

APPENDIX C
SAIC HEALTH AND SAFETY PROGRAM SUMMARY

20. Hazardous Waste Operations



20.1 Purpose

To define the SAIC health and safety program for employees involved in hazardous waste operations, as required by OSHA regulation 29 CFR 1910.120.

20.2 Definitions

- A. Buddy System: A system of organizing employees into work groups so that each employee is designated to be observed by another employee in the work group.
- B. Decontamination: The removal of hazardous substances from employees and their equipment to the extent necessary to preclude the occurrence of foreseeable adverse health effects.
- C. Emergency response: A response effort by employees or other responders from outside the immediate area to any occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance.
- D. Hazardous Waste: A solid, liquid, or gas that is no longer suited for its intended purpose and that is ignitable, corrosive, toxic, reactive, or listed by the Environmental Protection Agency (40 CFR 261).
- E. Hazardous Waste Operation: Operations identified at 29 CFR 1910.120(a)(1), including: 1) clean-up operations required by a Federal, State or local government body involving hazardous substances. 2) Initial investigations of government identified sites before the presence or absence of hazardous substances has been determined. 3) Clean-up operations at sites covered by the Resource Conservation and Recovery Act (RCRA). 4) Voluntary clean-up operations at sites recognized by Federal, state, or local government bodies as uncontrolled hazardous waste sites, where an accumulation of hazardous substances poses a threat to health, safety or environment. 5) Operations involving hazardous wastes conducted at RCRA treatment, storage, and disposal facilities (TSDFs), and 6) Emergency response operations for releases or threatened releases of hazardous substances.
- F. Hazardous Waste Site: Any location at which hazardous waste operations as defined above take place.
- G. Site Health and Safety Officer (SHSO): The individual located on a site at which hazardous waste operations take place, who is responsible to the employer and has the authority and knowledge required to verify compliance with applicable safety and health requirements. The qualifications must be established based on the level and type of risk associated with the site (i.e. chemical contamination, radioactive material contamination, unexploded ordinance and/or other unique potential hazards).



20.3 Scope

- A. This procedure applies to the following operations:
1. Clean-up operations required by a Federal, state or local government body involving hazardous substances.
 2. Initial investigations of government identified sites before the presence or absence of hazardous substances has been determined.
 3. Clean-up operations at sites covered by the Resource Conservation and Recovery Act (RCRA).
 4. Voluntary clean-up operations at sites recognized by Federal, state, or local government bodies as uncontrolled hazardous waste sites, where an accumulation of hazardous substances poses a threat to health, safety or environment.
 5. Operations involving hazardous wastes conducted at RCRA treatment, storage, and disposal facilities (TSDFs).
 6. For hazardous waste operations conducted outside the United States, this procedure will apply, modified as necessary to ensure compliance with applicable environmental and safety requirements.

20.4 Organization for Health and Safety at Hazardous Waste Sites

The SAIC management organization described in Appendix A3 of this manual is responsible for ensuring compliance with requirements of this procedure. Managers at all levels are responsible for planning project activities, providing resources, and enforcing project-specific health and safety plans so that project activities conform with this program. A Site Health and Safety Officer (SHSO) will be designated for each project that includes activities covered by this procedure.

20.5 Responsibilities

The responsibilities outlined in Section 20.5 are in addition to overall EC&HS responsibilities defined in Procedure 1. "Location-Specific EC&HS Policy and Responsibilities".

A. Corporate EC&HS Manager

1. Develops and updates EC&HS policy related to this procedure.
2. Audits field activities to ensure regulatory compliance, as well as compliance with internal SAIC EC&HS policies and procedures.

B. Group Manager

1. Implements SAIC risk management procedures, including approval of projects and subcontracts in business areas qualified by the Environmental Risk Subcommittee.

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2. Ensures that managers in his/her Group are aware of and enforce applicable EC&HS requirements of this procedure, and that adequate resources are provided for effective implementation of this procedure.

C. Division Manager

1. Identifies contracts, projects, and/or tasks that are within the scope of this program and ensures that a SHSO is designated for each covered project.
2. Ensures that a health and safety plan (HASP) is prepared and approved for each project, that requires one, before field work commences.
3. Provides the necessary resources required to ensure that EC&HS requirements and procedures are implemented, including obtaining or providing for all training, medical monitoring, respirator fit testing, protective clothing and equipment, and monitoring equipment for all employees identified to work at hazardous waste sites.
4. Identifies to the Local EC&HS Official the names of all individuals to be medically evaluated and receive required training to qualify for work at hazardous waste sites and provides the budget for medical and training costs.

D. Project Manager/Program Manager

1. Designates an individual to serve as site health and safety officer (SHSO) for each hazardous waste site/task covered by this procedure. The qualifications must be established based on the level and type of risk associated with the site (i.e. chemical contamination, radioactive material contamination, unexploded ordinance and/or other unique potential hazards).
2. Approves a HASP before the commencement of any field activities, after ensuring that it has been reviewed by an appropriately qualified individual, such as, a Certified Industrial Hygienist, Certified Safety Professional or other qualified individual¹. When there are radiation hazards at a site, a review by a Certified Health Physicist is required.
3. Ensures adequate resources are provided to implement the HASP and enforces compliance with applicable EC&HS requirements and the HASP.

¹ In this context, a "qualified individual" is a person that has completed: a) at four years experience in the development and implementation of occupational safety and health programs or implementation of health and safety plans. b) 40-hour initial and 8-hour supervisor training (29 CFR 1910.120) and c) a bachelor's degree in industrial hygiene, safety or other science related disciplines.





E. Local EC&HS Official

1. Obtains a copy of applicable federal, state and local regulations for environmental compliance and safety at a specific site.
2. Schedules medical examinations and training courses in advance of applicable expiration dates for employees who perform field work at hazardous waste sites.
3. Provides information as needed to Division and Project Managers regarding medical surveillance, training, personal protective equipment, safety plans, or other required actions related to field work.
4. Maintains a copy of medical qualification correspondence and records for the period of employment plus 30 years. Provides a copy of all required records to the SAIC EC&HS Manager as specified in Procedure 18 "Environmental Compliance & Health and Safety Records Management". Maintains a copy of employee training and exposure records, audits, and other project records in accordance with Procedure 18, "Environmental Compliance & Health and Safety Records Management".
5. Maintains a current copy of each site specific health and safety plan.

F. Site Health and Safety Officer (SHSO)

1. Participates in the preparation and implementation of the HASP.
2. Stops project activities and/or evacuates the site if unanticipated hazardous conditions are encountered for which the project is unprepared to respond or if any operation threatens employee or public health or safety.
3. Conducts routine inspections to verify compliance with the HASP and notifies Project Manager/Field Supervisor of EC&HS violations, deviations from the HASP, and hazardous conditions in accordance with Section 20.9 of this procedure.
4. Conducts site-specific safety and health training and assures that employees have access to the HASP and MSDSs.
5. Maintains Project/Site safety and health records.
6. Conducts a post-field activity debriefing at the end of the project, to identify problems encountered and lessons learned, and prepares a record summarizing actions taken to ensure compliance with applicable requirements at each field site.
7. Coordinates emergency medical care.
8. Ensures that protective clothing and equipment are properly used and maintained.
9. Controls entry and access to the site.
10. Ensures that chemicals brought on site and wastes generated on site are properly handled, labelled and stored.

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11. Ensures that personnel (employees and visitors) allowed access inside the exclusion zone or other controlled areas have completed the required training (i.e. 40 hour/8 hour refresher and site briefing) and received medical clearance.



G. Employees

Each employee is responsible for:

1. Completing his or her work assignment in a safe and effective manner.
2. Accepting an assignment or beginning a task only after understanding the risks and hazards associated with that activity.
3. Completing the training, monitoring medical status, respirator fit testing, wearing protective clothing, etc., as specified in the HASP, before beginning any job.
4. Maintaining and providing to the SHSO, a copy of medical correspondence and training certificate(s) needed to gain access to field sites. (Note: Employees not possessing certificates of training/medical clearance will be denied access to operations inside an exclusion zone or other controlled areas at a site.)
5. Not working alone at a field location; use a buddy system.
6. Having a thorough knowledge of specific emergency response procedures for their specific work site(s).
7. Immediately reporting any occupational illness or injury to the appropriate supervisor/field project manager and/or personnel, including any potential exposure to hazardous substances for which protection was not provided.
8. Wearing and maintaining personal protective equipment as specified in the HASP.
9. Reporting to the SHSO any hazards not documented in the HASP or inadequately controlled by procedures contained in the HASP.
10. Implementing assigned responsibilities in accordance with the HASP (e.g., calibrating and using monitoring equipment).

