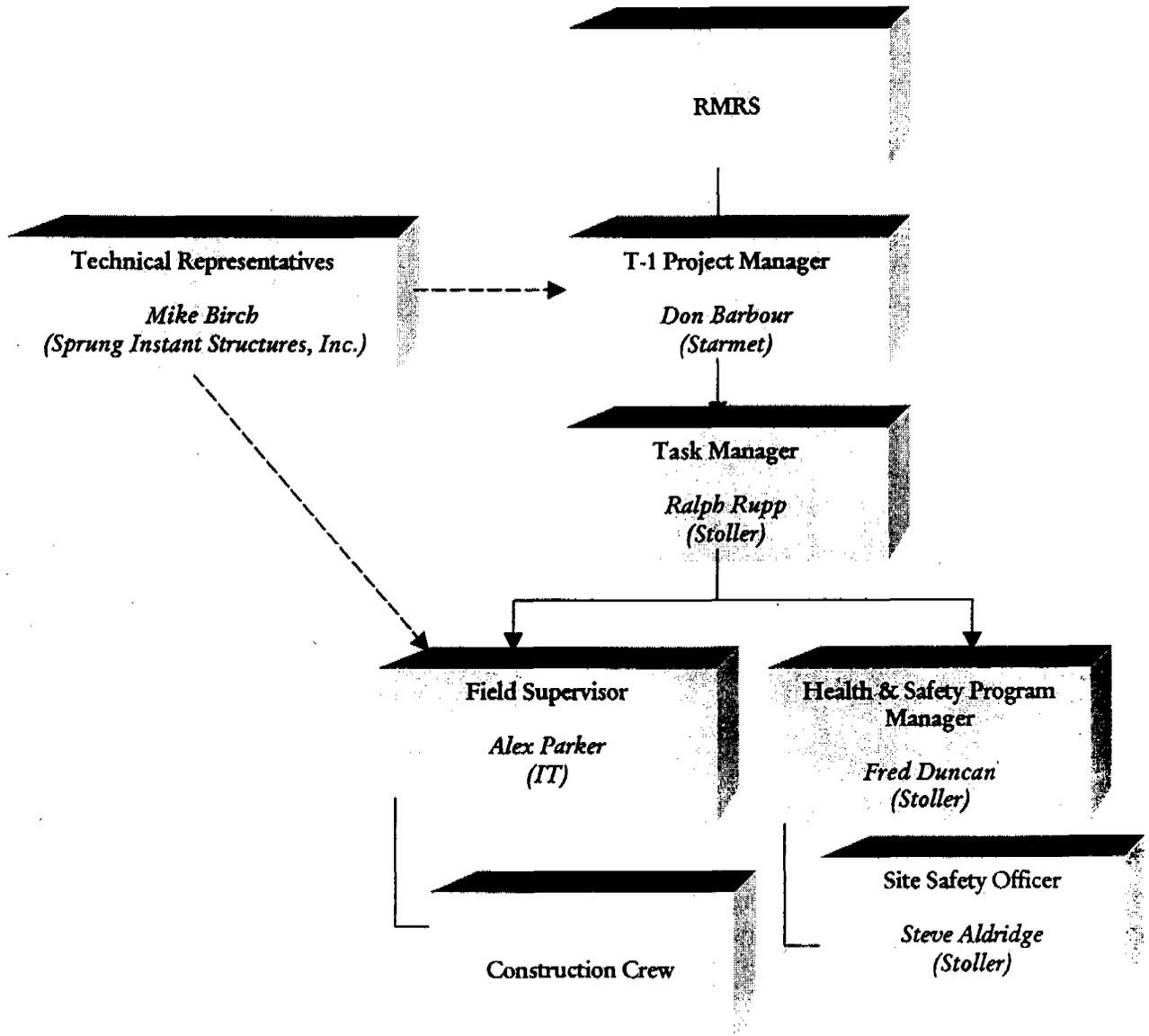
Starmet (Figure 2.1) will manage the T-1 temporary structure dismantlement task and will provide the following key personnel for the project: a Task Manager (TM), a Field Supervisor, a Site Safety Officer / Health and Safety Specialist, and a Technical Representative. The Field Supervisor and Safety personnel will be full-time during construction activities.

Starmet has contracted directly with Sprung Instant Structures, Inc. (Sprung) for lease of the structure and provision of Sprung Technical Representatives to instruct workers on proper techniques for dismantling the structure. Starmet has contracted with the S. M. Stoller Corporation (Stoller) to manage this temporary structure task and provide health and safety support. The IT Group is under subcontract to Stoller to provide supervision and construction workers for the task.

A project personnel telephone list is presented in Appendix C

All personnel must adhere to the health and safety procedures of the HASP during the performance of their work. Each person is responsible for completing tasks safely, and reporting any unsafe acts or conditions to his or her immediate supervisor or to the Field Supervisor. Line workers and other project personnel are required to work with the site Safety Officer (SSO) to amend the Activity Hazard Analyses (AHAs) when unanticipated and/or unsafe conditions arise. The AHAs are living documents that require worker input to mitigate any health and safety concerns that arise during a specific job or work activity. No person may work in a manner that conflicts with the letter or the intent of, or the safety and environmental precautions expressed in these procedures. After due warnings, the Task Manager will dismiss from the site any person who violates safety procedures. If necessary, employees are subject to progressive discipline and may be terminated for blatant or continued violations.

**Rocky Flats Environmental Technology Site
T-1 Trench Temporary Structure
Organizational Chart
Figure 2-1**



———— Reporting Line
- - - - - Communication Line

2.1 Project Manager

The Project Manager is responsible for ensuring that all resources are made available to the Task Manager for implementation of the health and safety requirements of the HASP.

2.2 Task Manager

The Task Manager is responsible for overall operations during fieldwork on the site including the health and safety of project personnel during site activities. The Task Manager is responsible for implementation of the HASP and protecting surrounding facilities and any potentially affected communities. The Task Manager shall ensure that work crews have adequate resources to effectively perform the tasks required, proper personal protective equipment is being used (as specified in the HASP), and disciplinary actions are enforced when health and safety requirements are not being followed or unsafe practices occur. Further, the Task Manager's specific health and safety duties include the following:

- Managing the development and implementation of the site specific HASP and Activity Hazard Analyses.
- Performing weekly documented on-site inspections to make certain that the HASP is being followed.
- Coordinating with the Site Safety Officer on health and safety matters.
- Preparing monthly and weekly Section 01700 Subcontractor Reporting Submittals and delivering them to the RMRS CTR as required.
- Providing the appropriate monitoring and safety equipment necessary for implementing this HASP.
- Suspending field activities if health and safety of personnel are endangered pending an evaluation by the Site Safety Officer.
- Responsible to provide the Field Supervisor with the equipment, materials and qualified personnel to implement fully all safety requirements in this HASP.
- Escorting employees with injuries or illnesses to RFETS Medical.
- Implementing emergency procedures as required.
- Assisting in accident investigations and implementing corrective actions to any unsafe conditions.

2.3 Health and Safety Program Manager

The Health & Safety Program Manager is responsible for technical health and safety aspects of the project, including review and approval of this HASP. Inquiries regarding Health and Safety Program procedures, project procedures, and other technical or regulatory issues should be addressed to this individual.

2.4 Site Safety Officer (SSO)

The SSO is responsible for on-site compliance with and implementation of the HASP. The SSO and ultimately the Task Manager are responsible for the safe conduct of operations. The specific health and safety duties of the SSO include the following:

- Developing the site specific HASP.
- Working in conjunction with line workers to develop project Activity Hazard Analyses (AHAs); and since AHAs are living documents, work together to mark changes as unanticipated hazards arise.
- Reporting to the Task Manager on health and safety matters.
- Conducting health and safety orientation (or designee).
- Providing a copy of the HASP to all field crews.
- Ensuring that current medical clearance and training documentation is available.
- Obtaining required health and safety equipment and maintaining equipment on the site.
- Conducting daily pre-work health and safety briefings.
- Conducting weekly site health and safety inspections and immediately correcting deficiencies.
- Immediately reporting all safety-related incidents or accidents to the Task Manager.
- Conducting required health and safety monitoring such as noise and heat or cold stress monitoring.
- Maintaining a health and safety log including monitoring results and observations.
- Suspending work or otherwise limiting personnel exposure to dangerous situations if this HASP appears to be unsuitable or inadequate.
- Implementing emergency procedures as required.
- Maintaining the health and safety record for the life of the project.

2.5 Field Supervisor

The Field Supervisor, in coordination with the Task Manager and the SSO, will also be responsible for the implementation of this HASP. This will include communicating site requirements to all on site project personnel. The Field Supervisor's specific health and safety duties include the following:

- Enforcing the requirements of the HASP.
- Suspending work, as required, to ensure personal safety and protection of property, or where life or property-threatening non-compliance with safety requirements is found.
- Ensuring site permits are obtained before work begins at the site.
- Notifying the Task Manager of any accidents, spills, or emergencies.
- Informing RFETS personnel of activities that will be carried out on a particular day.
- Communicating with the SSO about the schedule of work at the site.
- Ensuring that all site personnel have been given the proper medical clearance.
- Ensuring that all site personnel have met appropriate training requirements and have the appropriate training documentation at the site.
- Conducting daily site health and safety inspections and reporting all unsafe conditions to the SSO.
- Implementing corrective actions to any unsafe conditions.
- Implementing emergency procedures as required.

2.6 Radiological Control Technician (RCT)

The Radiological Control Technicians (RCTs) will be responsible for implementation of the HASP. This includes communicating site radiological conditions to all onsite project personnel and consultation with the SSO and the Task Manager. As required, the specific duties of the RCTs will include the following:

- Implementing radiological guidelines set by the Soil Disturbance Permit.
- Performing contamination surveys on anchor rods and drift pins.
- Documenting and submitting formalized radiological surveys to the Task Manager or SSO.
- Maintaining a log of pertinent observations.
- Suspending work if health or safety of personnel or the environment is endangered.

2.7 Subcontractors

On-site subcontractors and their personnel must understand and comply with the site requirements established in this HASP. Subcontractors must attend and participate in the daily Tailgate Safety Meetings and all other site safety meetings.

2.8 On-Site Personnel And Visitors

All personnel must read and acknowledge their understanding of this HASP, abide by the requirements of the plan, and cooperate with site supervision in ensuring a safe and healthful work site. Site personnel will immediately report any of the following to the Field Supervisor or SSO:

- Accidents and injuries, no matter how minor.
- Unexpected or uncontrolled release of chemical substances.
- Symptoms of chemical exposure.
- Unsafe or malfunctioning equipment.
- Changes in site conditions that may affect the health and safety of project personnel.

3.0 Site Information

3.1 Rocky Flats Environmental Technology Site (RFETS)

3.1.1 RFETS Location

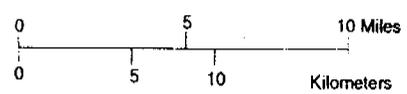
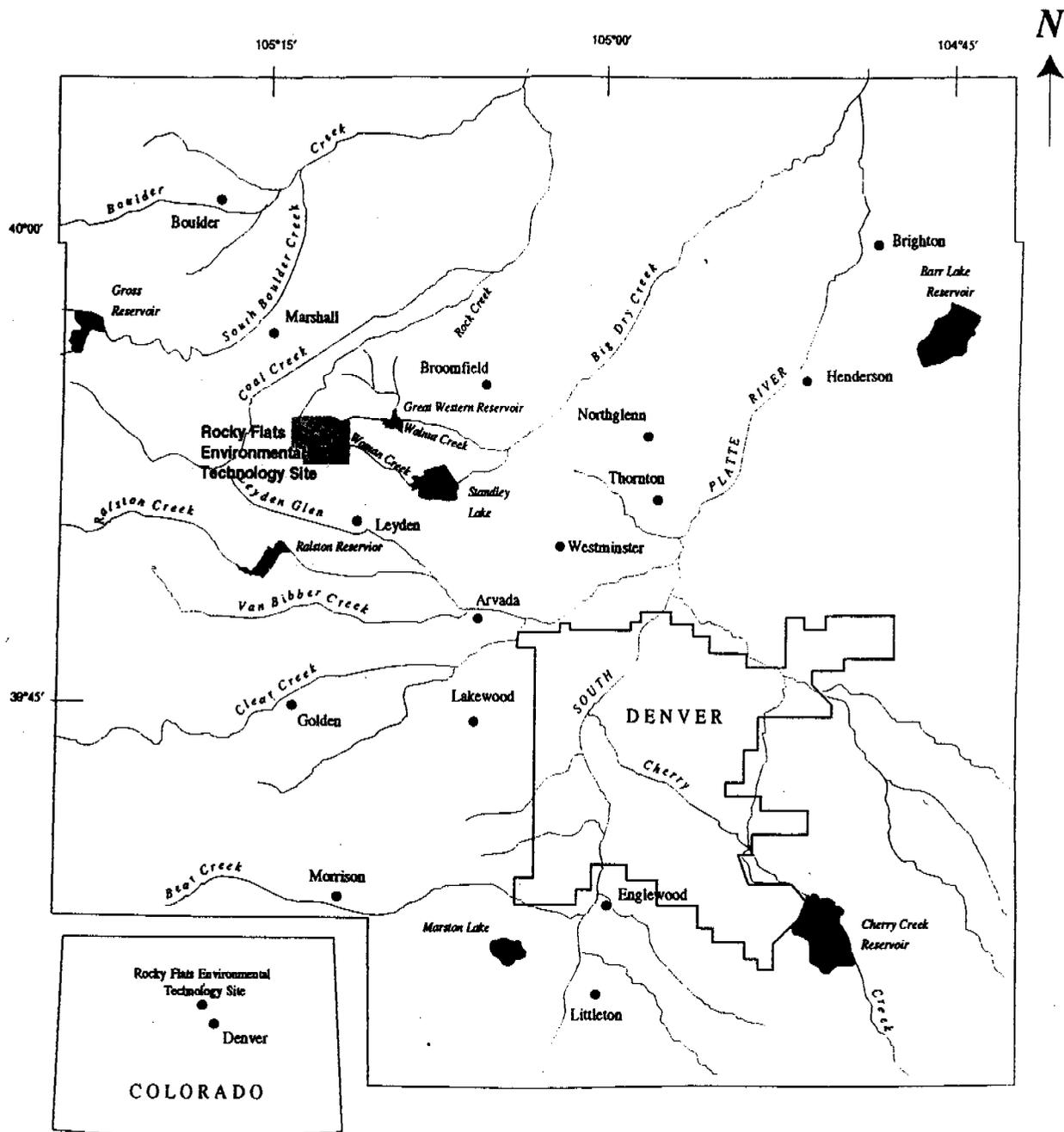
RFETS is located in northern Jefferson County, Colorado, approximately 16 miles northwest of Denver. The cities of Boulder, Broomfield, Westminster, and Arvada are located less than 10 miles to the north, northeast, east, and southeast, respectively. RFETS consists of approximately 6,550 acres and occupies Sections 1 through 4 and 9 through 15 of Township 2 South, Range 70 West, 6th Principal Meridian. Major plant buildings are located within an RFETS security area of approximately 400 acres. The security area is surrounded by a buffer zone of approximately 6,150 acres. RFETS is generally bounded on the north by State Highway 128. To the east is Jefferson County Highway 17, also known as Indiana Street; to the south are agricultural and industrial properties and State Highway 72; and to the west is State Highway 93. An RFETS location map is shown in Figure 3.1.