20.6 Training

All SAIC employees, managers, supervisors, consultants and subcontractors who work at hazardous waste sites require specialized training in health and safety. SAIC's responsibilities with respect to subcontractor employees is outlined in section 20.10 of this procedure.

A. Initial Training

1. SAIC employees, managers, supervisors, and consultants must complete 40 hours of initial training off-site prior to working at *hazardous waste sites*. The initial training may be reduced to 24



hours of off-site instruction for visitors, auditors, or other employees whose work at a hazardous waste site will be for a specific task of limited duration and whose work will not result in exposure over permissible exposure limits or published exposure limits. Figure 20-1 illustrates the relationships among these training requirements. The basis for a reduction in the level of initial training required must be documented by the SHSO and approved by the Local EC&HS Official.

Figure 20-1 Training Requirements Matrix

Task/Position (Examples)	Initial Training		OJT		Refresher (8-hr)	Supervisor (8-hr)
	40-hr	24-hr	3-day	1-day		
Project Manager for RI/FS or RA	X		X		X	X
Field Supervisor	X		X		X	X
Employee assigned work inside exclusion zone	X		X		X	
Employee performing work at TSD operations involving exposure to hazardous substances or health hazards		X		X	X	
Visitors, auditors, and other employees who will work at a hazardous waste site for a specific task of limited duration and are unlikely to be exposed above permissible exposure limits (i.e. Is not required to wear respiratory protection)		X		X	X	

All new employees who conduct hazardous waste operations and who have completed the 40-hour training course must, at the time of first assignment, complete a minimum of three days actual field experience under the direct supervision of a trained and experienced supervisor, assigned by SAIC, before being available to conduct independent actions. Those who participate in the 24-hour course must have one day of on-the-job training under the direct supervision of a trained and experienced supervisor. A record attesting to the completion of this on-the-job training will be prepared by the supervisor and retained in accordance with Procedure 18, "EC&HS Records Management".

2. The 40-hour course for hazardous waste site workers must be designed to enable these workers to accomplish field tasks.

The content of the initial 40 hour course for hazardous waste site workers must include the following topics:

- a. Overview of 29 CFR 1910.120 and appendices.
- b. Overview of 29 CFR 1910.1200.
- c. Rights and responsibilities of employees under OSHA and CERCLA.
- d. Principles of toxicology, including effects of chemical exposures and methods for biological monitoring.
- e. Contents of an effective Site Health and Safety Plan.
- f. Personnel responsible for Site Safety and Health***.
- g. Selection and use of material handling equipment.
- h. Shock sensitive materials.
- i. Lab pack handling procedures.
- j. Recognition, assessment, and control of chemical hazards, including toxicity, flammability, compressed gases and reactivity.
- k. Recognition, assessment, and control of physical (safety) hazards, including housekeeping, heavy equipment, falls, working surfaces.
- l. Recognition, assessment, and control of radiological hazards.
- m. Recognition, assessment, and control of noise hazards.
- n. Donning and use of PPE, including basic types of suits and gloves, air purifying respirators, air supplied respirators, definition of EPA levels of protection.
- o. Confined space hazards and controls.
- p. Site monitoring equipment (air and environmental sampling, including calibration and maintenance) and interpretation of results.
- q. Medical surveillance requirements.
- r. Drum and container handling and spill containment.
- s. Container sampling procedures.
- t. Classification and shipment of hazardous materials.
- u. Equipment and personnel decontamination.
- v. Recognition and response to site emergencies, including evacuation signals and medical emergencies.
- w. Illumination requirements.
- x. Sanitation requirements.
- y. Hands-on field exercises and demonstrations.





The course certificates should state that satisfactory course completion satisfies the training requirements of the Hazardous Waste and Emergency Response standard - 29 CFR 1910.120, the Hearing Conservation standard - 29 CFR 1910.95, the Respiratory Protection standard - 29 CFR 1910.134, and the general components of the Hazard Communication standard - 29 CFR 1910.1200.

*** Most 40-hour courses must be augmented to include information on personnel responsible for safety and health. This augmentation can be accomplished as part of the site safety briefing.

B. Alternatives to 40-hour initial training

1. Those visitors, auditors, and other employees engaged in work at a hazardous waste site for a specific task of limited duration and whose work will not result in exposure above permissible exposure limits or published exposure limits are required to complete 24 hours of off-site instruction prior to their first day of work on the site.
2. A 24-hour initial safety and health training course must include the following topics:
 - a. Overview of 29 CFR 1910.120 and appendices.
 - b. Overview of 29 CFR 1910.1200.
 - c. Rights and responsibilities of employees under OSHA and CERCLA
 - d. Recognition, assessment, and control of chemical hazards. Must include toxicity, flammability, compressed gases and reactivity.
 - e. Recognition, assessment, and control of physical (safety) hazards, including housekeeping, heavy equipment, falls, working surfaces.
 - f. Recognition, assessment, and control of radiological hazards.
 - g. Recognition, assessment, and control of noise hazards.
 - h. Donning and use of PPE, including basic types of suits and gloves, air purifying respirators, air supplied respirators, definition of EPA levels of protection.
 - i. Site monitoring equipment (air and environmental sampling, including calibration and maintenance) and interpretation of results.
 - j. Medical surveillance requirements.
 - k. Equipment and personnel decontamination.
 - l. Recognition and response to site emergencies, including evacuation signals, medical emergencies.

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3. An employee's previous work experience and/or training can be accepted in lieu of training if it can be shown that it was equivalent. The Corporate EC&HS Manager will review the employee's work history and academic training, as documented by the employee, to determine its suitability. The employee must document at least 40 hours of appropriate classroom instruction or at least 80 hours of on-site experience at a RCRA and/or CERCLA facility, at an appropriate level, under an approved Health and Safety Plan. All documentation, including a memo describing an individual's work experience and/or training and a copy of the certificate, will be maintained in accordance with Procedure 18. "EC&HS Records Management Procedure".



C. Manager/Supervisor Training (8 Hours)

1. All managers and supervisors directly responsible for hazardous waste site operations will complete one eight-hour management/supervisor training course in addition to the 40-hour or 24-hour, and annual 8-hour refresher courses. This training must be completed prior to supervising on-site work. This training will include such topics as:
 - a. Management responsibilities.
 - b. SAIC EC&HS Program.
 - c. Development, implementation and review of HASPs.
 - d. Implementation and auditing of health and safety requirements, including: personal protective equipment, spill containment, and health hazard monitoring.
 - e. Decision-making and documentation.
 - f. Emergency procedures, incident investigation and notification requirements.
 - g. Budgeting and purchasing health and safety equipment.
 - h. SAIC resources.
 - i. Subcontractor control and liability.

D. Project or Site-Specific Training

1. All field staff, managers, and supervisors assigned to a hazardous waste operation must participate in site-specific training. This training must be completed prior to commencing activities at a specific site and after all other required health and safety training is completed and medical clearance for site work received. The length of site specific training is dependent on the scope and complexity of site operations and expected hazards. This training can take place in the office or at the site. Topics to be covered must be specified in the HASP. Recommended topics include:



- a. Names and telephone numbers of personnel and alternates responsible for site health and safety and emergency response.
 - b. Site history and review of specific health and safety hazards for various tasks and operations.
 - c. Employee health and safety responsibilities.
 - d. Review of site zones and decontamination procedures.
 - e. Medical surveillance requirements for hazards on-site.
 - f. Medical symptoms that may indicate over-exposure to site hazards.
 - g. Frequency and types of monitoring to be performed for health and safety hazards.
 - h. Equipment calibration procedures to be followed for site monitoring equipment.
 - i. Site control measures.
 - j. Emergency procedures, response equipment and telephone numbers.
 - k. Confined space entry procedures (if required).
 - l. Levels of protection and PPE use, storage, and maintenance requirements.
 - m. Spill containment and hazardous waste management procedures, to be implemented on-site.
 - n. Site tour.
 - o. Location of HASP and MSDS.
 - p. Chain of command.
2. Additional safety briefings will be held as necessary to ensure site personnel are aware of the requirements of the HASP, operational limitations, changes in conditions at the site, changes in the HASP and possible approaches to anticipated technical problems. Briefings may be of short duration (10 to 15 minutes) but will be sufficiently comprehensive to ensure awareness of site-specific requirements. All safety briefings will be documented, including date and time, name and signature of person providing briefing, content of briefing and signatures of attendees.
- E. First Aid and Cardiopulmonary Resuscitation Certification**
1. Each HASP must specify whether participants at field operations will be required to have first aid and Cardiopulmonary Resuscitation (CPR) Certification. When required, it is recommended that this instruction be provided by American Red Cross registered instructors. First aid and CPR training must be repeated at intervals specified by the American Red Cross. When first aid and CPR training is not required, the HASP shall state why this course

of action is reasonable (e.g., arrangements can be made with a nearby clinic that can respond in less than five minutes).

2. First aid and CPR is considered to be a collateral duty, not a primary assignment. In the event an injury occurs and an individual rendering first aid is exposed to blood or other potentially infectious materials, the person(s) exposed must be provided with follow-up medical surveillance in accordance with 29 CFR 1910.1030.(f)(1).



F. Annual Training (8-Hour)

1. Every employee working at a hazardous waste site will complete an annual refresher course on health and safety. This course must be completed within 12 months of previous training and be of at least eight hours duration. The topics to be included are:
 - a. Review of SAIC's EC&HS Program.
 - b. Chemical and physical hazards and hazard communication.
 - c. Use and maintenance of personal protective equipment.
 - d. Respiratory protection.
 - e. Medical surveillance program.
 - f. Engineering and administrative hazard control.
 - g. Decontamination procedures.
 - h. Level A, B, C, and D protection review.
 - i. Exposure monitoring.
 - j. Confined space entry.
 - k. Handling emergencies and self rescue.
 - l. Hearing conservation.
 - m. Hazardous waste management/Hazardous materials shipment.
2. If an employee that received 40-hour or 24 hour initial training is temporarily removed from hazardous waste operations and more than 13 months elapse between 8-hour refresher training, an evaluation will be made by the Corporate EC&HS Manager to determine whether the individual is required to receive the initial 40-hour or 24-hour training again or may be re-certified after an 8-hour course. In all cases a lapse period of three years or more will require that the employee complete an initial 40-hour course. The Corporate EC&HS Manager must document how the employee maintained a current, working knowledge of the topics in 29 CFR 1910.120 (e)(2) and (4) during the lapse period.

G. Selection of Trainers

Training required by this section must be provided by qualified trainers, if it is to be accepted by students as accurate and authoritative. The SAIC EC&HS Manager will, upon request, identify SAIC employees who are qualified to provide this instruction. When outside vendors are selected



to conduct required training courses, the basis for the selection must be documented by the individual responsible for vendor selection, and include: the course duration, topics covered, instructor qualifications, previous experience giving the course, and recommendations (if any) of SAIC employees who have taken the course. A memorandum, to the file, summarizing the vendor's qualifications will be maintained in accordance with Procedure 18 "EC&HS Records Management Procedure".

H. Training Records

1. Certificates documenting completion of required 40-hour, 24 hour and 8-hour courses must be signed by the course instructor and contain the following information:
 - name and type of course,
 - training requirements satisfied (*e.g.*, 29 CFR 1910.120, 29 CFR 1910.95, etc),
 - name of attendee,
 - completion date, and
 - instructor's name and signature.
2. Records of project or site-specific training must include the date of training, attendees, topics covered, and the instructor's name and signature.
3. Training records will be maintained in accordance with Procedure 18, "EC&HS Records Management Procedure".

20.7 Medical Requirements

A. Medical Surveillance

1. The medical surveillance program for employees who work at hazardous waste operations is defined in Procedure 12. Examination frequency, minimum examination content, payment for examination, selection of physicians, information to provide to the physician, information to be provided to employers, and maintenance of and access to medical records are addressed in Procedure 12.
2. Additional medical surveillance requirements, beyond those specified in Procedure 12, may be required based on health risks at a specific site. Such requirements must be specified in the HASP.

B. Emergency Medical Care

1. In the event that personnel exhibit signs or symptoms of chemical exposure/physical stress while on-site, the emergency medical treatment provisions of the site emergency response program (as contained in the HASP) must be implemented. This includes emergency first aid, transportation to a nearby medical facility, and a medical examination to detect any potential job-related symptoms

or illnesses. All such events must be reported immediately to the Local EC&HS Official and the applicable SAIC Personnel Office.



20.8 Health and Safety Plan (HASP)

A. Purpose

A HASP, an integral part of SAIC's EC&HS Program, characterizes site hazards and controls. The purpose of the HASP is to establish procedures to protect employees and the public from the potential hazards present at a project site. This procedure establishes the content and format for SAIC HASPs. The content and format are based on provisions contained in 29 CFR 1910.120(b)(4). Deviations from the established content set forth by this procedure must be reviewed and approved by the Local EC&HS Official.

B. Requirements

1. A HASP is to be written for each project involving hazardous waste operations performed by SAIC. Each HASP must be completed and approved before the commencement of any work activities at the site. Prior to developing a HASP for any given project, project personnel assigned the responsibility of writing the HASP will review the content and format of the HASP as presented in Appendix A of this procedure.
2. All employees affected by potential exposures to site hazards must be informed of the nature, extent, and control of hazards before starting work activities.
3. The HASP provides a comprehensive plan for implementing SAIC's EC&HS Program at a project site. The HASP must include:
 - A brief site and project overview.
 - Staff responsibilities for implementing the HASP.
 - Safety and health risk or hazard analysis.
 - Employee training requirements.
 - Personal protective equipment and clothing requirements.
 - Medical surveillance requirements.
 - Monitoring and sampling plan.
 - Site control measures.
 - Decontamination plan.
 - Emergency response plan with contact names and phone numbers.
 - Confined space entry procedures.
 - Spill containment program.
 - Hazardous waste management.
 - Provisions for enforcement of HASP implementation



4. Prior to commencement of any field work at the site or sites, a HASP must be approved by the responsible Project Manager and the local EC&HS Official. The HASP indicates supervisory authorization. A technical review must be requested by the Project Manager to ensure that the HASP complies with the requirements of this procedure and any other applicable environmental, safety and health requirements. The technical review is to be performed by an appropriately qualified individual, such as, a Certified Industrial Hygienist, Certified Safety Professional or other qualified individual¹. When there are radiation hazards at a site, a review by a Certified Health Physicist is required.

The signatures of the Project Manager and the appropriate technical reviewer(s) must appear on the signature page of the HASP. These signatures signify plan approval.

5. As work progresses at a project, changes in the nature of the hazards or changes in work methods or equipment may necessitate immediate changes in the HASP. Changes (other than editorial) to a HASP must be reviewed and approved by a Certified Industrial Hygienist, Certified Safety Professional, or other qualified individual (and Certified Health Physicist, when required) for technical adequacy and by the Project Manager for supervisory authorization. A form for this review is provided in Exhibit 20-1 (Change Control Form). A copy of each approved change must be distributed to all employees and subcontractors who acknowledged reading the HASP. Updates will be prepared each time there is a change in hazard exposures and protection measures.
6. Each HASP will contain detailed site-specific information relevant to SAIC's activities at the site. Site characterization data will include information concerning site history, physical structures at the site, topography, subsurface water, hazardous substances or materials at the site (including maximum concentrations in environmental media), weather, and location of areas containing hazardous substances or materials. Information in site safety and health plans will be as complete and specific as possible to enable employees and visitors to understand what site hazards exist and how those hazards will be controlled.

C. Developing the HASP

1. OSHA regulation 29 CFR 1910.120(b)(4)(iii) and (c) requires performance of site characterization and analysis to prepare and

¹ In this context, a "qualified individual" is a person that has completed: a) at least four years experience in the development and implementation of occupational safety and health programs or implementation of health and safety plans, b) 40-hour initial and 8-hour supervisor training (29 CFR 1910.120), and c) a bachelor's degree in industrial hygiene, safety or other science related discipline.

update the HASP. The HASP is required to contain the results of this analysis, and to provide a record of the preliminary evaluation, hazard identification, selection of personal protective equipment, monitoring plan, risk identification, and employee notification. Appendix B is a checklist that may be used for organizing information on site activities and conditions necessary for preparing the HASP.