3.1.2 RFETS Background

RFETS is a government-owned and contractor-operated facility that is part of the nationwide nuclear weapons production complex. It was operated for the U. S. Atomic Energy Commission (AEC) from RFETS's inception in 1951, then known as the Rocky Flats Plant (RFP), until the AEC was dissolved in January 1975. Then, responsibility for Rocky Flats Plant was assigned to the Energy Research and Development Administration (ERDA), which was succeeded by the Department of Energy (DOE), in 1977. Dow Chemical USA, an operating unit of the Dow Chemical Company, was the managing and operating contractor of the facility from 1951 until June 30, 1975. Rockwell International succeeded Dow Chemical USA from July 1, 1975 to January 1, 1990. EG&G Rocky Flats, Inc. succeeded Rockwell International and operated the plant from January 1, 1990 to July 1, 1995. The plant name was changed to Rocky Flats Environmental Technologies Site in 1994. The plant has been operated by Kaiser-Hill Company Incorporated since July 1, 1995.

3.1.3 RFETS Operations

Prior to 1992, production activities included fabrication of nuclear weapons components from beryllium, plutonium, stainless steel, and uranium; assembly of components; and chemical recovery and purification of recyclable transuranic radionuclides. Nuclear weapons parts produced at RFP were shipped off-site for assembly. Obsolete weapons parts fabricated at RFP were returned for plutonium recovery processing. Other activities included research and development in metallurgy, machining, nondestructive testing, coatings, remote engineering, chemistry, and physics. The major classes of waste generated include hazardous waste, radioactive waste, and mixed (hazardous and radioactive) waste. Currently, the mission at RFETS is decontaminating, decommissioning, and environmental restoration of the plant.



Pyrophoric Depleted Uranium Source Removal from T-1 Trench (IHSS 108) Temporary Structure	
Location of the Rocky Flats Environmental Technology Site	
February 9, 1998	Figure 3.1

3.2 Trench 1 Site

The T-1 site is located in the Buffer Zone Operable Unit just northwest of the inner east gate, and about 40 feet south of the southeast corner of the Protected Area (PA) fence. A map of the site is illustrated in Figures 3.2 and 3.3.

The site consists of the temporary Sprung structure, three project support trailers, two cargo boxes, and an area north of the Sprung structure designated for storage of T-1 waste containers (Figure 3.3). The temporary structure was erected to provide protection from adverse weather conditions during excavation of Trench 1. Excavation operations were completed in August 1998. The trench excavation has since been backfilled to ground level, and all associated materials and equipment have been removed from the structure. The ground surface of the T-1 site consists of Class 6 road base material, providing a level, firm work surface for personnel and equipment.

4.0 Temporary Structure - Dismantlement Tasks

4.1 Task 1: Mobilization

Starmet subcontractors will mobilize required personnel, materials, and equipment to the site prior to dismantlement of the structure. Tasks to be completed during the site mobilization will include:

- Delivery of equipment and supplies to the site.
- Delivery of heavy equipment (crane w/ 90' boom, hoisting and rigging equipment, reach boom forklift and aerial lift) to the site.
- RMRS Health and Safety Supervision inspection of crane prior to use.
- SSO will perform inspection of forklift and aerial lifts prior to use.
- Unloading equipment and supplies with forklift by project personnel.
- Establish project support office.

4.2 Task 2: Dismantlement of Temporary Structure

Starmet subcontractors, directed by the Sprung Technical Representatives, will dismantle the temporary structure. Dismantlement of the temporary structure will include, but may not be limited to, the following activities:

- Remove de-energized electrical wiring and conduit and lightning protection cabling.
- Remove ventilation fans w/dampers with the crane.
- Remove doors and windows from the structure.
- Disconnect anchors and pull drift pins.
- Loosen fabric panels and remove the panels properly.
- Personnel in aerial lifts rigging each arch, disconnecting arch, and lower arch with the crane while ground personnel stabilize the arch with tag lines.
- Disassemble structural arches on the ground.
- Pull up or cutoff anchor rods.
- Stage disassembled arches and package materials for shipment.

4.3 Task 3: Demobilization of Equipment

Starmet subcontractors will remove equipment, tools, and materials from the site.

Demobilization of equipment will include, but may not be limited to, the following activities:

- Complete staging and packaging of materials for shipment.
- Load tools and materials onto flatbed trucks.
- Cleanup and organize the site.
- Finalize documentation and records to be turned over to RMRS.

5.0 Project Orientation and Training

5.1 Site-Specific Health and Safety Orientation

A site-specific Hazard Communication briefing will be conducted for all employees, including subcontractors, prior to commencement of field activities. The following topics will be discussed at this briefing:

- Names of health and safety personnel and alternates responsible for site health and safety.
- Contents of the HASP.
- Work practices by which employees can minimize risks from hazards.
- Medical surveillance requirements, including recognition of symptoms and signs which might indicate overexposure to hazards.
- Health and safety organization.
- Potential hazards at the site including chemical, radiological, physical, and biological.
- Location and review of Material Safety Data Sheets (MSDSs) for any hazardous chemicals on site.
- Exposure risk.
- Personal protective equipment to be used.
- Employee rights and responsibilities and location of DOE form F5480.4, "Complaint Form".
- General subcontractor, lower-tier subcontractor and/or vendor responsibilities.
- Location of the approved Health and Safety Plan.
- First aid and medical facilities.
- Emergency response procedures including local warning and evacuation systems.
- Specific occupational health and safety procedures applicable to the project.
- The Hazard Communications Program.
- Employees access to exposure monitoring data and medical records.
- Construction hazard recognition and the procedures for reporting or correcting unsafe conditions.
- Procedures for reporting accidents or incidents.

- Fire prevention and control.
- Alcohol and drug abuse policy.
- Disciplinary actions for safety infractions and violations.

It is the employee's responsibility to ensure he/she is familiar with the HASP contents relating to his/her specific job tasks. If at anytime, an employee does not feel he/she understands the contents of the HASP, another briefing shall be administered. Once the briefing is completed and employees understand the contents of the HASP, they will be required to sign the Safety Compliance Agreement form acknowledging they understand and agree to comply with this HASP.

5.2 General Safety and Health Training Requirements

All on-site employees are required to obtain clearance from the Project Manager or the Site Safety Officer before beginning work at this site. Training requirements for specific individuals will depend on the tasks to be performed and associated hazards or risks, and safety requirements.

5.3 Safety Training

OSHA requires that employees engaged in dismantlement activities, such as this project, will be properly trained for specific job responsibilities; all training will be documented. Employees will not participate in field activities until they have been trained to a level required by their job function and responsibility. All training and field experience will be verified and the SSO shall maintain records in the Project Support Office. The SSO is required to have current Red Cross first aid, cardiopulmonary resuscitation, and blood borne pathogens training. All other training requirements are summarized in Table 5.1 and must be current.

Table 5.1 Safety Training Summary

Required Training
RFETS General Employee Radiological Training (GERT)
Aerial Lift Training ³
OSHA 10-hour Construction Safety and Health Outreach Program (with emphasis on Ladder Safety, Hazard Communication, Hearing Conservation, Fall Protection, Hoisting and Rigging and Heavy Equipment Operations)
OSHA 30-hour Construction Outreach Program ²
RFETS Standing Order 24 Briefing ¹
Lock Out/Tag Out Briefing (#019-866-02) ¹
Buffer Zone Indoctrination ¹
Fall Protection Training ³
HSP-21.04 Emergency Response and Spill Control Briefing ¹
¹ Training provided at Project Pre-evolution Briefing. ² For supervisors ³ For required personnel.

6.0 Personal Protection Equipment

All personnel will require use of Level D personal protective equipment (PPE). The use of Level D personal protective equipment is defined by the following criteria:

- No contaminants are present, or contaminants are present below the action levels established in the HASP for respirator use.
- Work functions preclude splashes, immersion, or potential for unexpected inhalation of any chemicals.

Level D is a fieldwork uniform affording minimal skin protection and no respiratory protection. It consists of the following PPE:

- Approved above the ankle leather work boots/shoes with ANSI Z41.1 toecaps.
- Heavy-duty leatherwork gloves.
- Safety glasses (ANSI Z87.1 approved) with side shields.
- Reflective orange vests.
- Hard hat (ANSI Z89.1 approved).

7.0 Exposure Monitoring

Monitoring of the environmental conditions in and around the construction site must occur because of the potential for unsafe conditions to be present. The following section describe the monitoring program to be implemented and appropriate exposure limits and action levels. Where feasible, personnel exposures to hazardous conditions shall be maintained within the TLVs adopted by the ACGIH or the PELs adopted by OSHA, whichever is more stringent.

Table 7.1 Monitoring Program Summary

NOISE			
Hazard	Action Level	Action(s) to be Taken	Monitoring Frequency
Short term high noise levels	>85 dBA	Don suitable hearing protection. Initiate noise dosimetry	As needed to characterize new equipment and/or operations and confirm adequacy of hearing protection
Continuous high noise levels	>85dBA average over 8-hour shift	Don suitable hearing protection. Participation in a Hearing Conservation Program.	As needed to characterize equipment and/or operations and confirm adequacy of hearing protection

WIND SPEED			
Hazard	Action Level	Action(s) to be Taken	Monitoring Frequency
Personnel injury	> 15 mph average for two consecutive 15-minute periods.	Suspend or modify crane or personnel highlift operations at the discretion of the Project Manager and the Site Safety Officer.	Continuous during all field activities.
Personnel injury	Any wind speed at which the crane operator feels the crane operation is unsafe.	Suspend or modify crane or personnel highlift operations at the discretion of the Crane operator, Project Manager, and the Site Safety Officer.	Continuous during all field activities
Personnel injury	> 30 mph average for two consecutive 15-minute periods.	Crane operation and personnel high lift equipment operations must be approved by RMRS or Kaiser-Hill safety supervision.	Continuous during all field activities.
Personnel injury	> 45 mph average for two consecutive 15-minute periods.	Secure area and terminate crane operation and personnel high lift operation. Limited ground activities approved by RMRS or Kaiser-Hill Safety Supervision.	Continuous during all field activities
Personnel injury	> 55 mph average for two consecutive 15-minute periods. (Whole Gale Warning)	Suspend all outdoor work except emergency activities.	Continuous during all field activities.

Table 7.1 Monitoring Program Summary (Continued)

HEAT STRESS			
Hazard	Action Level	Action(s) to be Taken	Monitoring Frequency
Heat stress	Varies depending on work load and if PPE is worn. ¹	Work-rest regimen, ice vests, or other RMRS approved measures.	Varies depending on work load and if PPE is worn. ¹
<p>¹Monitoring will be performed when work area temperature exceeds 77°F. See Appendix C for guidance and action levels for work involving the use of personal protective equipment.</p>			
COLD STRESS			
Hazard	Action Level	Action(s) to be Taken	Monitoring Frequency
Cold stress	40°F Equivalent chill temperature ¹	Wear adequate insulated dry clothing	Continuous when the equivalent chill temperature is <40°F
Cold stress aggravated by the use of evaporative liquids such as gasoline	39.2°F Equivalent chill temperature	Avoid soaking clothing or gloves with evaporative liquids	Continuous when the equivalent chill temperature is <40°F
Cold stress	19.4°F Equivalent chill temperature	Work-warm regimen will be instituted ²	Continuous when the equivalent chill temperature is <40°F
<p>¹ Equivalent chill temperature is the combined effect of the air temperature and wind speed. See Appendix C for ACGIH table used to calculate equivalent chill temperature.</p> <p>² See Appendix C for ACGIH work-warm regimen schedule</p>			

RADIATION			
Hazard	Action Level	Action(s) to be Taken	Monitoring Frequency
Equipment and material contamination	<p>Alpha contamination: >20 dpm/100cm² removable >100 dpm/100cm² average. Not to exceed >300 dpm/100cm² maximum.</p> <p>Beta/gamma contamination: >1000 dpm/100cm² removable >5000 dpm/100cm² total.</p>	Suspend operations, secure area and notify the Project Manager and Radiological Engineering.	Unrestricted release surveys prior to the anchor rods and drift pins leaving the site.

Table 7.1 Monitoring Program Summary (Continued)

Respirable Dust Monitoring			
Hazard	Action Level	Action(s) to be Taken	Monitoring Frequency
Nuisance dust	1.5 mg/ m ³	Spray water for dust suppression to maintain below 1.5 mg/m ³	Continuous during dust generating activities.

Combustion Gases Monitoring			
Hazard	Action Level	Action(s) to be Taken	Monitoring Frequency
Nitrogen Dioxide	1.5 parts-per-million	Suspend operations and notify the Field Supervisor	During all work activities inside the enclosure when necessary, at the discretion of the SSO.
Sulfur Dioxide	1.0 part-per-million	Suspend operations and notify the Field Supervisor	During all work activities inside the enclosure when necessary, at the discretion of the SSO.
Carbon Monoxide	12.5 parts-per-million	Suspend operations involving CO generation - notify the Field Supervisor and RMRS IH. Project Management in concurrence with IH will evaluate and approve methods to mitigate the hazard.	During all work activities inside the enclosure when necessary, at the discretion of the SSO.
Nitric Oxide	12.5 parts per million	Suspend operations and notify the Field Supervisor	During all work activities inside the enclosure when necessary, at the discretion of the HSS or SSO.