2. Preliminary Evaluation

Prior to general site entry, hazards will be identified so that appropriate protective measures can be developed and implemented. The preliminary site evaluation will be performed by the SHSO or designated individual to determine IDLH conditions or other serious hazards. Information gathered at this point of the HASP development process will be used in assessing hazard exposure risks during specific work activities. Included in the preliminary evaluation will be:

- Location and approximate size of the site.
- Description and location of the job tasks to be performed.
- Duration of planned employee activity.
- Location and concentration of chemical and radiological contaminants.
- Anticipated weather conditions.
- Physical hazards such as equipment, falls, water, electrical lines.
- Site-specific (client) requirements.
- Site topography and accessibility by roads.
- Present status and capabilities of emergency response teams and procedures for contacting.
- Chemical and physical hazards of hazardous substances.
- Pathways for dispersion of hazardous substances.

3. Hazard Assessment

A detailed hazard assessment is performed after the preliminary evaluation and prior to any other on-site effort. The purpose of this assessment is to further identify site hazards and to determine controls required to protect employees from identified hazards. In addition to the potential IDLH conditions, other hazardous conditions will be noted and evaluated for their potential to cause illnesses and injuries. The pathways for hazardous substance dispersion in the environment must be determined.

The probability and extent of hazard exposures for each task in each area of contamination at a site will be identified and included in the HASP.



4. Hazard Control Measures

The HASP will include; a list of tasks, locations and hazards, engineering and administrative controls, work practices, and personal protective equipment and clothing that will be used to prevent or control exposures to those hazards.

5. Monitoring Plan

A specific plan for monitoring identified hazards will be developed as part of the HASP. Hazard monitoring may be accomplished using direct reading instruments and passive or active sampling devices for detecting and quantifying biological, chemical and physical hazards.

Biological hazards may include spiders, ticks, snakes, insects, viruses, bacteria, molds, and fungi. Chemical hazards may include chemical contaminants in air, soil, and water. Physical hazards may include radiation, noise, heat stress, cold stress, and illumination.

The monitoring plan must include specific action levels, location of monitoring, frequency of monitoring, action to be taken when action levels are reached, and employee notification plan to advise personnel monitoring results.

20.9 Enforcement of Environmental Compliance and Safety Requirements

A. Inspections

1. SHSOs are responsible for conducting routine inspections to ensure the HASP is effectively implemented. These inspections must be documented and at a minimum:
 - a. Verify that all site personnel are in compliance with rules and regulations.
 - b. Verify the proper functioning of all monitoring equipment.
 - c. Verify the proper use and cleaning of all PPE
 - d. Document any deficiencies and the actions taken to correct them.
 - e. Notify the Project Manager/Field Supervisor of EC&HS deviations from the HASP and hazardous conditions.

B. Audits

1. A program of audits required by the contract or by the Corporate EC&HS Official, will be conducted to ensure that health and safety requirements specified in HASP are properly implemented. A record will be created, including findings, recommendations, and corrective actions taken. Correspondence related to audits will be retained in the project

file and in accordance with Procedure 18 "EC&HS Records Management". It is recommended that the concerned Local EC&HS Official perform periodic audits to ensure the health and safety requirements specified in the HASP are properly implemented and adequately cover project activities.



C. Project Debriefing

1. The Project Manager and the SHSO will conduct a formal debriefing with site personnel to identify any problems that may have arisen during the field work. This debriefing will include reasons for any deviation from the Site Health and Safety Plan, reasons for the changes, and potential risk to site personnel. A summary of the debriefing will be provided in writing to the Local EC&HS Official. A form suitable for this purpose is included in Exhibit 20-2, "Hazardous Waste Site Task/Project Debriefing Questionnaire".
2. The debriefing will be prepared and reviewed by the project manager within 30 days of the date of last activity at a site, or annually for projects of longer duration.

20.10 Personal Protective Equipment

SAIC will provide, maintain, repair, and store personal protective equipment for use as required under OSHA regulations. Procedure 13 of this manual provides guidance in eye protection and foot protection. Procedure 15 provides guidance on hearing protection. Procedure 9 provides guidance on respiratory protection.

20.11 Multi-Contractor Sites

Several contractors (such as drillers, well development contractors, geophysical survey contractors and other on-site service contractors) may be employed at a site. OSHA regulations require each company to implement their own health and safety program to comply with 29 CFR 1910.120. When bids are requested by SAIC from subcontractors, notice of these health and safety requirements must be placed in all subcontractor bid packages (requests for proposals). When drillers or other special service subcontractors are hired directly by SAIC's client, and not by SAIC, the on-site relationships and responsibilities of each contractor must be defined.

A. Subcontractors

It is preferred that subcontractors write and implement their own HASP. Some small companies, however, may lack the capability to do so. The ability to write and implement a HASP can be a condition for subcontract award, or a selection factor to be considered in determining the award. Exhibit 20-4 is a questionnaire that may be useful for qualifying subcontractors.

In cases where the subcontractor is expected to write and implement a HASP, the subcontract must specify that the subcontractor is



responsible for complying with all regulations applicable to their work. The subcontract must require the subcontractor to submit its HASP sufficiently in advance of field work to SAIC for examination. The sole purpose of SAIC's examination of the subcontractor's HASP is to identify any conflicts or inconsistencies with SAIC's HASP. The SAIC Project Manager must discuss and resolve conflicts with the subcontractor, prior to start up of field work.

All observed subcontractor violations of safety and environmental regulations must be recorded in project logs and reported to subcontractor's on-site supervisor. Failure by the subcontractor to enforce safety requirements may be viewed as a breach of the subcontract and may be cause for termination of the subcontract for default.

If SAIC chooses to write and implement a HASP for a subcontractor, subcontractors must be advised in the request for bids that they will be expected to indemnify SAIC in the subcontract from claims and liabilities arising out of performing this function on their behalf. All subsequent subtasks executed between SAIC and the subcontractor must contain the indemnification language as specified in Section 3.3.1 of the SAIC Corporate Risk Management Manual.

In cases where the subcontractor will operate under SAIC's HASP, SAIC's responsibility will be limited in the subcontract to cover enforcement of requirements in the HASP. The subcontractor will remain responsible for determining the adequacy of SAIC's HASP for protecting the subcontractor's personnel, and for all other issues of health and safety for its employees and compliance with safety and environmental regulations. SAIC will provide to the subcontractor a copy of each approved change to the HASP, made in accordance with Section 20.8 of this Procedure.

B. SAIC as a Subcontractor

SAIC may be retained by a prime contractor as a subcontractor for certain field activities. As a subcontractor, SAIC is responsible for protecting the health and safety of its employees, and must prepare a HASP. Some portions of the prime contractor's HASP, such as site characterization, may be suitable for SAIC, but this conclusion should be documented in writing and based on a review of the prime contractor's HASP in the same manner that we review SAIC HASPs. A separate document, recording our relationship to the prime contractor, the responsibilities of each organization for health and safety, the names of SAIC individuals who will serve as SSHO and alternate, and other required information not covered in the prime contractor's HASP, must be prepared. Conflicts between SAIC policy and the prime contractor's HASP must also be identified and resolved prior to start up of field work.

SAIC field staff (or at a minimum the SAIC SSHO) should attend prime contractor site safety briefings.

SAIC may suspend work at a site if unsafe conditions exist. When this occurs, the SAIC field supervisor will inform the on site (prime contractor) Project Manager of the situation.

C. Other Interactions on Multi-contractor Sites

SAIC may work at sites where one or more contractors are working, each with a prime contract. In this case, SAIC must prepare a HASP. The approach for protection of the safety and health of SAIC employees and other contractors is similar to that described in the preceding paragraphs. Close coordination, particularly regarding emergency procedures (*i.e.*, who has authority to declare an emergency) among all contractors is necessary. Safety documentation (HASP) prepared by each contractor should be exchanged, and conflicts resolved if they affect the ability to work safely.



20.12 Information Program

Employees engaged in hazardous waste operations must be advised of the nature, level and degree of exposure that may result from participation in such operations. This information is contained in HASPs. Assurance that all participants obtain required hazard information must be obtained by requiring acknowledgment that the HASP has been read and understood. A form useful for this purpose is provided in Exhibit 20-3, "Acknowledgment Form". Coordination of this site information with SAIC subcontractors and other contractors must take place in accordance with Section 20.10 of this Procedure.