7.1.1 Noise Monitoring

Noise levels will be monitored to delineate areas or activities where hearing protection and postings are required, the effectiveness of hearing protection, and whether or not personnel need to participate in a Hearing Conservation Program. The instrument used will be an Ametek, Model MK-3, audio dosimeter. The MK-3 is a microprocessor controlled personal monitor that measures noise exposure in the dBA range and displays a variety of results including real time dBA level, exposure time, exposure dose, average dBA level, maximum dBA level, and the 8-hour time weighted exposure dose. The MK-3 is calibrated on a daily basis before and after use.

Daily calibrations will be per the manufacturer's specifications and results will be entered in the Industrial Hygiene Instrumentation Calibration Logbook. Annual calibration and service of the instrument and the calibrator is required.

7.1.2 Wind Speed Monitoring

Wind speed will be monitored continuously throughout all phases of the project to ensure compliance with FO.01, "Air Monitoring and Dust Control." This will be done by the use of a weather station equipped with a R.M. Young Co., Model 05103 Wind Speed Monitor. The monitor is calibrated semi-annually.

A Nielsen – Kellerman Co., Model Kestrel 1000, hand held electronic wind speed monitor will also be used. The Kestrel 1000 uses a turbine that is suspended on sapphire jewel bearings. The turbine rotation is sensed by an infrared light beam whose signal is processed by a large-scale integrated circuit. The Kestrel 1000 is factory calibrated and requires no maintenance except minor cleaning.

7.1.3. Heat Stress Monitoring

Heat stress monitoring will be completed using an Imaging and Sensing Technology, Model RSS 214, Heat Stress Monitor. The instrument is a microprocessor based Wet Bulb Globe Thermometer (WBGT) which accurately measures environmental factors that contribute to heat stress. The WBGT reading displayed by the instrument, in either Fahrenheit or Celsius, is a weighted sum of the dry bulb, wet bulb, and verson globe temperatures. The WBGT is factory calibrated on an annual basis. Maintenance is minimal with only the wet bulb wick requiring periodic replacement. Monitoring frequency will depend on the work area temperature, the type of work being performed, and the type of PPE worn. See Appendix C for guidance and action levels for work involving the use of personal protective equipment. Readings in the field will be logged on the Daily WBGT Log.

7.2.4 Cold Stress Monitoring

Cold stress monitoring will be accomplished by obtaining the air temperature and the wind speed and calculating the equivalent chill temperature using the ACGIH table found in Appendix C. Once in the field, wind speed, temperature, and equivalent chill temperature will be logged on the Daily Wind Speed/Cold Stress Log.

7.2.5 Radiological Monitoring

To ensure that any possible radiological contamination is maintained as low as reasonably achievable (ALARA), equipment will be monitored using the techniques, which are discussed in the following section.

7.2.5.1 Anchor Rods and Drift Pin Monitoring

Anchor rods and drift pins will be surveyed and released by RCTs in accordance with RSP-7.02 "Contamination Monitoring Requirements", RSP-9.01 "Unrestricted Release of Property, Materials, Equipment and Waste" and RSP-9.02 "Radioactive Material Transfer and Shipment".

Instrumentation to be used for personnel and equipment contamination monitoring are those recommended by RFETS Radiological Safety and consist of the following:

- NE Technology, Model Electra, with dual alpha/beta probe;
- Eberline, Model SAC-4, alpha smear counter;
- Eberline, Model BC-4, beta/gamma smear counter;
- Ludlum, Model 2929, alpha and beta/gamma smear counter;

RFETS Radiological Engineering will approve any alternate instruments. All instruments will be maintained, calibrated, performance tested, and used in accordance with the RFETS Radiological Operating Instructions Manual.

7.2.6 Respirable Dust Monitoring

Respirable dust monitoring will be accomplished using a Monitoring Instrument for the Environment, Inc., Model PDM-3, (and/or equivalent) Miniature Real-time Aerosol Monitor (Miniram). The miniram is an airborne particulate monitor whose operating principle is based on the scattered electromagnetic radiation in the near infrared. The miniram continuously senses the particles in the sensing chamber and displays the dust levels in mg/m^3 . Because the miniram is preferential to particles 0.1 to 10 micrometers in size, it is useful in determining the levels of respirable dust, mists, fumes, smokes, and fogs. The instrument will be calibrated using a dust free Z-Bag prior to each use and periodic cleaning of the sensing chamber is required.

Calibration on each shift will be per the manufacturer specifications and results will be entered in the Industrial Hygiene Instrumentation Calibration Logbook. A yearly factory calibration and servicing is recommended. Monitoring will be conducted during all dust generating activities.

7.2.7 Combustion Gases Monitoring

Monitoring for combustion gases will be done using a Mine Safety Appliances, Co., Model Passport equipped with percent oxygen, percent lower explosive limit, carbon monoxide, nitrogen dioxide, and sulfur dioxide sensors. The Passport simultaneously displays real-time gas levels in the following ranges; carbon monoxide 0-1000 ppm, nitrogen dioxide 0-20 ppm, and sulfur dioxide 0-20 ppm. The Passport is calibrated daily prior to use and requires factory calibration and service on a yearly basis. Daily calibration will be per the manufacturer's specifications and results will be entered in the Industrial Hygiene Instrumentation Calibration Logbook.

Monitoring for nitric oxide will be accomplished using a Sensidyne Inc. Gas Sampling System equipped with nitric oxide colorimetric tubes. The tubes have a range of 2.5-200 parts-per-million. The hand held sampling pump is leak tested daily prior to use.

8.0 Hazard Assessment

The hazards associated with construction of the temporary structure include biological hazards and physical hazards.

8.1 Biological Hazards

During fieldwork at this site, personnel may encounter a variety of biological hazards such as insects, spiders, reptiles, and mammals. Biological hazards may act as infectious, allergenic, or toxic agents to the workers.

8.1.1 Insects

The most common insects of concern at the RFETS area are bees, wasps, and hornets. Stings of these insects may cause serious allergic reactions in certain individuals. Personnel with known insect allergies or sensitivities should notify the SSO before fieldwork begins. If a person is stung by a bee, wasp, or hornet, resulting in a medical emergency, call extension 2911, notify the Site Safety Officer or Field Supervisor, and immediately transport the person to the RFETS medical center.

8.1.2 Arachnids

Ticks and spiders are the two most common types of arachnid hazards encountered at the RFETS site. Ticks are parasites that feed on the blood of an animal/human host and can carry several severe diseases, the least severe bringing several days of fever and pain and the worst causing brain damage. Ticks are picked up on clothing in grassy areas of the site. Preventative measures include careful inspection of clothing and body parts at the end of each day. In the event that someone is bitten by a tick, it should be reported to the Site Safety Officer or Field Supervisor for medical assistance if required.

Poisonous spiders are also a potential biohazard for field personnel. Black widow spiders are nocturnal hunters and consequently may be present under rocks or other ground debris during daylight hours. Care should be taken when moving or rummaging in such areas and the use of gloves is required. If site personnel encounter a black widow and are bitten call extension 2911, notify the Site Safety Officer or Field Supervisor, and immediately transport the person to the RFETS medical center.

8.1.3 Snakes

Poisonous snakes may also be encountered at the site. Site workers should exercise caution for the presence of rattlesnakes at the site. Personnel should visually check before reaching into a covered area and walking through grassy areas. If a person is bitten by a snake, call extension 2911, notify the Site Safety Officer or Field Supervisor, and immediately transport the person to the RFETS medical center.

8.1.4 Mammals

Rodents, coyotes, and foxes are some of the mammals indigenous to the RFETS. They are typically fearful of humans and will try to escape if encountered. These animals may become aggressive when defending their young, their dens, or when they are sick or injured. Personnel should avoid contact with any of these animals and contact Andrea Casillas at Ext. 5302 for disposition. If bitten by an animal exhibiting uncharacteristic behavior, there is the possibility that the animal has rabies. If the animal can be captured or contained safely, it can be tested for the presence of rabies. If a person is bitten, call extension 2911, notify the Site Safety Officer or Field Supervisor, and immediately transport the person to the RFETS medical center.

8.1.5 Poisonous Plants

The most common poisonous plant in this area is poison ivy. Allergic contact dermatitis due to contact with the plant leaves or stems is the most common response reported by field personnel. Contact with this plant should be avoided. In the event that the contact with the plant is unavoidable, protective gloves and clothing shall be worn.

8.2 Physical Hazards

The following sections discuss physical hazards and the measures to be taken to control the hazards.

8.2.1 Heavy Equipment Hazards

The operation of heavy equipment, such as cranes, poses a hazard to personnel, equipment, and property. Control measures for the safe operation of heavy equipment will include:

- Heavy equipment from off site vendors will be inspected by RMRS Health and Safety.
- Hoisting equipment from off site vendors will be inspected by RMRS Health and Safety.
- Heavy equipment will have rollover protection systems.
- Operators will be properly trained in the use and limitations of the specific pieces of heavy equipment being operated.
- Heavy equipment will be inspected by the operator prior to the beginning of each shift and an inspection checklist will be completed.
- Seat belts will be worn by heavy equipment operators at all times, where applicable.
- Crane operator must ensure that the outriggers are properly deployed on wooden pads and the crane is on a stable surface before beginning hoisting and rigging operations.
- Ground personnel will wear orange reflective vests and hard hats when heavy equipment is in use.

- Personnel will stay away from all heavy equipment while they are in operation and maintain line of site with the operator.
- At no time will any personnel position themselves under hydraulically operated equipment or loads.
- Heavy equipment shall have an electronic back-up alarm that will sound continuously while the vehicle is in reverse motion. The backing up of all heavy equipment will require a spotter to ensure that the path of travel is clear.
- The accessible area of the "counterweight swing" of the crane, must be barricaded.

8.2.2 Aerial Manlift Hazards

The operation of aerial lifts, such as boom lifts, poses a hazard to personnel, equipment, and property. Control measures for the safe operation of aerial lifts will include:

- Aerial Lifts from off site vendors will be inspected by RMRS Health and Safety.
- Only trained and authorized personnel will be allowed to operate the aerial work platform.
- Operators will be properly trained in the use and limitations of the specific pieces of aerial lift equipment being operated.
- Aerial lift equipment will be inspected by the operator prior to the beginning of each shift and an inspection checklist will be completed.
- Prior to and during operations the site must be checked for hazards such as ditches, drop-offs or holes, bumps, obstruction, debris, overhead obstructions and high voltage conductors, and other possible hazardous conditions.
- Before elevating the work platform the operator must: check for overhead hazards; make sure the platform is elevated on a firm and level surface; make sure of proper load distribution on the platform; make sure platform guardrails are properly installed and gates are closed; check to see that all occupants have the proper fall protection equipment and are properly attached to the platform.
- Before and during driving while elevated, the operator must: keep a clear view of the path of travel; maintain distance from obstacles, debris and other hazards in the path; and maintain a safe distance from overhead obstacles (a minimum of 10 feet from power lines).
- Personnel shall maintain a firm footing on the platform and where required, personnel must ONLY attach full body harness and shock absorbing lanyard (or retractable lifeline system with a locking snap hooks) devices to manufacturer approved attachment points.
- Care shall be take to prevent ropes, or electrical cords from becoming entangled in the work platform when it is being elevated or lowered.

- Operator shall ensure that the area surrounding the platform is clear of personnel and equipment before lowering.
- Operator shall immediately report to Site Supervisor or SSO any defects or malfunctions that become evident during operation.

8.2.3 Noise Exposure Hazards

Work at the site will expose personnel to high noise levels from the operation of heavy equipment and hand tools. Excessive noise exposure can cause both temporary and permanent effects on hearing. The temporary effects of excessive noise include ringing in the ears, interference with communication, and hearing threshold changes. The effect of long-term excessive noise includes varying degrees of noise-induced hearing loss. Measures used to control noise exposure hazards will include:

- Noise monitoring to determine employee exposure.
- Hearing protection for exposures of greater than 85 dBA for any length of time.
- Noise monitoring to confirm the effectiveness of the hearing protection worn.
- Noise dosimetry to determine employee exposure and whether participation in the Hearing Conservation Program is required. The Hearing Conservation Program includes both training and audiometric testing.
- Areas where hearing protection is required will be posted accordingly.

8.2.4 Heat and Cold Stress Hazards

During operations, there is a potential for worker exposure to serious temperature extremes. These environmental conditions increase the risk of heat or cold stress during field activities. Measures used to control heat stress exposure will include:

- Briefing employees on the causes, prevention, signs/symptoms, and treatment of heat stress.
- Monitoring for exposure to heat stress using a Wet Bulb Globe Thermometer (WBGT).
- Wearing ice vests or other RMRS approved measures.
- Instituting a work-rest regimen based on the Kaiser-Hill Heat Stress Program (see Appendix C).
- Providing personnel with a shaded break area and cool liquids.
- Providing for proper acclimatization of all workers to new or changing work conditions.

Measures used to control cold stress exposure will include:

- Briefing employees on the causes, prevention, signs/symptoms, and treatment of cold stress.

- Monitoring for exposure to cold stress using a dry bulb thermometer and anemometer.
- Wearing adequate insulating dry clothing when the air speed and temperature result in an equivalent chill temperature of <40°F.
- Changing wet clothing.
- Instituting a work-warming regimen based on the ACGIH guidelines (see Appendix C) when the equivalent chill temperature is <19.4°F.
- Providing personnel with a heated break area and warm sweet drinks.
- Taking special precautions when handling evaporative liquids such as gasoline at equivalent chill temperatures <39.2°F.
- Providing for proper acclimatization of all workers to new or changing work conditions.

8.2.5 Overhead Power Line Hazards

Special precautions must be taken when working or operating heavy equipment near overhead energized power lines. Contact with electrical power lines can cause shock, burns, or death. Measures used to control overhead power line hazards will include:

- Assume that all overhead lines are energized.
- Heavy equipment will be operated with a 10' minimum clearance between power lines and any part of the equipment.
- Strictly adhering to RFETS Health and Safety Practices Manual (HSP) HSP-2.08, "Lock Out/Tag Out" when conducting lock out/tag out operations on overhead lines.