20.13 Comprehensive Work Plan

OSHA regulation 1910.120(b)(3) requires that the written safety program include a comprehensive work plan. The Comprehensive Work Plan must address the tasks and objective of site operations including normal operating procedures, anticipated clean-up activities, work tasks and methods for accomplishing those tasks, and personnel requirements for implementing the plan. The work plan must be updated when significant new information about site conditions is obtained. Figure 20-2 provide a general format for a comprehensive work plan.



Figure 20-2 Sample Comprehensive Work Plan Format

Executive Summary

- (1) Introduction
- (2) Site Background and Setting
- (3) Review of Available Information
 - engineering designs
 - site records
 - site photos
 - generator and transportation manifests
 - previous sampling and monitoring data
 - waste inventories
 - state and local environmental health agency records
- (4) Work Objectives
- (5) Work Methodology with specific tasks
- (6) Work Schedule
- (7) Personnel
- (8) Training Requirements and Information Program
- (9) Project Equipment
- (10) Site Control Procedures
- (11) Medical Surveillance Program

Source: NIOSH/OSHA/USCG/EPA, 1985.

This format is not mandatory and information required by 1910.120(b)(3) (Comprehensive Workplan) may be found in site sampling and analysis plans or other project documentation, including statements of work, and standard operating procedures.

20.14 Documentation and Recordkeeping

The SHSO is responsible for maintaining and distributing documents and records relevant to the project. EC&HS Records are to be maintained in accordance with Procedure 18. "EC&HS Records Management". These documents may include but are not limited to the following:



Document:	Distributed to:
Most recent copy of Site Health and Safety Plan	SHSO, Local EC&HS Official, Corporate EC&H Records Retention Center
Documentation of the site specific training session, and other EC&HS training records (including verification of 40-hour, 24-hour, and 8-hour training).	SHSO, Project File, Corporate EC&HS Records Retention Center
Maintenance and calibration records of all monitoring equipment	SHSO, Project File
Incident and accident reports	SHSO, Local EC&HS Official, SAIC Personnel, Corporate EC&HS Records Retention Center
Verification of medical qualifications	SHSO, Project File, Corporate EC&HS Records Retention Center
Employee exposure monitoring results	SHSO, Local EC&HS Official, SAIC Personnel, Corporate EC&HS Records Retention Center
Changes to approved Site Health and Safety Plan and documentation of changes	SHSO, Local EC&HS Official, SAIC Personnel, the Corporate EC&HS Records Retention Center
Results of audits	SHSO, Project Manager, Corporate EC&HS Records Retention Center
Routine inspections by SSHO	SHSO, Project File
Debriefings	SHSO, Project Manager, Local EC&HS Official, Corporate EC&HS Records Retention Center

Exhibits

- 20-1** Field Change Request
- 20-2** EC&HS Field Work Debriefing Questionnaire
- 20-3** Acknowledgment Form
- 20-4** Questionnaire for Qualifying Subcontractors

Appendices

- Appendix A** Guidance for Preparing Site-Specific Health and Safety Plans.
- Appendix B** Checklist for Preparation and/or Review of Site-Specific Health and Safety Plans.

Exhibit 20-1.



Field Change Request

Project Number: _____

Field Charge No. _____ Page ____ of ____

Project Number: _____

Project Name: _____

Change Request

Applicable Reference: _____

Description of Change: _____

Reason for Change: _____

Impact on Present and Completed Work: _____

Requested by: _____ Date: _____

(SAIC Field Geologist/Engineer)

Acknowledged by: _____ Date: _____

(Subcontractor Representative/Company Name)

Field Operations Manager Recommendation

Recommended Disposition: _____

Recommended by: _____ Date: _____

(SAIC Field Operations Manager)

Project Manager Approval/Health & Safety Officer Review

Final Disposition: _____

Approval/Disapproved by: _____ Date: _____

(SAIC Project Manager)

APPENDIX D

USATEU STANDARD OPERATING PROCEDURES FOR FORT McCLELLAN RI/FS

**TECHNICAL ESCORT UNIT (TEU) STANDING OPERATION PROCEDURE
FOR CHEMICAL SURETY ACTIVITIES**

**FT. MCCLELLAN
SITE INVESTIGATION**

LIST OF ACRONYMS

CPRP	Chemical Personnel Reliability Program
EOD	Explosive Ordnance Disposal
FM-CAIRAP	Fort McClellan Chemical Accident/Incident Response and Assistance Plan
NCOIC	Noncommissioned Officer In Charge
OIC	Officer In Charge
PEL	Permissible Exposure Limit
SAIC	Science Applications International Corporation
TAP	Toxicological Agent Protective
TEU	U.S. Army Technical Escort Unit
USATHAMA	U.S. Army Toxic and Hazardous Material Agency
QAP	Quality Assurance Plan

1. FT. McCLELLAN, AL

STANDING OPERATING PROCEDURE FOR: SITE INVESTIGATION

- 2. ITEM: a. Miscellaneous 3. OPERATION: LOW LEVEL SCREENING OF SOIL SAMPLES FOR CSM
- b. N/A 4. ESTIMATED DAILY PRODUCTION RATE: ONE SITE
- c. N/A 5. ORGANIZATION SYMBOL: SMCTE-OP
- d. N/A 6. SOP No. TEU-0000-M-011 DATE 6 Jan 92
- e. Chemical Hazard a. Rev No. _____ DATE _____
Symbol. N/A b. Change No. 1 DATE 13 Mar 92

7. Authority: AMCCOM

- 8. PREPARED BY: Michael S. McMullen TITLE: CHIEF, 3D ESCORT DIV
1LT MICHAEL S. MCMULLEN
- 9. REVIEWED BY: William B. Cafferty TITLE: CHIEF, SAFETY AND SECURITY DIV
1LT WILLIAM B. CAFFERTY
- 10. REVIEWED BY: William E. Egeforth TITLE: CHIEF, OPERATIONS BRANCH
WILLIAM E. EGEFORTH
- 11. SUBMITTED BY: Vicente A. Cepero TITLE: CHIEF, OPERATIONS DIVISION
CPT VICENTE A. CEPERO
- 12. CONCURRENCES:

OFFICE	SIGNATURE/DATE
*CRDEC RESEARCH	<u>[Signature]</u> 20 Mar 92
CRDEC SAFETY	<u>[Signature]</u> 20 MAR 92
CRDEC ENVIRONMENTAL	<u>Teresa Mann</u> 20 Mar 92
USATHAMA SAFETY	<u>William P. Hansen</u> 19 Mar 92
USATHAMA PROJECT OFFICER	<u>[Signature]</u> 20 Mar 92
13. APPROVAL:	<u>William T. Batt</u> WILLIAM T. BATT LTC, CM Commanding

*Reviewed Attachment A only

SUPERVISOR'S STATEMENT

SOP NO. TEU-0000-M-011 REV NO. CHANGE NO. 1 DATE 13 Mar 92

1. The Supervisor will sign this statement:

a. When first assigned as supervisor of the operation.

b. When an approved formal or interim change is made to the SOP.