8.2.6 Vehicular Traffic Hazards

Employees shall exhibit special caution when working along active roadways. Measures used to control traffic hazards will include:

- Wearing orange vests.
- Positioning flag persons along active roadways to control traffic.
- Closing roads as needed.
- Placing jersey barriers around regularly occupied work areas.

8.2.7 Portable Electric Generator Hazards

Due to a lack of permanently installed electrical power, portable electric generators will be used extensively during the project. Generators may be used to power portable hand tools. Measures used to control the hazards associated with the use of generators will include:

- Extension cords will be intended for outdoor use, inspected by the user, and protected from unnecessary damage.
- Any extension cords, which show signs of damage or deterioration, will be immediately removed from service.
- Generators will be equipped with GFCI outlets, which will be tested daily by the user.
- Generators will be properly grounded via a ground rod as required.
- A 10-lb. ABC fire extinguisher will be located next to all generators.
- Refueling will be conducted at the beginning of the shift when the generators are cool.
- Refueling will be conducted with the generator on the ground surface or with the generator grounded to the fuel dispenser.
- The RFETS Lock Out/Tag Out Program (HSP 2.08) will be strictly adhered to during the servicing and maintenance of machines or equipment in which the unexpected energization or start up of the machine or equipment, or release of stored energy could cause injury to personnel.

8.2.8 Hand Tool Hazards

The improper use of hand tools can result in injury to personnel and damage to property. Measures used to protect personnel and equipment will include:

- Hand tools will be inspected by the user prior to use.
- Hand tools will be used for their intended use and operated in accordance with HSP-12.10.
- Guards will be in place and no modifications will be made.
- Portable power tools will be plugged into GFCI protected outlets.
- Portable power tools will be UL listed and have a three wire grounded plug or be double insulated.

8.2.9 Fork Truck Hazards

The operation of fork trucks poses a hazard to personnel, equipment, and property. Control measures for the safe operation of fork trucks will include:

- Fork truck operators will be experienced and knowledgeable in the use and limitations of all heavy equipment.
- Fork trucks will be inspected by the operator prior to the beginning of each shift and an inspection checklist will be completed.

- Fork trucks shall have an electronic back-up alarm that will sound continuously while the vehicle is in reverse motion.
- Ground personnel will wear orange vests and maintain line of site with the operator.
- All loads will be secured.
- Loader mounted fork attachments must be certified by the manufacturer.

8.2.10 Hoisting and Rigging Equipment Hazards

Hoisting and rigging equipment poses a unique hazard due to sudden failure resulting in property damage or personal injury. Measures used to control the use of hoisting and rigging equipment will include:

- Hoisting equipment from off site vendors will be inspected by RMRS Health and Safety.
- Operators will be properly trained in the use and limitations of the specific pieces of hoisting equipment being operated.
- Use of Hoisting and Rigging Checklist as required by HSP 12.02.
- Hoisting equipment will be inspected by the operator prior to the beginning of each shift and an inspection checklist will be completed.
- Rigging equipment will be properly tagged, if required, and inspected by the user prior to use on a daily basis.
- Any rigging equipment, which shows signs of damage or deterioration, will be immediately removed from service.
- Ensuring that all rigging equipment is properly positioned.
- Where possible ground personnel will use tag lines to stabilize and position suspended loads. Tag lines will not be wrapped around the hand.
- At no time will any personnel position themselves under hoisted loads.
- Ground personnel will wear orange vests and maintain line of site with the operator.
- A Hoisting and Rigging Plan will be developed for all critical lifts.

8.2.11 Ladder Hazards

Work on ladders poses a hazard due to falls and ladder failure. Control measures for the use of ladders will include:

- Ladder users will have current Ladder Safety Awareness training.
- Ladders will be Type 1-A, Industrial Extra Heavy Duty or better.

- Aluminum ladders will not be used in areas where there is electrical power equipment.
- Three legged ladders are strictly prohibited.
- Ladders will be inspected by the user prior to use on a daily basis.
- Ladders, which show signs of damage or deterioration, will be immediately removed from service.
- Ladders will be used for their intended purpose.
- Extension ladders shall be tied-off or otherwise secured while in use.
- Work on ladders at heights greater than six feet will require evaluation from the SSO.

8.2.12 Elevated Work Hazards

Unprotected elevated work at heights greater than six feet poses a hazard due to the potential for falls. Prior to wearing fall arrest equipment, attempts will be made to eliminate the hazard. If, however, the hazard cannot be eliminated and fall arrest equipment must be worn, the following control measures will be followed:

- Personnel shall have current Fall Protection qualification.
- Fall arrest equipment will be inspected by the user prior to use on a daily basis.
- Fall arrest equipment, which shows signs of damage or deterioration, will be immediately removed from service.
- The fall arrest system will consist of a full body harness and shock absorbing lanyard (or retractable lifeline system with a locking snap hooks) and an approved anchorage point.

8.2.13 Flammable or Combustible Liquid Storage Hazards

Hazards associated with improper flammable or combustible liquid storage include fires and spills. Work controls involved with flammable or combustible liquid storage include:

- Gasoline containers will be metal safety cans in good repair.
- Containers will be equipped with spring loaded closing devices and flame arresters.
- Containers will be properly labeled.
- Containers will be stored in approved flammable storage cabinets when not in use.

8.2.14 Adverse Weather Conditions

Adverse weather condition may contribute to slip, trip, and fall hazards at the site. Although the majority of the operations will be contained inside a weatherproof structure, support activities outside the structure may lend themselves to slip/fall hazards. All work areas shall be kept free

of tripping hazards, free of water, ice or snow to the extent necessary to perform the required work in a safe manner. Slip, trip, and fall control measures include:

- Daily inspection shall be conducted by the SSO to assure the work area is free of trip/fall hazards.
- Ice and snow shall be removed or treated with gravel in work areas to provide a safe walking surface.
- Equipment located in the work area that could present a trip hazard shall be labeled with yellow and black striped caution tape.

8.3 Chemical Hazards

The chemical hazards on this construction project are primarily from gasoline, diesel fuel, and various equipment lubricants. The Material Safety Data Sheets (MSDSs) for these chemicals are located in project support trailers, and they will be reviewed by project personnel periodically throughout the project as part of the Hazard Communication Program. No additional hazardous chemicals shall be brought to the construction site without prior notification and approval of the SSO and the Field Supervisor. MSDSs shall be provided with any additional chemicals brought on to the site.

Exhaust emissions from aerial lift equipment may become a concern at the beginning of the dismantling of the structure until the ends of the structure are opened enough to allow natural air flow to dissipate exhaust gases. Exhaust gases from equipment inside the structure may potentially build up to toxic levels. The measures to prevent emissions buildup in the tent are as follows:

- Limit emissions by turning off lifts when not moving the platform.
- Creating natural ventilation by opening all of the doors in the structure while using lift equipment inside.
- Use two 4X4 foot box type ventilation fans to enhance natural ventilation.
- When necessary use monitoring equipment to monitor for toxic gas buildup.

8.4 Radiological Hazard

Analytical sample results from soils around the former T-1 trench, including locations where temporary structure anchors were driven, indicate the existence of Plutonium-239/240, Amerium-241, and Uranium-238 in the soils. The analysis indicates that levels of these radioactive isotopes in the soils are well below the Rocky Flats Cleanup Agreement Tier II subsurface action levels and pose little hazard of personnel contamination.

The potential radiological hazard is associated with pulling up anchor rods and drift pins or cutting off anchor rods below grade. Radiological controls include the follows aspects:

- Adherence to the radiological requirements of the Trench 1 Soil Disturbance Permit.
- Unrestricted radiological release surveys on the anchor rods and drift pins after removal and possibly equipment used for these activities.

9.0 Control of Dismantlement Site Access

9.1 Site Control

Site control is necessary to prevent unauthorized, untrained, or unprotected personnel or visitors from being exposed to the hazards associated with the site. Site control measures will include the following:

- All personnel and visitors are required to enter their name, time in, and time out on the sign in sheet located at the access control point.
- A six foot-chain link fence has been installed around the site for security and site control.
- Posting signage that communicates information such as required personal protective equipment and work zone boundaries.
- Securing all work areas at the end of each workday.

10.0 Health and Safety Bulletin Board

In order to promote safety and maintain a highly visible safety profile on the project site, a Health and Safety Bulletin Board will be posted in the office trailer break area. Postings will provide related information, such as:

- Project Information card.
- Required OSHA postings, Worker's Compensation posters, DOE informational and complaint postings, etc.
- Relevant safety posters and safety information (i.e., PPE requirements of the work area).

The project health and safety staff personnel will maintain the bulletin board assisted by other project personnel.

11.0 Sanitation

Potable water washing and toilet facilities, which comply with 29 CFR 1926.65(n) Sanitation at Temporary Work Places, will be available to all on-site personnel.

12.0 Emergency Response

Potential emergencies during work at T-1 include hazardous substance release, employee contamination, accidents, injuries, fire, and natural disasters. Safety precautions will be taken to avoid emergencies. However, if an emergency does arise, the procedures described in this section will be followed. Also, preparatory steps necessary for responding to an emergency are given below and they should be complied with before beginning any work at the site.

The Project Manager, with assistance from the Field Supervisor and the Site Safety Officer, has responsibility and authority for coordinating all evacuations and emergency response activities until proper authorities arrive and assume control.

12.1 Site Evacuation

If an evacuation is necessary at the T-1 site, personnel will exit the site via the nearest exit and proceed to the primary assembly area. Three short blasts from an air horn will indicate an emergency evacuation during which personnel will immediately evacuate the site. All personnel will be accounted for once they reach the assembly area by using the access control point sign-in log.

The assembly area will be located on the east side of the site operations trailers, which are located on the east side of the T-1 site.

12.2 Emergency Services

12.2.1 Emergency Phone Numbers

In case of an emergency, RFETS emergency services must be notified. Kaiser-Hill maintains an emergency response telephone extension of 2911 at RFETS. Extension 2911 may be reached from any plant site telephone or on Radio Channel 2911 and will immediately connect the caller with the Fire Department, Plant Security, the Central Alarm Station, the Shift Superintendent and, during first shift, Occupational Health. Table 12.1 presents a list of T-1 site project personnel who will be notified in the event of any spill, release, employee contamination, accident, injury, fire, or natural disaster. These telephone, radio and pager numbers will be posted next to telephones and at prominent locations at the site.

Any revisions to the list must be posted and all personnel notified of the changes.

*All Life Threatening Emergencies: Dial Extension 2911

12.2.2 Rocky Flats Occupational Health Medical Facility (Building 122)

The Rocky Flats Medical Facility in Building 122 is to be used for medical injuries and emergencies. Depending on the seriousness of the injury, injured personnel may also require care

by an off-site hospital. The need for off-site care will be determined by Occupational Health. Directions to the Rocky Flats Occupational Health Medical Facility from the T-1 site:

A map to Building 122 will be posted next to telephones and at prominent locations at the site. See Figure 12.1.

12.2.2.1 Clinic Hours

The medical clinic located in Building 122 is operated during the following business hours:

Monday & Tuesday	6:30 AM - 4:30 PM
Wednesday & Thursday	6:30 AM - 6:00 PM
AWS Fridays	6:30 AM - 3:30 PM

Personnel requiring medical attention outside of clinic hours are to be transported to the Rocky Flats Fire Department in Building 331 on Central Avenue. If the injury or illness requires more than First Aid the Rocky Flats Fire Department should be called at 2911.

Table 12.1 Emergency Telephone Numbers

RFETS EMERGENCY RESPONSE EXTENSION	RFETS Phone: 2911 RFETS Radio: 2911
RFETS SHIFT SUPERINTENDENT	RFETS Phone: 2914 RFETS Radio: 3301
RMRS Emergency Contacts	
Ralph Rupp Task Manager	RFETS Phone 546-4321 RFETS Radio RFETS Pager
Bob Griffis RMRS Project Manager	RFETS Phone: 4934 RFETS Radio: 3700 RFETS Pager: 212-6506
Tracey Spence RMRS Field Supervisor	RFETS Phone: 2288 RFETS Radio: 3732 RFETS Pager: 212-6575
Tom Lindsay RMRS Field Supervisor	RFETS Phone: 5705 RFETS Radio: 3757 RFETS Pager: 212-5681
Tony Medina RMRS Health and Safety Supervisor	RFETS Phone: 5830 RFETS Radio: 3784 RFETS Pager: 212-6352
Dave Farler RMRS Industrial Hygiene Supervisor	RFETS Phone: 4340 RFETS Radio: 3743 RFETS Pager: 212-6555
Annette Primrose RMRS Field Operations Manager	RFETS Phone: 4385 RFETS Radio: 3801 RFETS Pager: 212-6338

12.3 Accident/Injury

In case of an accident or other event that causes injury to personnel present at the T-1 project site, immediately notify the Field Supervisor and/or SSO. If supervisors are not available, the RFETS emergency extension at 2911 will be notified immediately. The site Fire Department, EMTs, and Security will be dispatched immediately. Details of the emergency and the exact location must be given over the telephone. Once RFETS emergency services have been notified, the RMRS Project Manager and RMRS Health and Safety Supervision personnel must immediately be contacted. Basic first aid may be administered by properly trained personnel until emergency medical personnel arrive. Each shift will have a minimum of one staff member trained in American Red Cross First Aid and CPR. Any non-emergency medical situation such as minor cuts or sprains should be attended to at RFETS Medical - Building 122. A map showing the location of Building 122 is shown in Figure 12.1.