2. I have personally reviewed each of the operational steps for each area to be low level screened for chemical surety agent in this SOP. I have no question in my mind that the operation can be performed safely, efficiently and in an environmentally acceptable manner. I have trained all TEU personnel under my supervision in the details of their participation in the operation and have instructed them to follow the SOP without deviation:

SUPERVISOR'S NAME

DATE

SOP NO. TEU-0000-M-011 DATE 6 JAN 92

REV NO. _____ DATE _____

CHANGE NO. 1 DATE 13 Mar 92

INDEX OF OPERATIONS

<u>OPER NO.</u>	<u>BLDG NO. OR SITE</u>	<u>BAY NO.</u>	<u>TOTAL EXPL. ALLOWED IN BAY. (REF COL 3)</u>	<u>DESCRIPTION OF OPERATION NO.</u>
6.1	*	N/A	N/A	INITIAL SITE INSPECTION
6.2	*	N/A	N/A	PRIOR SITE PREPARATION
6.3	*	N/A	N/A	DAILY SITE PREPARATION
6.4	**	N/A	N/A	GEOPHYSICAL SURVEY (MAGNETOMETER SWEEPS)
6.5	*	N/A	N/A	SHALLOW SOILS AND SEDIMENT SAMPLING
6.6	*	N/A	N/A	ANALYTICAL SAMPLE PACKAGING
6.7	*	N/A	N/A	SITE CLOSEDOWN
6.8	*	N/A	N/A	STORAGE OF ANALYTICAL SAMPLES
6.10	*	N/A	N/A	PROJECT COMPLETE OPERATIONS

* Include Detection and Identification Area, Area T-5, Area T-6, Area T-31, Area T-38, Area T-24A, Old Toxic Training Area, Range I, Range J, Range K, Range L (Lima Pond), Old Water Hole

** Include Range L (Lima Pond), Area T-24A, T38, Range K, Range J
OLD WATER HOLE

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ATTACHMENT D: FORT MCCLELLAN CHEMICAL ACCIDENT/INCIDENT RESPONSE AND ASSISTANCE PLAN (FM-CAIRAP)

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ATTACHMENT F: HEAT RELATED INJURIES

ATTACHMENT G: CERTIFICATE FOR FIELD EMPLOYEES

ATTACHMENT H: OPERATION FORMAT

1.0 GENERAL

1.1 STATEMENT OF WORK

TEU will support the U. S. Army Toxic and Hazardous Materials Agency (USATHAMA), Aberdeen Proving Ground, MD in their efforts to accomplish a site investigation of Ft. McClellan, AL. TEU will conduct magnetometer sweeps at certain areas, take soil, sediment and water samples, low level monitor samples for chemical surety contamination and prepare samples for shipment. This work will be performed in accordance with the safety and health plan prepared for this project by USATHAMA. All workers involved with this project will be required to attend the training specified in OSHA 29 CFR 1910.120.

1.2 PURPOSE

The purpose of this plan is to assign responsibilities, establish personnel protection standards, mandatory safety practices and procedures, and to address contingencies which may arise while conducting operations at Ft. McClellan sites.

2.0 APPLICABILITY

The provisions of this plan apply to all TEU personnel engaged in onsite activities.

3.0 SITE CHARACTERIZATION

3.1 INSTALLATION DESCRIPTION AND HISTORY

See Science Application International Corporation (SAIC) Site Investigation Workplan Section 2.1.

3.2 SITE DESCRIPTION

See SAIC Site Investigation Workplan Section 2.2.

3.3 HAZARD EVALUATION SUMMARY

See SAIC Site Investigation Workplan Section 3.

See Attachment A: Risk Assessment

<u>ITEM/OPERATIONS/ EVENT</u>	<u>HAZARD</u>	<u>CORRECTIVE/PREVENTIVE ACTIONS</u>
Insects/Fire Ants	Stings, bites and infections	<ol style="list-style-type: none"> 1. Use insect repellent. 2. Avoid standing in or walking through ant beds. 3. Have insect bites treated by medical personnel.
Chemical Agent	Exposure	<ol style="list-style-type: none"> 1. Personnel are trained on wearing and maintaining protective clothing. 2. Personnel are trained on sign symptoms, and first aid of chemical exposure. 3. All personnel received medical evaluations and are CPRP qualified under provisions of AR 50-6. 4. Low level monitors, MINICAMS, set at one-half the PEL.
Heavy tools	Back injury	<ol style="list-style-type: none"> 1. Personnel are instructed in proper lifting procedures. Items over 60 lbs will be lifted by two personnel.
Lightning/ Thunderstorm	Electric Shock/Death	<ol style="list-style-type: none"> 1. All operations will cease upon approach of electrical storm. 2. All personnel will secure equipment and move to a safe area designated by OIC.
Drilling Equipment	Injury	<ol style="list-style-type: none"> 1. Operators will be licensed on equipment. 2. Downrange safety who is familiar with equipment. 3. Personnel will wear hard hat, and safety toe boots while on site.

BLDG 3228
CHANGE CENT.

TEU-0000-M-11

FINAL DRAFT

13 MARCH 1992

4.0 EMERGENCY INFORMATION

4.1 EMERGENCY CONTACTS

<u>CONTACTS</u>	<u>PERSON OR AGENCY</u>	<u>TELEPHONE NUMBER</u>
-----------------	-------------------------	-------------------------

FT. MCCLELLAN:

AMBULANCE	INSTALLATION	205-848-2315
ENVIRONMENTAL	RON LEVY	205-848-3539
EOC	Bldg 3270	FAX 205-848-5278
EOD	142D EOD 1LT EDWARD (after duty)	205-848-3807 3758
FIRE COMPANY	INSTALLATION	205-848-5124
POLICE	INSTALLATION	205-238-1477
RANGE CONTROL	RANGE OFFICER, BLDG 1695	205-848-1117
SAFETY OFFICE	GARY VEINON	205-848-5555
STAFF DUTY OFFICER	INSTALLATION	205-848-3344

USATHAMA:

PROJECT OFFICER	DR. KATHLEEN BUCHI	410-671-1508
SAFETY	BILL HOUSER	410-671-4811

TEU:

PROJECT OFFICER	1LT MICHAEL S. MCMULLEN	410-671-4259
OPERATIONS	BILL GOFORTH	410-671-4381
AFTER DUTY HOURS	STAFF DUTY NCO	410-671-2773

Supply

CONTRACTORS:

SAIC	CHRISTOPHER MANIKAS	703-827-4832
DATAHEM	RICHARD GOEBEL	801-266-7700
MINICAMS	DR. COLEMAN/GARY SIDES	205-733-6910

Facilities
Exterior Plumbing & Electric.

Joe Stifer
Mr. Kinds

5-4694

4.2 LOCATION OF SITE RESOURCES

- a. Water supply: TEU will provide potable and nonpotable water.
- b. Communication:
 - (1) Cellular phones.
 - (2) Radio - Range Safety net FM frequency 34.90 WITH "Old squelch" in the on position.
 - (3) Hand held radios - internal net.
- c. Sanitation: port-o-lets onsite.

4.3 EMERGENCY ROUTE TO HOSPITAL

- a. Written directions and a map depicting the route to the hospital will be available on site.
- b. Emergency evacuation routes will be discussed at the daily safety briefings.

4.4 ARTICLES TO BE TAKEN INTO THE FIELD

- a. First Aid Equipment: located in emergency evacuation vehicle

<u>ITEM</u>	<u>QUANTITY</u>
(1) Stretcher	2 ea
(2) Blanket, Wool	6 ea
(3) Water	5 gal
(4) Kit First Aid, General	2 ea
(5) Wasp Spray	12 bottles
(6) Insect Repellant	12 bottles
(7) Tick Repellant	12 bottles
(8) Emergency eyewash	1 ea

- b. Decontaminants

<u>ITEM</u>	<u>QUANTITY</u>
(1) HTH (Calcium Hypochlorite)	100 lbs
(2) Soda Ash (Sodium Carbonate)	100 lbs
(3) Potable Water	20 gal
(4) Household Bleach	15 gal

c. Personnel Protective Equipment

<u>ITEM</u>	<u>QUANTITY</u>
(1) Mask Protective, M17A2	1 per individual
(2) Mask Protective, M9A1	2 per individual
(3) NAAK, MARK I	9 per individual
(4) Hardhat	1 per individual
(5) Hood, TAP M3	10 ea
(6) Hood, TAP M6A2	10 ea
(7) Coverall Explosive Handler	50 ea
(8) Impregnated gloves, socks and underwear	10 ea
(9) Suit, coverall, TAP M3	10 ea
(10) Apron, TAP M2	10 ea
(11) Boots, butyl safety toe TAP M2A1	10 ea
(12) Gloves, butyl TAP M4, M3	10 ea
(13) Overboot, latex	50 ea
(14) Saranex, coverall disposal	24 cases
(15) Gloves, butyl, disposal	1 gross

d. Vehicles:

<u>ITEM</u>	<u>QUANTITY</u>
(1) Truck, 4-Wheel Drive, CUCV, w/radio	2 ea
(2) Truck, 5 or 2 1/2 ton, Cargo, Tactical with Power Driven Decontamination Apparatus, mounted.	1 ea
(3) Ambulance	1 ea
(4) Van, 6 passenger	1 ea
(5) Truck closed cargo, lockable	1 ea

e. Operational Kit:

<u>ITEM</u>	<u>QUANTITY</u>
(1) Tape, plastic marking, nonadhesive	4 rolls
(2) Marker kit, chemical	1 ea
(3) Shovel, round nose, long handle	6 ea
(4) Shovel, flat nose, long handle	4 ea
(5) Rake, garden	2 ea
(6) Pick axe	3 ea

(7)	File, fine cut (to sharpen axe)	4	ea
(8)	Hammer, 8 lb sledge	2	ea
(9)	Hammer, 3 lb sledge	2	ea
(10)	Hammer, 20 oz straight claw	2	ea
(11)	Chair, metal, folding	8	ea
(12)	Table, field, folding	3	ea
(13)	Ice chest, 40qt	3	ea
(14)	Water can (drinking water)	2	ea
(15)	Core sample kit	1	ea
(16)	Plastic bags, 32 gal, 6 mil	1	ctn
(17)	Plastic bags, 10 gal, 6 mil	1	ctn
(18)	Plastic sheet 4-6 mil	1	roll
(19)	Gloves, leather, work	6	doz
(20)	Ear plugs, disposable	2	ctn
(21)	Can (Jerrycan)	4	ea
(22)	Tool set, general mechanic	1	ea
(23)	Pry bar, 5'-6' long	2	ea
(24)	Axe, brush, curved blade	2	ea
(25)	Sling, nylon, 6'-10' long		
	1000-2000lb cap	2	ea
(26)	Exclusion tape (barrier tape) (reads - Do Not Enter)	2	rolls
(27)	Tape, duct 2"	6	rolls
(28)	Tape, masking 2"	6	rolls
(29)	Tape, mono, 2"	6	rolls
(30)	Stapler, heavy duty	1	ea
(31)	Staples, heavy duty	1	box
(32)	Wasp spray	6	cans
(33)	Stakes, Engineers, wood 1x2"x24"	1	bndl
(34)	Drum, steel recovery/overpack	3	ea
(35)	Can, plastic, 32 gal	4	ea
(36)	Can, plastic, 10 gal	4	ea
(37)	Buckets, 3 gal, plastic	4	ea
(38)	Brush, scrub, long handle	4	ea
(39)	Brush, scrub, hand	4	ea
(40)	Sponge, large	4	ea
(41)	Soap, degreaser	2	cans
(42)	Soap, hand	6	bars
(43)	Soap, liquid,	3	bottles
(44)	Paper towels	2	cases
(45)	Towel, kitchen roll	1	case
(46)	Paper cup(cold cup)	1	case
(47)	Cup foam (hot cup)	1	case
(48)	Magnetometer	2	ea
(49)	Canoe	1	ea
(50)	Life jackets	3	ea

f. Communications Quantity

- | | |
|--|------|
| (1) Portable radio, Vehicle mounted,
Range control safety net | 2 ea |
| (2) Handheld radio w/charger
and extra batteries - MX300 | 6 ea |
| (3) Cellular phone | 1 ea |

g. Emergency Hotline/PDS EQquipment

<u>ITEM</u>	<u>QUANTITY</u>
(1) 32 gallon plastic trash cans	10 ea
(2) 10 gallon plastic trash cans	5 ea
(3) 2 gallon plastic trash cans	2 ea
(4) 5 gallon water can	4 ea
(5) Long handle toilet brush	8 ea
(6) Large sponges	8 ea
(7) Towels	15 ea
(8) Blankets, wool	4 ea
(9) Stretchers, Army type, folding	2 ea
(10) Engineer tape	1 roll
(11) Plastic bags, 10 gal, 6 mil thick	50 ea
(12) Plastic bags, 32 gal, 6 mil thick	50 ea
(13) Tape, masking 2" wide	2 rolls
(14) Tape, duct	2 rolls
(15) Tape, monofilament	2 rolls
(16) Portable eye wash	1 ea
(17) Step pans, 32" across	2 ea
(18) Chair, folding straight back	2 ea
(19) Recovery drums, 55 gal or larger	2 ea
(20) First aid kit, general purpose	1 ea
(21) Kit, Detector, M18A2	2 ea
(22) Plastic sheeting	4 rolls
(23) Pick axe	1 ea
(24) Shovel (round nose) long handle	1 ea
(25) Axe, single bit	1 ea
(26) Hammer, sledge, 3 lbs	1 ea
(27) Ice chest, 40 qts	1 ea
(28) Gator Aid	3 cases
(29) Sheeting, plastic, 6 mil	1 roll
(30) Boot jack	1 ea
(31) Respirator fit-test ampules (Norton 7002)	2 ea
(32) Coveralls	15 ea
(33) Booties (surgical)	1 box
(34) Box (footlockers)	4 ea

h. Sample Handling

<u>ITEM</u>	<u>QUANTITY</u>
(1) Bags, Plastic	1 box
(2) Chem heating pads	3 doz
(3) Plastic, sheet	1 roll
(4) Tin foil	3 roll
(5) Tape, masking	1 roll
(6) Pan, stainless steel	4 ea
(7) Spoon, solid stainless steel	2 ea
(8) Dipper, hooked stainless steel	2 ea
(9) Turner, stainless steel	4 ea
(10) Scoop, stainless steel	4 ea
(11) Pan, stainless steel	4 ea
(12) Urn, cup (in Qt measure)	4 ea
(13) Pail, Utility with cover	3 ea

i. Monitoring Equipment

<u>ITEM</u>	<u>QUANTITY</u>
(1) MINICAMS	1 ea
(2) M-18 kit	2 ea
(3) Generator, 1.5 KW	1 ea
(4) Cylinder, air	1 ea
(5) Cylinder, helium	1 ea
(6) Cylinder, nitrogen	1 ea
(7) Extension cord, 100'	2 ea

j. Command Post

<u>ITEM</u>	<u>QUANTITY</u>
(1) Maps, Ft. McClellan	2 ea
(2) Laptop computer w/downwind hazard program	1 ea
(3) Hardhats	6 ea
(4) Table	1 ea
(5) Chair	4 ea
(6) Compass	1 ea
(7) Binocular	1 ea

4.5 EMERGENCY PROCEDURES

a. Industrial/physical injury or accident:

(1) First aid rendered.

(2) An immediate verbal report is made to Range Control. This report will include name, rank, victim(s) unit, cause of accident, location of accident, estimate of the extent of injuries and means of evacuation. Range Control will relay this information to the Emergency Room, Noble Army Community Hospital, to alert the medical staff as to the nature/extent of the casualties and request medical assistance at the site if needed. Refer to MSDS included in Attachment E for information on chemical agents and decontaminants.

NOTE: At a minimum, two personnel trained in first aid/CPR shall be present at each project site.

b. Masking Procedures

(1) Stop breathing, close eyes and remove headgear.

(2) Put mask on.

(3) Adjust straps.

(4) Clear and check the mask.

(5) Shout "gas, gas, gas" and wave hands.

(6) Assist buddy in putting on mask.

c. Emergency First Aid Procedures for mustard agent casualty:

(1) Mask individual.

(2) Egress person from the source of contamination.

(3) Flush the skin and clothes with a 5% Sodium Hypochlorite solution (bleach) within one minute of exposure.

(4) Use portable eye wash to flush victim's eyes.

(5) Remove the contaminated clothing.

(6) Flush the skin again with a 5% Sodium Hypochlorite solution.

(7) Wash skin with soap and water.

(8) Immediately transport the casualty to the Emergency Room.

4.5.1 MEDICAL SUPPORT Field medical support for Fort McClellan and Pelham Range is based on an area support concept.

a. A medic will be on site at all times during operations.

b. In the event of an accident/incident, all requests for medical assistance will be sent to Range Control. Range Control will request Emergency Medical Services (EMS) ambulance support for all seriously injured persons on Fort McClellan or Pelham Range.

4.5.2 ACCIDENT REPORTING PROCEDURES

Accidents resulting in a fatality, lost-time injury or illness, hospitalization of five or more personnel, or property damage to government or contractor property (which occurred during the performance of the contract) equaling or exceeding \$2000.00 must be telephonically reported to USATHAMA, CETHA-TS-S, (410) 671-4811 and TEU Operations Branch, at (410) 671-4381, as soon as possible, but not later than two hours after occurrence and reported in writing within five days of occurrence on ENG Form 3394. All other accidents/incidents must be telephonically reported to USATHAMA, CETHA-TS-S, (410) 671-4811, within eight hours of occurrence, and TEU, Operations Branch, at (410) 671-4381.