Figure 12.1
Map to REETS
Medical - Building 122

- EXPLANATION**
- Emergency Facility
 - ∨ Emergency Route
 - ▭ Standard Map Features
 - ▨ Building & other structures
 - Lakes and ponds
 - Streams, ditches, or other drainage features
 - Fence
 - - - Rocky Flats boundary
 - Paved road
 - - - Dirt road

DATE: 11/19/98
 DRAWN BY: J. M. HARRIS
 CHECKED BY: J. M. HARRIS
 APPROVED BY: J. M. HARRIS
 REVISIONS: 1/18/99

Scale = 1:1,000
 1 inch represents approximately 100 feet

Rocky Flats Environmental Technology Site

Rocky Flats Environmental Technology Site
 Project: Trench-1 Temporary Structure Dismantlement
 Drawing: RMRS-99-340

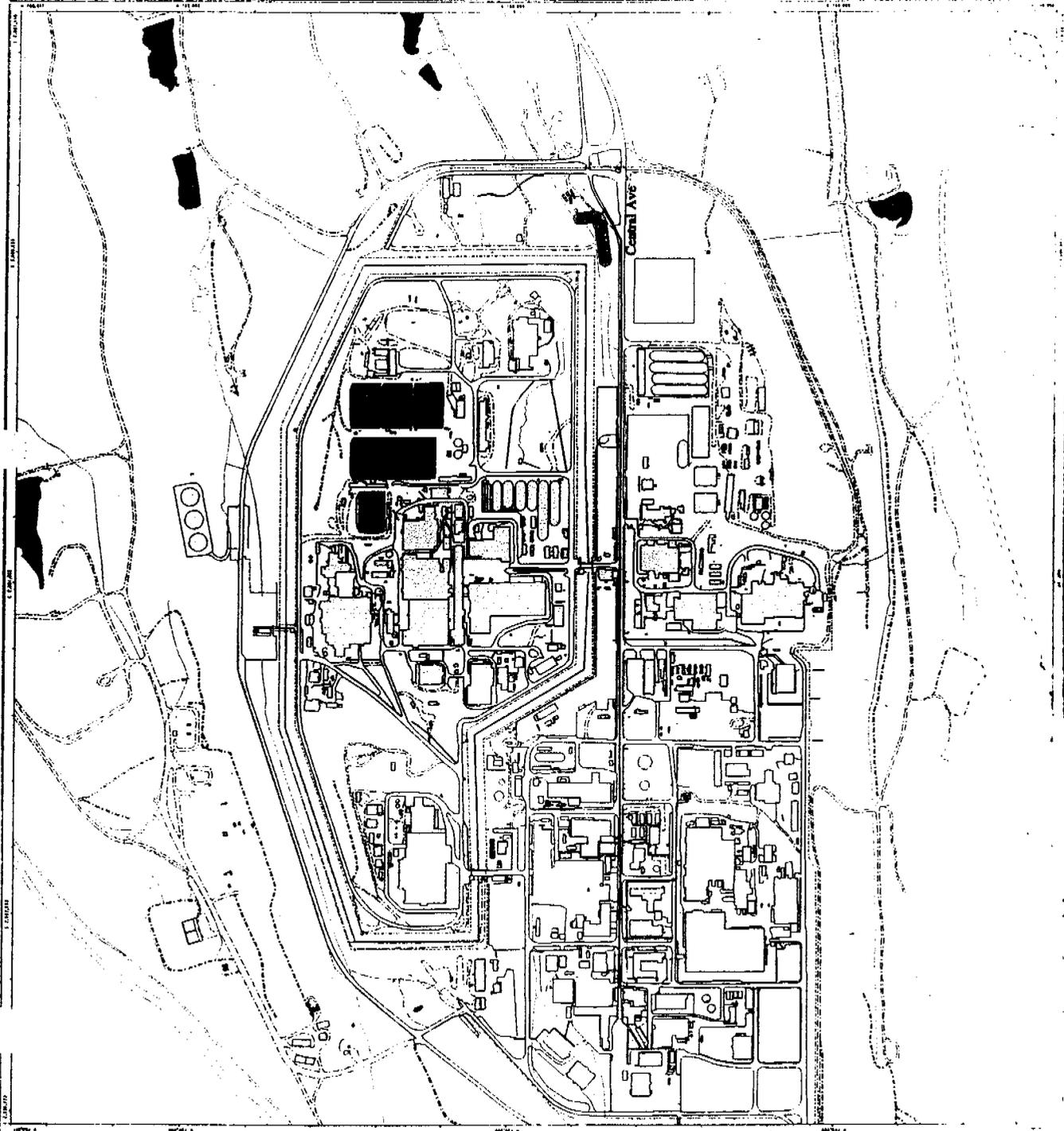
U.S. Department of Energy
 Rocky Flats Environmental Technology Site



Rocky Mountain
 Environmental Services, LLC
 10000 North Federal Boulevard
 Suite 1000
 Denver, CO 80231
 Phone: 303.440.4444
 Fax: 303.440.4444

February 26, 1999

MAP 12-1



12.3.1 Emergency Medical Procedures

For severe injuries, illnesses, or overexposures:

- Remove the injured or exposed person(s) from immediate danger if safe to do so.
- Immediately call extension 2911 and provide as much information as possible.
- Render emergency first aid until emergency medical personnel arrive.

12.3.2 Fire/Explosion

The first responsibility of any employee discovering a fire is to warn coworkers and call the Rocky Flats Fire Department at extension 2911.

UNDER NO CIRCUMSTANCES SHOULD ANYONE ATTEMPT TO FIGHT A FIRE ALONE.

Personnel trained as First Responders may then use a fire extinguisher or de-energize small fires in those situations where there is no personal danger in doing so. Fire extinguishers are located next to all generators on-site, and in all pieces of heavy equipment

In case of an explosion, all personnel will be evacuated and the fire department notified. No personnel shall re-enter the area until it has been cleared by the Rocky Flats Fire Department.

12.3.3 Natural Disasters

Natural disasters may occur at the site and include lightning and high winds.

- Lightning - Persons should not work in open areas, near trees or other equipment outside during lightning storms - Stop work and clear the site until storm passes.
- If high winds are forecast, the site should be cleared before the winds become hazardous. Workers should be instructed to go to an appropriate shelter. If winds are sustained at 45 miles per hour, all work will be evaluated and approved on a case-by-case basis.
- Notify the Project Manager or Field Supervisor of any work stoppage due to lightning and high winds.

12.4 Emergency Equipment

A 50-gallon universal spill kit will be located at an appropriate location selected during site mobilization. The universal sorbents contained in the spill kit are effective on a wide range of liquids including acids, bases, solvents, and lubricants eliminating the need for specific sorbents for specific spills. The spill kit contains the following items:

- 5"X10' socks/booms
- one liter pillows
- 18"X18" pads
- disposal bags
- pair SilverShield7 gloves
- pair nitrile gloves
- pair goggles
- pair Tyvek7 QC coveralls, XL
- 1-quart non-sparking scoop
- plastic non-sparking shovel
- floor-stand spill sign
- 2-lb. dry acid neutralizer
- 2-lb. dry base neutralizer
- jumbo pH paper
- repair putty stick
- roll barricade tape
- rolls white vinyl tape
- rolls yellow vinyl tape
- radiological and hazardous waste labels
- spill response guide
- In addition to the items contained in the spill kit, the following items will also be available in the work area:
 - multiple 10 lb. A/B/C); and
 - emergency shower and eyewash stations will maintain in the office trailer.

12.5 Unanticipated Hazards or Conditions

Unanticipated hazards or conditions encountered during this project will be managed in accordance with this RMRS policy statement (Directive-001). "In the event unanticipated

hazards or conditions are encountered, the project activities will pause to assess the potential hazard or condition. The potential hazard or condition will be evaluated to determine the severity or significance of the hazard or condition and whether the controls on the project are sufficient to address the hazard or condition. Based on this initial evaluation, a determination will be made whether to proceed with controls currently in place; segregate the hazard or condition from the project activity, if it can be done safely; or curtail operations to address the unexpected hazard or condition. Concurrence to proceed down the selected path must be obtained from the RMRS Environmental Restoration Director or designee. Note: "Unanticipated Hazards or Conditions" do not replace conditions that require emergency response, rather, they ensure that all work is performed based on an informed approach in regards to all potential hazards.

13.0 Spill Control

13.1 Spill Response Planning

The Spill Response Plan is designed to establish a program/plan to optimize a safe and informed response to incidental and emergency situations with the intent of protecting T-1 site project personnel, collocated workers, the public, the environment, and property in the event of spills, fire, or explosion. All spills will be addressed per HSP-21.04, "Emergency Response and Spill Control Program." If applicable, reporting will be conducted in accordance with Administrative Procedures Manual, ADM-16.01, "Occurrence Reporting Process."

13.2 Incidental Spill Operation

Incidental Spill Definition:

Incidental spills are those where the substance can be safely absorbed, neutralized, or otherwise controlled by employees in the immediate release area at the time of the release. In addition, the release does not have the potential to become an emergency within a short time frame.

Spills considered as incidental include diesel fuel, gasoline, hydraulic fluid, or motor oil spills at the T-1 site.

Criteria that must be met prior to incidental release response actions at the T-1 site include:

- Personnel have warned others and isolated the area to prevent vehicle traffic through the area and minimize personnel exposures.
- The RFETS Shift Superintendent and RMRS Project Manager have been notified and provided with the following information.
- Exact location of the spill.
- Type of spill.
- Volume of the spill.
- Time of the spill.
- Response actions to be taken.
- All materials or equipment used during the response is compatible with the substance spilled.
- The Shift Superintendent or a representative from the RFETS emergency response team is at the site to observe the spill response and cleanup.
- Incidental Spill Response Actions:

- In the case of liquid spills such as hydraulic fluid, motor oil, gasoline or diesel fuel, absorbent pads or materials will be used to contain and cleanup the spill. Absorbent materials will be properly packaged and handled in accordance with WO-1027 or WO-1101.

Post incidental spill response will include:

- Ensuring the proper reporting per HSP-21.04 and ADM-16.01.
- Conducting a briefing to address the cause of the spill, methods of preventing future spills, and ways to improve readiness and response.

13.3 Emergency Spill Operation

Emergency Response Definition:

A response effort by personnel from outside the immediate release area, or by other designated responders to a release that results, or is likely to result, in an uncontrolled release of a hazardous substance. An emergency response is required in the following situations:

- The responders are not in the immediate response area.
- The release requires emergency evacuation of employees in the area.
- The material has a NFPA health, fire, or reactivity hazard rating of 3 or 4.
- The release poses a serious threat of fire or explosion (propane or NFPA fire hazard rating of 3 or 4).
- The release may cause high levels of exposure to toxic substances.
- There is uncertainty that the employees in the work area can safely handle the severity of the hazard with the available PPE and equipment.

Emergency Spill Response Actions:

- Personnel should warn others and evacuate the area to a safe upwind location.
- Isolate the area to prevent vehicle traffic through the area and minimize personnel exposures.
- Notify the RFETS Shift Superintendent and RMRS Project Manager and provide them with the following information.
- Exact location of the spill.
- Type of spill.
- Volume of the spill.
- Time of the spill.

- Call 966-2911 or use radio channel 2911 and report the release.

14.0 Record Keeping Requirements

14.1 Orientation and Training Records

All training and field experience will be verified and the Site Safety Officer shall maintain records in the Project Support Trailer.

14.2 Daily Health and Safety Meetings

Daily/shift plan-of-the-day (POD) and safety briefings for site employees will be conducted. The briefings will address the days planned activities, reminders of safety responsibilities; new chemicals brought on site, lessons learned, and any safety concerns. These meetings will be documented by the Site Safety Officer. Documentation will be in a written format that states the subjects covered, the signature and title of the presenter, and signatures of all employees attending the meeting.

14.3 Accident/Incident Reporting

All accidents, incidents, and near misses will be immediately reported to the Field Supervisor and the Project Manager. It is the Project Manager's responsibility to ensure that the appropriate personnel are notified of the accident/incident. In addition, RFETS requires Department of Energy (DOE) form 5484.X, "Individual Accident/Injury Report" to be completed for all first aid incidents and the following "Recordable" occupational injuries or illnesses as defined below.

OCCUPATIONAL INJURY is any injury such as a cut, fracture, sprain, or amputation that results from a work accident or from an exposure involving a single incident in the work environment that requires more than standard first aid.

Note: Conditions resulting from animal or insect bites, or one-time exposure to chemicals, are considered injuries.

OCCUPATIONAL ILLNESS of an employee is any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. It includes acute and chronic illnesses or diseases that may be caused by inhalation, absorption, ingestion, or direct contact with a toxic material.

PROPERTY DAMAGE LOSSES of \$1,000 or more are reported as follows: Accidents that cause damage to DOE property, regardless of fault, or accident wherein DOE may be liable for damage to a second party, are reportable if damage is \$5,000 or more. Include damage to facilities, inventories, equipment, and properly parked motor vehicles. Exclude damage resulting from a DOE-reportable vehicle accident.

GOVERNMENT MOTOR VEHICLE ACCIDENTS resulting in damages of \$250 or more, or involving injury, are reported unless the government vehicle is not at fault, damage of less than \$250 is sustained by the government vehicle, and no injury is inflicted on the government vehicle occupants.

14.4 Health and Safety Logbooks

Separate health and safety logbooks with control numbers shall be maintained by Field Supervisors and SSO and will be turned in to the Project Manager once the project is completed. The Project Manager will then turn in the project logbooks and documents to the RMRS Project Manager who will then give them to the environmental records management group. Logged information will meet the requirements of RFETS Conduct of Operations Manual, COOP-006, "Operating Area Logs and Records" and shall include:

- (1) summary of daily health and safety issues,
- (2) all measurements taken,
- (3) types of monitoring conducted,
- (4) description of unforeseen hazards, who the hazard or compensatory measure was mitigated by, how it was mitigated, and the time and date it was mitigated,
- (5) safety infractions,
- (6) accidents and injuries, and
- (7) other significant health and safety items

APPENDIX A
ACTIVITY HAZARD ANALYSIS

STARMET
TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
MOBILIZATION OF EQUIPMENT TO THE T-1 SITE
Activity Hazard Analysis
3/99

Activity	Hazard	Preventative Measures
All site activities	General work hazards	<ul style="list-style-type: none"> • All personnel will wear steel toed shoes, safety glasses with side shields, hard hats, reflective vests, and hearing protection as applicable in the construction area.
	Heat stress	<ul style="list-style-type: none"> • Heat stress monitoring will be conducted in regards to work load and PPE worn as applicable.
	Cold stress	<ul style="list-style-type: none"> • Cold stress monitoring will be conducted as applicable. • Proper clothing will be available to all personnel and administrative controls will be adhered to.
	Noise	<ul style="list-style-type: none"> • Noise monitoring will be conducted as applicable. • Where necessary personnel will wear hearing protection. • Posting areas where hearing protection is required. • All personnel will participate in the Starmet Hearing Conservation Program if necessary.
	Fire	<ul style="list-style-type: none"> • Proper site housekeeping will be required to segregate combustible material. • Smoking is only permitted

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
MOBILIZATION OF EQUIPMENT TO THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
		<p>in designated smoking areas.</p> <ul style="list-style-type: none"> • Flammable and combustible liquids will be stored in approved safety containers and when not in use will be stored in an approved flammable cabinet.
Traversing the site	Slip, trips, falls	<ul style="list-style-type: none"> • Care will be taken when traversing the site especially when carrying equipment. • All trip hazards will be immediately removed or marked when identified.
Lifting equipment and materials	Back injury	<ul style="list-style-type: none"> • Proper lifting techniques will be used and heavy equipment, where feasible, will be utilized to move heavy loads.
Handling equipment and materials	Pinch points and sharp edges	<ul style="list-style-type: none"> • Care will be taken when pinch points and sharp edges exist and heavy duty leather work gloves will be worn.
Using hand tools and power hand tools during dismantlement activities.	Hand tools in unsafe operating condition	<ul style="list-style-type: none"> • The user prior to each use will inspect hand tools. • Defective tools will be tagged and taken out of service.
	Improper use of hand tools	<ul style="list-style-type: none"> • Hand tools will be utilized for their intended use and operated in accordance with HSP-12.10. • Guards will be in place and no modifications will be made.

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
 MOBILIZATION OF EQUIPMENT TO THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
	Electrical shock	<ul style="list-style-type: none"> • Portable power tools will be plugged into a GFCI protected outlet and will be UL listed with three pronged ground plug or double insulated. • Cords will be inspected by the user and protected from unnecessary damage. • Any tool whose cord shows signs of damage or deterioration will be immediately removed from service.
Use of generators to power portable power tools	Electrical shock	<ul style="list-style-type: none"> • Extension cords will be intended for outdoor use, inspected by the user, and protected from unnecessary damage. • Any extension cords, which show signs of damage or deterioration, will be immediately removed from service.
	Electrical shock	<ul style="list-style-type: none"> • Cords will be plugged into a GFCI protected outlet and the generator will be properly grounded. • The user daily prior to the beginning of each shift will test the GFCI.
	Fire	<ul style="list-style-type: none"> • At a minimum, a 10 lb. ABC fire extinguisher will be located in the work area and next to the generator. • All refueling will be conducted at the beginning of the shift when the light plants and generators are

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
 MOBILIZATION OF EQUIPMENT TO THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
		cool. <ul style="list-style-type: none"> Fuel containers will be electrically bonded to the light plants and generators during refueling.
	Use of gasoline	<ul style="list-style-type: none"> Follow recommendations on MSDS (Available in the MSDS book which is located in the project support trailers).
Using forklift to unload and stage material.	Forklift in poor operating condition	<ul style="list-style-type: none"> Heavy equipment will be inspected prior to entering RFETS. The operators will inspect and document heavy equipment prior to the beginning of each shift.
	Improper operation of forklift	<ul style="list-style-type: none"> Personnel will be experienced and knowledgeable in the use and limitations of all heavy equipment.
	Ground personnel being struck with heavy equipment	<ul style="list-style-type: none"> Ground personnel will wear orange vests, maintain at least a 10' clearance, and maintain line of sight with the equipment operator. Prior to the ground personnel applying or removing load securing devices from the forklift, the operator will lower the load, disengage the hydraulic system, set the parking brake, and give a hand signal indicating that the ground person may approach.

**TRENCH 1 TEMPORATY STRUCTURE DISMANTLEMENT PROJECT
 MOBILIZATION OF EQUIPMENT TO THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
	Other equipment being struck with heavy equipment	<ul style="list-style-type: none"> • Equipment operations will be conducted in a safe manner. • Equipment must have a functioning backup alarm.
	Injury resulting from unsecured loads	<ul style="list-style-type: none"> • Loads will be secured and/or will be moved with the forks in the lowest possible position and personnel will stay back a minimum of ten feet.
Mobilization of the crane to the site and possible use during mobilization.	Crane and hoisting and rigging equipment in poor operating condition	<ul style="list-style-type: none"> • Crane and all hoisting and rigging equipment will be inspected by RMRS Health and Safety Supervision prior to entering RFETS. • The operators will inspect and document crane and all hoisting and rigging equipment prior to the beginning of each shift or prior to use. • All hoisting and rigging accessories, where feasible, must have legible tags or labels indicating capacities, if the tags is damaged or not legible or the pieced of equipment is damaged in any way, it must be placed out of service immediately. • Hoisting and rigging operation will be performed in accordance with HSP-12.02 and the Hoisting and Rigging Checklist will be completed.
	Improper operation and use of	<ul style="list-style-type: none"> • Personnel will be

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
 MOBILIZATION OF EQUIPMENT TO THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
	crane and all hoisting and rigging equipment	experienced and knowledgeable in the use and limitations of the equipment. • Any hoisting and rigging operation will be approved and performed in accordance with Hoisting and Rigging Checklist RFETS HSP 12.02, Appendix 2.
	Electrical shock	• Crane will be operated with a 10' minimum clearance between the power lines and any part of the equipment.
	Ground personnel being struck with suspended or falling loads	• Ground personnel will wear orange vests, stay at least 20' away from crane, and maintain line of sight with the operators. • Loads will be properly secured and ground personnel, while assisting with the positioning arches, will use tag lines. • Tag lines will not be wrapped around the hand. • Ground personnel will never stand directly below a suspended load.
	Other equipment being struck with heavy equipment	• Crane operations will be conducted in a safe manner. • A spotter will be required when moving suspended loads.
Mobilizing Aerial Man Lifts (Boom Type Lifts) to the site.	Boom Type Lift equipment in poor operating condition	• Aerial Lifts from off site vendors will be inspected

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
MOBILIZATION OF EQUIPMENT TO THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
		<p>by RMRS Health and Safety.</p> <ul style="list-style-type: none"> • Aerial lift equipment will be inspected by the operator prior to the beginning of each shift and an inspection checklist will be completed. • Operator shall immediately report to Site Supervisor or H&S Supervisor any defects or malfunctions which become evident during operation.
	<p>Improper operation and use of or Boom Type Lift equipment</p>	<ul style="list-style-type: none"> • Only trained and authorized personnel will be allowed to operate the aerial work platform. • Operators will be properly trained in the use and limitations of the specific pieces of aerial lift equipment being operated.
	<p>Aerial Lifts striking obstructions on the ground and overhead</p>	<ul style="list-style-type: none"> • Prior to and during operations the site must be checked for hazards such as ditches, dropoffs or holes, bumps, obstruction, debris, overhead obstructions and high voltage conductors, and other possible hazardous conditions. • Before and during driving while elevated, the operator must: keep a clear view of the path of travel; maintain distance

**TRENCH 1 TEMPORATY STRUCTURE DISMANTLEMENT PROJECT
 MOBILIZATION OF EQUIPMENT TO THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
		from obstacle, debris and other hazards in the path; and maintain a safe distance from overhead obstacles (a minimum of 10 feet from power lines).
	Electrical Shock	<ul style="list-style-type: none"> • Aerial Lifts will be operated with a 10' minimum clearance between the power lines and any part of the equipment. • Care shall be take to prevent ropes, or electrical cords from becoming entangled in the work platform when it is being elevated or lowered.
	Ground personnel being struck by the aerial lift or by objects falling from the platform	<ul style="list-style-type: none"> • Ground personnel will wear orange vests and maintain line of sight with the operators. • Operator shall ensure that the area surrounding the platform is clear of personnel and equipment before lowering.
	Work on elevated surfaces	<ul style="list-style-type: none"> • Personnel shall maintain a firm footing on the platform and must ONLY attach full body harness / lanyard devices to manufacturer approved attachment points. • All personnel will have current Fall Protection Training.

TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
MOBILIZATION OF EQUIPMENT TO THE T-1 SITE (Continued)
Activity Hazard Analysis
3/99

Approved:	Signature	Date
Starment/Stoller Task Manager - Ralph Rupp	<u> /s/ / </u>	<u>3/24/99</u>
RMRS H&S Supervisor- Tony Medina	<u> /s/ / </u>	<u>3/23/99</u>
RMRS Site Safety Officer - Steven Aldridge	<u> /s/ / </u>	<u>3/23/99</u>

**STARMET
TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
DISMANTLEMENT OF THE STRUCTURE AT THE T-1 SITE**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
All site activities	General work hazards	<ul style="list-style-type: none"> • All personnel will wear steel toed shoes, safety glasses with side shields, hard hats, reflective vests, and hearing protection as applicable in the construction area.
	Heat stress	<ul style="list-style-type: none"> • Heat stress monitoring will be conducted in regards to work load and PPE worn as applicable.
	Cold stress	<ul style="list-style-type: none"> • Cold stress monitoring will be conducted as applicable. • Proper clothing will be available to all personnel and administrative controls will be adhered to.
	Noise	<ul style="list-style-type: none"> • Noise monitoring will be conducted as applicable. • Where necessary personnel will wear hearing protection. • Posting areas where hearing protection is required. • All personnel will participate in the Starmet Hearing Conservation Program if necessary.
	Fire	<ul style="list-style-type: none"> • Proper site housekeeping will be required to segregate combustible material. • Flammable and

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
DISMANTLEMENT OF STRUCTURE AT THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
		combustible liquids will be stored in approved safety containers and when not in use will be stored in an approved flammable cabinet.
Traversing the site	Slip, trips, falls	<ul style="list-style-type: none"> • Care will be taken when traversing the site especially when carrying equipment. • All trip hazards will be immediately removed or marked when identified.
Lifting equipment and materials	Back injury	<ul style="list-style-type: none"> • Proper lifting techniques will be used and heavy equipment, where feasible, will be utilized to move heavy loads.
Handling equipment and materials	Pinch points and sharp edges	<ul style="list-style-type: none"> • Care will be taken when pinch points and sharp edges exist and heavy duty leather work gloves will be worn.
Using hand tools and power hand tools during dismantlement activities.	Hand tools in unsafe operating condition	<ul style="list-style-type: none"> • The user prior to each use will inspect hand tools. • Defective tools will be tagged and taken out of service.
	Improper use of hand tools	<ul style="list-style-type: none"> • Hand tools will be utilized for their intended use and operated in accordance with HSP-12.10. • Guards will be in place and no modifications will be made.
	Electrical shock	<ul style="list-style-type: none"> • Portable power tools will be plugged into a GFCI protected outlet and will be UL listed with three

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
DISMANTLEMENT OF STRUCTURE AT THE T-1 SITE (Continued)
Activity Hazard Analysis
3/99**

Activity	Hazard	Preventative Measures
		<ul style="list-style-type: none"> pronged ground plug or double insulated. • Cords will be inspected by the user and protected from unnecessary damage. • Any tool whose cord shows signs of damage or deterioration will be immediately removed from service.
Use of generators to power portable power tools	Electrical shock	<ul style="list-style-type: none"> • Extension cords will be intended for outdoor use, inspected by the user, and protected from unnecessary damage. • Any extension cords, which show signs of damage or deterioration, will be immediately removed from service.
	Electrical shock	<ul style="list-style-type: none"> • Cords will be plugged into a GFCI protected outlet and the generator will be properly grounded. • The user daily prior to the beginning of each shift will test the GFCI.
	Fire	<ul style="list-style-type: none"> • At a minimum, a 10 lb. ABC fire extinguisher will be located in the work area and next to the generator. • All refueling will be conducted at the beginning of the shift when the light plants and generators are cool. • Fuel containers will be electrically bonded to the light plants and generators

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
DISMANTLEMENT OF STRUCTURE AT THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
		operation will be approved and performed in accordance with Hoisting and Rigging Checklist RFETS HSP 12.02, Appendix 2.
	Electrical shock	<ul style="list-style-type: none"> • Crane will be operated with a 10' minimum clearance between the power lines and any part of the equipment.
	Ground personnel being struck with suspended or falling loads	<ul style="list-style-type: none"> • Ground personnel will wear orange vests, stay at least 20' away from crane, and maintain line of sight with the operators. • Loads will be properly secured and ground personnel, while assisting with the positioning arches, will use tag lines. • Tag lines will not be wrapped around the hand. • Ground personnel will never stand directly below a suspended load.
	Other equipment being struck with heavy equipment	<ul style="list-style-type: none"> • Crane operations will be conducted in a safe manner. • A spotter will be required when moving suspended loads.
Using Aerial Man Lifts (Boom Type Lifts)	Boom Type Lift equipment in poor operating condition	<ul style="list-style-type: none"> • Aerial Lifts from off site vendors will be inspected by RMRS Health and Safety. • Aerial lift equipment will be inspected by the operator prior to the beginning of each shift

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
DISMANTLEMENT OF STRUCTURE AT THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
		<p>and an inspection checklist will be completed.</p> <ul style="list-style-type: none"> • Operator shall immediately report to Site Supervisor or H&S Supervisor any defects or malfunctions which become evident during operation.
	<p>Improper operation and use of Boom Type Lift equipment</p>	<ul style="list-style-type: none"> • Only trained and authorized personnel will be allowed to operate the aerial work platform. • Operators will be properly trained in the use and limitations of the specific pieces of aerial lift equipment being operated.
	<p>Aerial Lifts striking obstructions on the ground and overhead</p>	<ul style="list-style-type: none"> • Prior to and during operations the site must be checked for hazards such as ditches, dropoffs or holes, bumps, obstruction, debris, overhead obstructions and high voltage conductors, and other possible hazardous conditions. • Before and during driving while elevated, the operator must: keep a clear view of the path of travel; maintain distance from obstacle, debris and other hazards in the path; and maintain a safe distance from overhead obstacles (a minimum of 10 feet from power lines).

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
 DISMANTLEMENT OF STRUCTURE AT THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
	Electrical Shock	<ul style="list-style-type: none"> • Aerial Lifts will be operated with a 10' minimum clearance between the power lines and any part of the equipment. • Care shall be take to prevent ropes, or electrical cords from becoming entangled in the work platform when it is being elevated or lowered.
	Ground personnel being struck with suspended or falling loads	<ul style="list-style-type: none"> • Ground personnel will wear orange vests and maintain line of sight with the operators. • Operator shall ensure that the area surrounding the platform is clear of personnel and equipment before lowering.
	Work on elevated surfaces	<ul style="list-style-type: none"> • Personnel shall maintain a firm footing on the platform and must ONLY attach full body harness / lanyard devices to manufacturer approved attachment points. • All personnel will have current Fall Protection Training.
Using forklift to position materials	Forklift in poor operating condition	<ul style="list-style-type: none"> • Heavy equipment will be inspected prior to entering RFETS. • The operators will inspect and document heavy equipment prior to the beginning of each shift.
	Improper operation of forklift	<ul style="list-style-type: none"> • Personnel will be experienced and

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
DISMANTLEMENT OF STRUCTURE AT THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
		<p>knowledgeable in the use and limitations of all heavy equipment.</p>
	<p>Ground personnel being struck with heavy equipment</p>	<ul style="list-style-type: none"> • Ground personnel will wear orange vests, maintain at least a 10' clearance, and maintain line of sight with the equipment operator. • Prior to the ground personnel applying or removing load securing devices from the forklift, the operator will lower the load, disengage the hydraulic system, set the parking brake, and give a hand signal indicating that the ground person may approach.
	<p>Other equipment being struck with heavy equipment</p>	<ul style="list-style-type: none"> • Equipment operations will be conducted in a safe manner. • Equipment must have a functioning backup alarm.
	<p>Injury resulting from unsecured loads</p>	<ul style="list-style-type: none"> • Loads will be secured and/or will be moved with the forks in the lowest possible position and personnel will stay back a minimum of ten feet.
<p>Using ladders during construction activities</p>	<p>Ladder in poor working condition</p>	<ul style="list-style-type: none"> • Ladders will be inspected by the user prior to each use. • Ladders which show signs of damage or deterioration will be immediately removed from service;
	<p>Using ladder improperly</p>	<ul style="list-style-type: none"> • Ladder users will be

**TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
 DISMANTLEMENT OF STRUCTURE AT THE T-1 SITE (Continued)**

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
		<p>trained on ladder safety in accordance with CFR 1926.1060, such as, using both hands when climbing, cleaning boots and ladder rungs, and keeping weight centered in the middle of the ladder.</p> <ul style="list-style-type: none"> • Ladders will be Type 1-A, Industrial Extra Heavy Duty or better. • Aluminum ladders will not be used in areas where there is electrical power equipment. • Extension ladders will be secured to prevent slipping and the rails will be extended at least 3 feet beyond the landing area. • Work on ladders at heights greater than six feet will require evaluation from the SSO.
<p>Using forklift with lifting attachment to pullout drift pins and anchor rods.</p>	<p>Pinch points</p>	<ul style="list-style-type: none"> • Pay particular attention to pinch points when using lifting attachment.
	<p>Lifting attachment not being in good condition</p>	<ul style="list-style-type: none"> • Lifting attachment will be inspected prior to each shift.
	<p>Improper use of the forklift with lifting attachment.</p>	<ul style="list-style-type: none"> • The operators will inspect and document forklift prior to the beginning of each shift. • Personnel will be experienced and knowledgeable in the use and limitations of all heavy equipment.

72

**STARMET
TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
DEMOBILIZATION OF EQUIPMENT AND MATERIALS FROM THE T-1 SITE
Activity Hazard Analysis**

3/99

Activity	Hazard	Preventative Measures
All site activities	General work hazards	<ul style="list-style-type: none"> • All personnel will wear steel toed shoes, safety glasses with side shields, hard hats, reflective vests, and hearing protection as applicable in the construction area.
	Heat stress	<ul style="list-style-type: none"> • Heat stress monitoring will be conducted in regards to work load and PPE worn as applicable.
	Cold stress	<ul style="list-style-type: none"> • Cold stress monitoring will be conducted as applicable. • Proper clothing will be available to all personnel and administrative controls will be adhered to.
	Noise	<ul style="list-style-type: none"> • Noise monitoring will be conducted as applicable. • Where necessary personnel will wear hearing protection. • Posting areas where hearing protection is required. • All personnel will participate in the Starmet Hearing Conservation Program if necessary.
	Fire	<ul style="list-style-type: none"> • Proper site housekeeping will be required to segregate combustible material. • Smoking is only permitted

**TRENCH T-1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
 DEMOBILIZATION OF EQUIPMENT AND MATERIALS FROM THE T-1 SITE**

(Continued)

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
		in designated smoking areas. <ul style="list-style-type: none"> • Flammable and combustible liquids will be stored in approved safety containers and when not in use will be stored in an approved flammable cabinet.
Traversing the site	Slip, trips, falls	<ul style="list-style-type: none"> • Care will be taken when traversing the site especially when carrying equipment. • All trip hazards will be immediately removed or marked when identified.
Lifting equipment and materials	Back injury	<ul style="list-style-type: none"> • Proper lifting techniques will be used and heavy equipment, where feasible, will be utilized to move heavy loads.
Handling equipment and materials	Pinch points and sharp edges	<ul style="list-style-type: none"> • Care will be taken when pinch points and sharp edges exist and heavy duty leather work gloves will be worn.
Using hand tools and power hand tools during activities.	Hand tools in unsafe operating condition	<ul style="list-style-type: none"> • The user prior to each use will inspect hand tools. • Defective tools will be tagged and taken out of service.
	Improper use of hand tools	<ul style="list-style-type: none"> • Hand tools will be utilized for their intended use and operated in accordance with HSP-12.10. • Guards will be in place and no modifications will be made.

**TRENCH T-1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
 DEMOBILIZATION OF EQUIPMENT AND MATERIALS FROM THE T-1 SITE**

(Continued)

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
	Electrical shock	<ul style="list-style-type: none"> • Portable power tools will be plugged into a GFCI protected outlet and will be UL listed with three pronged ground plug or double insulated. • Cords will be inspected by the user and protected from unnecessary damage. • Any tool whose cord shows signs of damage or deterioration will be immediately removed from service.
Use of generators to power portable power tools	Electrical shock	<ul style="list-style-type: none"> • Extension cords will be intended for outdoor use, inspected by the user, and protected from unnecessary damage. • Any extension cords, which show signs of damage or deterioration, will be immediately removed from service.
	Electrical shock	<ul style="list-style-type: none"> • Cords will be plugged into a GFCI protected outlet and the generator will be properly grounded. • The user daily prior to the beginning of each shift will test the GFCI.
	Fire	<ul style="list-style-type: none"> • At a minimum, a 10 lb. ABC fire extinguisher will be located in the work area and next to the generator. • All refueling will be conducted at the beginning of the shift when the light

**TRENCH T-1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT
 DEMOBILIZATION OF EQUIPMENT AND MATERIALS FROM THE T-1 SITE**

(Continued)

Activity Hazard Analysis

3/99

Activity	Hazard	Preventative Measures
		plants and generators are cool. <ul style="list-style-type: none"> • Fuel containers will be electrically bonded to the light plants and generators during refueling.
	Use of gasoline	<ul style="list-style-type: none"> • Follow recommendations on MSDS (Available in the MSDS book which is located in the project support trailers)
Using forklift to load flat bed trailers	Forklift in poor operating condition	<ul style="list-style-type: none"> • Heavy equipment will be inspected prior to entering RFETS. • The operators will inspect and document heavy equipment prior to the beginning of each shift.
	Improper operation of forklift	<ul style="list-style-type: none"> • Personnel will be experienced and knowledgeable in the use and limitations of all heavy equipment.
	Ground personnel being struck with heavy equipment	<ul style="list-style-type: none"> • Ground personnel will wear orange vests, maintain at least a 10' clearance, and maintain line of sight with the equipment operator. • Prior to the ground personnel applying or removing load securing devices from the forklift, the operator will lower the load, disengage the hydraulic system, set the parking brake, and give a hand signal indicating that the ground person may

APPENDIX B

HEAT AND COLD STRESS GUIDELINES

Best Available Copy



INTEROFFICE MEMORANDUM

DATE: July 8, 1996
TO: Distribution
FROM: Ricky J. Carr, Environmental Safety & Health, Bldg. T664A, X2970
SUBJECT: HEAT STRESS - RJC-014-96
Action: None Required

The purpose of this memo is to provide guidance regarding the prevention and monitoring of heat stress conditions. It should be noted that heat stress related conditions or disorders (i.e. heat stroke, heat exhaustion) are considered to be occupational illnesses by OSHA and therefore are recordable cases. It is incumbent to prevent, monitor and mitigate conditions which may lead to heat stress among employees.

There is a draft Heat Stress Program that has been written by Kaiser-Hill L.L.C. (K-H) Industrial Hygiene and Safety and reviewed by the Industrial Hygiene and Safety organizations of the major subcontractors. This Heat Stress Program describes the responsibilities of various personnel regarding implementation of the Program and contains instructions for monitoring heat stress and provides guidelines for Threshold Limit Values (TLVs) and work/rest regimens. DOE Order 440.1, Worker Protection Management for DOE Federal and Contractor Employees requires compliance with the most recent edition of the ACGIH "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices" when TLVs are more protective than OSHA Permissible Exposure Limit (PELs) (there is no OSHA PEL for heat stress). The work/rest regimens specified in the Heat Stress Program are based upon the ACGIH TLVs modified by professional judgment for the use of impermeable personal protective clothing (PPE). These TLVs assume that the workers exposed to heat stress conditions are acclimatized.

It is (will be) Rocky Mountain Remediation Services (RMRS) policy to adhere the requirements of the Heat Stress Program including the work/rest regimens contained as Appendix 1 of the Program (attached). Prevention of potential heat stress conditions is the first method to be considered when heat stress is identified as a potential hazard associated with any activity or task. Prevention methods to be considered include work schedule, modification of task/activity, and provision for rest areas. The Heat Stress Program provides instructions for monitoring heat stress conditions using the Wet Bulb Globe Temperature (WBGT) Index. WBGT accounts for air temperature, relative humidity, and solar load and provides a mechanism for correlating environmental conditions with body temperature and other physiological responses to heat stress. The Heat Stress Program contains a Table for work/rest regimens based upon the WBGT Index, work activities, and level of Personal Protective Equipment (PPE). Work/rest regimens shall be established in accordance with guidelines in the Table with the following interpretations. Physiological monitoring (i.e. body temperatures, pulse rates) will be performed whenever practical and feasible in order to verify the work/rest regimens are

Distribution
RJC-014-96
July 8, 1996
Page 2

for a particular work activity and level of PPE. The WBGT Index can be lowered by 3°F if a personal cooling device is employed and physiological monitoring is performed to confirm that the personal cooling devices are effective (using the monitoring guidance provided on page 8-21 in the NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Waste Activities). Additional modification to the WBGT Index when personal cooling devices are employed when be evaluated on a case-by-case basis. Column 2 will be employed if permeable protective clothing (regardless of respiratory protection) is utilized. Permeable protective clothing includes cotton and Kleenguard™ coveralls. Column 3 will be employed if semi-permeable protective clothing (Tyvek) is utilized. Column 4 will be employed if impermeable protective clothing (Saranex) is utilized.

Please distribute this guidance to all personnel that have operations affected by heat stress considerations. Please do not hesitate to call if you have questions or comments.

RJC:clh

Attachment:
As Stated

Distribution

R. E. Bates
G. W. Beers
R. J. Carr
M. E. Findley
K. D. Jenkins
O. McAfee
R. A. McCafferty
A. W. Medina
T. T. Sangaline
M. D. Schrenkengast
T. N. Timmons

cc:

G. Agüero
C. A. Benson
C. Boardman
J. Chapin
J. A. Cuicci
C. S. Evans
R. C. Fitz
T. D. Gray
L. F. Johnson
J. E. Law
D. E. Steffen
M. R. Wagner
M. Wheeler
ESH&Q File
RMRS Records Center

RFETS HEAT STRESS PROGRAM

HEAT STRESS GUIDELINES FOR LIGHT WORK

(1)		(2)	(3)	(4)
WORK/REST	WBGT°F	WBGT°F	WBGT°F	WBGT°F
Continuous	86	76	72	68
75/25%	87	77	73	69
50/50%	89	78.5	74.5	70.5
25/75%	90	79.9	75.9	71.9

HEAT STRESS GUIDELINES FOR MODERATE WORK

(1)		(2)	(3)	(4)
WORK/REST	WBGT°F	WBGT°F	WBGT°F	WBGT°F
Continuous	80	70	66	62
75/25%	82	72.4	68.4	64.4
50/50%	85	74.9	70.9	66.9
25/75%	88	77.9	73.9	69.9

HEAT STRESS GUIDELINES FOR HEAVY WORK

(1)		(2)	(3)	(4)
WORK/REST	WBGT°F	WBGT°F	WBGT°F	WBGT°F
Continuous	77	67	63	59
75/25%	78	68.6	64.6	60.6
50/50%	82	72.2	68.2	64.2
25/75%	86	76	72	68

- (1) No Personal Protective Equipment
- (2) One pair coveralls (Anti C), modesty garments, gloves, hood, shoe covers (Level D Haz Mat PPE)
- (3) Two pair coveralls (Anti C), modesty garments, gloves, hood, shoe covers
or
One pair coveralls (Anti C), modesty garments, gloves, hood, respirator (Level C Haz Mat PPE)
- (4) Two pair coveralls (Anti C), modesty garments, gloves, hood, shoe covers, respirator (Level A&B Haz Mat PPE)

Threshold Limit Values Work/Warm-up Schedule for Four-Hour Shifts

Air Temperature—Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°C (approx.)	°F (approx.)	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
-26° to -28°	-15° to -19°	(Norm. Breaks) 1	(Norm. Breaks) 1	(Norm. Breaks) 1	(Norm. Breaks) 1	75 min	2	55 min	3	40 min	4
-29° to -31°	-20° to -24°	(Norm. Breaks) 1	(Norm. Breaks) 1	75 min	2	55 min	3	40 min	4	30 min	5
-32° to -34°	-25° to -29°	75 min	2	55 min	3	40 min	4	30 min	5	Non-emergency work should cease	
-35° to -37°	-30° to -34°	55 min	3	40 min	4	30 min	5	Non-emergency work should cease			
-38° to -39°	-35° to -39°	40 min	4	30 min	5	Non-emergency work should cease					
-40° to -42°	-40° to -44°	30 min	5	Non-emergency work should cease							
-43° & below	-45° & below	Non-emergency work should cease									

- Schedule applies to any 4-hour work period with moderate to heavy work activity, with warm-up periods of ten (10) minutes in a warm location and with an extended break (e.g., lunch) at the end of the 4-hour work period in a warm location. For Light-to-Moderate Work (limited physical movement): apply the schedule one step lower. For example, at -35°C (-30°F) with no noticeable wind (Step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (Step 5).
- The following is suggested as a guide for estimating wind velocity if accurate information is not available:
 5 mph: light flag moves; 10 mph: light flag fully extended; 15 mph: raises newspaper sheet; 20 mph: blowing and drifting snow given above would be: 1) special warm-up breaks should be initiated at a wind chill cooling rate of about 1750 W/m²; 2) all non-emergency work should have ceased at or before a wind chill of 2250 W/m². In general, the warmup schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing appropriate for winter work. On the other hand, the chart slightly over-compensates for the actual temperatures in the colder ranges because windy conditions rarely prevail at extremely low temperatures.
- T.L.V.s apply only for workers in dry clothing.

Adapted from Occupational Health & Safety Division, Saskatchewan Department of Labour

Windchill Index

Wind Speed in mph	ACTUAL THERMOMETER READING (F)									
	50	40	30	20	10	0	-10	-20	-30	-40
calm	50	40	30	20	10	0	-10	-20	-30	-40
5	48	37	27	16	6	-5	-15	-26	-36	-47
10	40	28	16	4	-9	-21	-33	-46	-58	-70
15	36	22	9	-5	-18	-36	-45	-58	-72	-85
20	32	18	4	-10	-25	-39	-53	-67	-82	-96
25	30	16	0	-15	-29	-44	-59	-74	-88	-104
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116
Over 40 mph (little added effect)	LITTLE DANGER (for properly clothed person)			INCREASING DANGER (Danger from freezing of exposed flesh)			GREAT DANGER			

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**APPENDIX C
Project Phone List**

Name	Company/Title	Phone	Pager	Radio	Offsite
Aldridge, Steven	Stoller - SSO	2787	508-2137	3719	
Barbour, Don	Starmet - Project Manager	423-220-8300			
Casteneda, Norma	DOE - ER Projects	4226	888-290-9018		
Chandler, Skip	RMRS - Health and Safety Supervisor	6673	212-6232	3806	
Cygnarowicz, Robert	RMRS - Project Support	7916			
DiGregorio, Greg	RMRS - Quality Assurance	5688	212-6206		
Estabrooks, Bates	SSOC - Radiological Engineer	3769	212-6469		
Farler, David	RMRS - Industrial Hygiene Supervisor	4340	5248	3743	
Findley, Michael	RMRS - Vise President	2653	5978	3763	
Greengard, Tom	KH - Program Manager	5635	212-1968		
Griffis, Bob	RMRS - Project Manager	4934	212-6505	3700	
Hull, Kurt	Stoller - T-1 Remediation Ops Mnger.	546-4314			
Jenkins, Ken	RMRS - H&S Team Leader	5374	7455	4505	
Law, John	RMRS - Director of ER	4842			
Lindsey, Tom	RMRS - Field Supervisor	5705	212-5681	3757	
Medina, Tony	RMRS - Health and Safety Supervisor	5830	212-6352	3784	
Mobley, Steve	KH - Excavation Specialist	2538	212-5502	4508	
Parker, Timothy	Rocky Flats Fire Department - Fire Chief	6043		2001	
Parson, Gary	KH - Excavation Specialist	4197	212-5508	4561	
Pepping, Mike	RMRS - Waste Generator	3075	212-6331	3808	
Primose, Annette	RMRS - Field Operation Manager	4385	4675	3801	
Rupp, Ralph	Stoller - Task Manager	4518			
Sawyer, Chip	RMRS - Radiological Safety Technical Manager	2397	212-3836	3271	
Spence, Tracey	RMRS - Field Supervisor	4322	212-6575	3732	

APPENDIX D

HEALTH AND SAFETY DOCUMENTATION FORMS

Starmet / Stoller

TRENCH 1 TEMPORARY STRUCTURE DISMANTLEMENT PROJECT

Operator's Daily Forklift Inspection Checklist

Truck Number: _____ Make: _____ Date: _____

Hour Meter Reading: Start _____ End _____ Hours on Shift _____

Check Each Item Listed Below	Item OK	Item Not OK	Explain Below If Not OK Or Any Other Action Taken
ALL TRUCKS			
Steering			
Horn			
Lights			
Backup Alarm			
Brakes			
Tires			
Hoist Cylinder			
Tilt Cylinder			
Hydraulic Oil Level			
Hydraulic Controls			
Frame Tilt Control			
Boom Control			
Steering Mode Control			
Forks			
Limit Switches			
Safety Belts			
Fire Extinguisher			
GASOLINE, DIESEL, OR PROPANE TRUCKS			
Battery			
Fuel			
Water/Antifreeze			
Engine Oil Level			
Oil Pressure			
Remarks:			

Operator: _____ / _____ Date: _____
(print) (signature)

Peer Review: _____ / _____ Date: _____
(print) (signature)

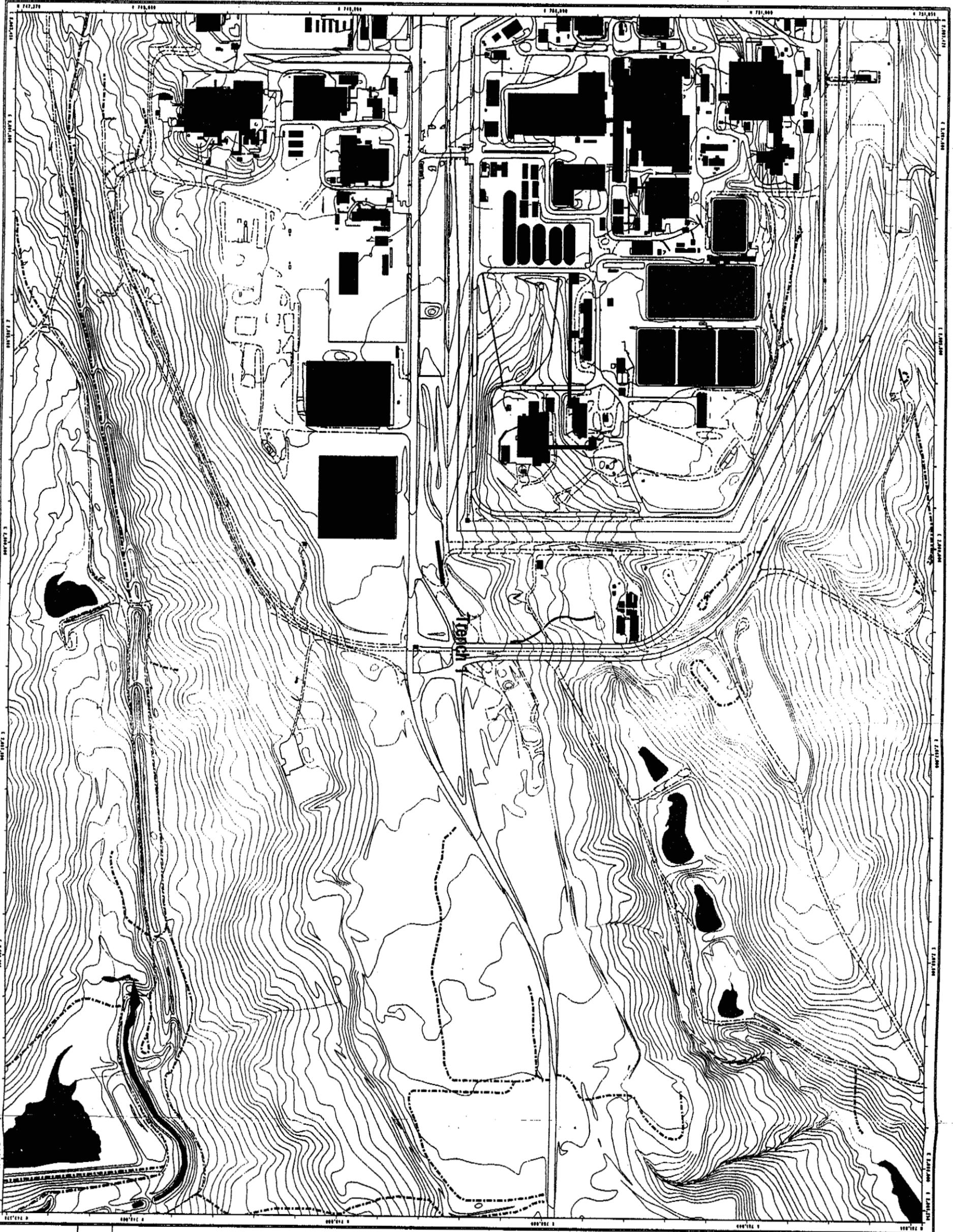
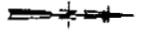


Figure 3.2
Trench 1
Site Location Map

EXPLANATION

- N Contours (5' intervals)
- Trench 1
- Standard Map Features**
- Buildings and other structures
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences
- Paved roads
- Dirt roads

DATA SOURCE:
 Data were derived from aerial photography and other information from the site and Region 9 and prepared by Ecolab, Inc., Las Vegas, NV. Original data from the hydrographer, 1988.



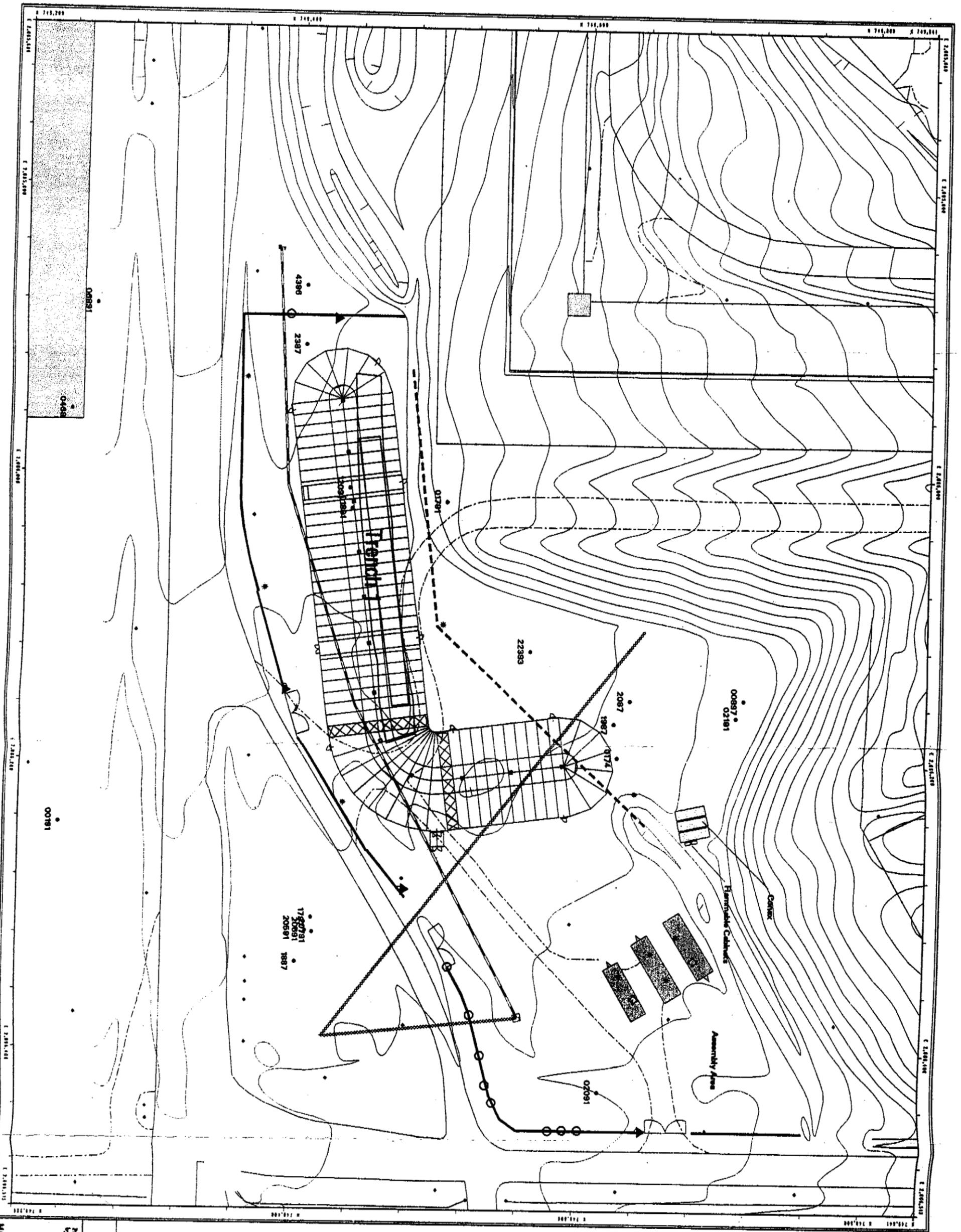
Scale = 1 : 54,300
 1 inch represents approximately 453 feet



State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD27

U.S. Department of Energy
 Rocky Flats Environmental Technology Site

RMRS
 Rocky Mountain Remediation Services, L.L.C.
 2000 North Interstate System Drive
 P.O. Box 66 Environmental Technology Site
 Golden, CO 80624-0066



**Trench 1
Temporary Structure
Dismantlement Site**

Figure 3.3

EXPLANATION

- N Underground utility lines
- N Culvert
- N Water lines
- N Temporary Chain Link Fence
- N 2 Foot Contours
- Fence Posts Sand bagged (All others driven)
- ▲ 3 foot Wide Personnel Gates
- Groundwater well Locations
- ◆ Power poles
- ⊥ Utility vaults
- ★ Fire Extinguishers
- ⊙ Eye Wash Stations

Standard Map Features

- ▣ Buildings and other structures
- Fences and other barriers
- Paved roads
- - - Dirt roads

Scale = 1:770
1 inch represents approximately 64 feet



State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site



Rocky Mountain Remediation Services, LLC
271 West, Environmental Technology Dr.
Golden, CO 80640-4444