5.0 SITE SAFETY WORK PLAN

5.1 MONITORING

a. During all onsite activities, a low level and gross level monitor will be used for H.

b. M18 - Army detection kit used to measure H and L mustard agents, G and VX nerve agents.

c. MINICAMS - Automated gas chromatograph measures for real-time agent to detect at the PEL, will provide continuous monitoring.

5.1.1 AIR MONITORING LEVELS AND ACTIONS

Monitoring Instrument	Detection Concentration	Site Action
M18	.5 ppm for Mustard .2 ppm for G nerve .1 ppm for VX nerve	Don mask, egress site, and notify site OIC
MINICAMS	0.003 ppm for Mustard 0.0001 ppm for Nerve	Don mask, egress site, and notify TEU OIC

5.1.2 CALIBRATION

Before beginning operations, the MINICAMS will be calibrated using a "spike" sample by TEU personnel. The M18 kit will be tested at the command post daily. Results will be documented in the Health and Safety (air monitoring) Log.

5.1.3 HEALTH AND SAFETY (AIR MONITORING) LOG

a. A daily health and safety log will be maintained by the site health and safety officer.

b. The log will include at a minimum the following:

- (1) Description of the field work being conducted.
- (2) Any changes in the operation.
- (3) Names of all personnel working at the site.
- (4) Types of air monitoring equipment used and how calibrated, include equip serial number, model number, manufacturer, date and time of calibration.
- (5) Air monitoring results: date, time, monitoring location.
- (6) Level of personnel protective equipment being worn.
- (7) Accidents and injuries.
- (8) Description of any unusual occurrences.
- (9) Physical complaints and medical diagnosis by medical personnel on site.

(10) Copies of logs will be provided weekly by facsimile to USATHAMA, CETHA-TS-S at (410) 671-1675, and TEU Operation Branch at (410) 671-3601.

5.2 LEVELS OF PROTECTION

Level of protection will be determined by using the risk assessment (Attachment A) for each site. During the drilling activities, any vapors released will be monitored with a low level detector.

5.2.1 MODIFIED LEVEL D PPE

- a. Disposable saranex coveralls over routine work clothes.
- b. Hard hat and safety goggles will be worn while working around or during the operation of heavy equipment.
- c. Butyl rubber gloves when handling sample.
- d. Leather boots with latex chemical resistant overboots.
- e. Hearing protection will be worn while working around or during the operation of heavy equipment.
- f. Slung protective mask - M9 or M17.

5.2.2 MODIFIED LEVEL C PPE

- a. Hardhat will be worn while working around or during the operation of heavy equipment.
- b. Disposable saranex coveralls
- c. Butyl rubber gloves under leather workgloves.
- d. Butyl boots, safety toe, TAP M2A1.
- e. Hearing protection will be worn while working around or during the operation of heavy equipment.
- f. Worn protective mask - M9 or M17 with hood.

5.2.3 MODIFIED LEVEL C++ PPE (Army TAP Level A)

- a. Impregnated gloves, socks and underwear.
- b. Suit coveralls, TAP M3.
- c. Butyl boot, safety toe, TAP M2A1.
- d. Hardhat will be worn while working around or during operation of heavy equipment.
- e. Hearing protection will be worn while working around or during operation of heavy equipment.
- f. Worn M9 protective mask with hood.

5.3 RESPIRATORY PROTECTION

- a. When air purifying respirators are required, military M9 and M17 protective mask with filters for Army chemical agents will be worn.
- b. If MINICAM gives a reading over half the PEL, personnel will don mask and evacuate the area.

5.4 WORK LIMITATIONS

- a. At least two persons will be in the field at all times.
- b. No drilling can take place without first confirming the absence of subsurface transmission lines.
- c. Field work will be conducted during daylight hours.
- d. The maximum wearing time for personnel working in the protective suit depends on several factors such as temperature, individual training status and physical condition. If wearer becomes

a casualty from excessive heat stress, emergency removal of coveralls by cutting is authorized; however, if the individual becomes a casualty in a contaminated area, the casualty will be moved to an established hotline, upwind of the work site for decontamination and removal of the coveralls.

Level C PPE (Army TAP Level A)

Temperature	Wearing Time
Above 90 degrees F	1/4 hour
85-90 degrees F	1/2 hour
80-84 degrees F	1 hour
70-79 degrees F	1 1/2 hours
60-69 degrees F	2 hours
50-59 degrees F	3 hours
30-49 degrees F	5 hours
Below 30 degrees F	8 hours

e. The temperature of the wet bulb globe temperature (WBGT) determines the action to be taken.

f. The chart shown below specifically states the action to be taken for different temperatures for personnel working outdoors.

<u>Work/Rest Regimen</u>	<u>Type of Work</u>		
	<u>Light</u>	<u>Moderate</u>	<u>Heavy</u>
60/0	Up to 86.0	Up to 80.1	Up to 77.0
45/15	86.1 - 87.1	80.2 - 82.4	77.1 - 78.6
30/30	87.2 - 88.5	82.5 - 84.9	78.7 - 82.2
15/45	88.6 - 89.9	85.0 - 88.0	82.3 - 86.0

HEAVY WORK IS: Intermittent heavy lifting, pushing or pulling (pick and shovel work), hard sustained work.

MODERATE WORK IS: Sitting with heavy arm and leg movement, standing doing light or moderate work at a machine or bench, with some walking,

walking with moderate lifting or pushing.

LIGHT WORK IS: Sitting quietly, sitting doing moderate arm and leg movement, sitting doing moderate arm and trunk movement (driving a car), standing doing light work at a machine using mostly the arms.

g. The cart shown below provides recommended levels of water intake for workers engaged in various types of work.

Water intake

WBGT Index	Type of Work		
	Light	Moderate	Heavy
<80	5	7	9
>80	6	9	13

(quarts of water per person each day)

h. For heat related injury information refer to Attachment F.

5.5 FIELD PERSONNEL

Personnel refers to members of TEU involved in this program.

5.5.1 PERSONNEL SELECTION

a. Personnel files have been screened according to the requirements of the Army's Chemical Personnel Reliability Program (CPRP).

b. All personnel have taken a yearly physical.

5.5.2 PERSONNEL TRAINING

a. The 8-hour/40-hour Hazardous Waste Operation and Emergency Response Training, Respirator Training, Hazard Communication Training, and First Aid/CPR Training.

b. Cardiopulmonary resuscitation (CPR), first aid, buddy-aid and self-aid.

c. Hazards and risks involved in the site-specific operation, including recognizing hazards and information on sources of exposure and possible adverse health effects.

d. Individual responsibilities in health protection program.

e. Emergency procedures according to Fort McClellan Chemical Accident/Incident Response and Assistance Plan (FM-CAIRAP).

f. Operating procedures, to include safety requirements as well as practices and controls used to limit exposure.

g. Recognition of signs and symptoms of agent exposure.

h. Personnel decontamination procedures.

i. Yearly Toxic Aid Briefing

5.5.3 MEDICAL SURVEILLANCE PROGRAM

a. Personnel have been given a medical examination IAW AMC Reg 385-131 and AR 50-6.

b. Bimonthly red blood cholinesterase tests to establish a baseline level.

c. Other personnel and visitors who have a need to monitor or inspect the operational area will have a baseline cholinesterase level established. This action will be completed prior to visiting the operational area.

d. In cases of agent exposure, cholinesterase determinations will be made to measure the degree of anticholinesterase activity. Follow-up examinations of plasma and red blood cholinesterase content will be performed at the discretion of the medical officer.

e. Prior to assignment to operations at Ft. McClellan sites, non-TEU personnel will be thoroughly briefed in the signs and symptoms of agent exposure by their safety and health personnel, as well as being instructed in first aid and self-aid techniques for potential exposure to the various chemical surety agents.

f. Any illness or sickness will be reported by the individual to the supervisor prior to the start of daily operation.

g. Individuals requesting entrance into the worksites who have any cuts or abrasions need to inform his/her supervisor. These individuals will be referred to qualified medical personnel prior to being permitted in the hazardous work site. This requirement is to ensure that the cuts or abrasions are properly covered for the type of work to be accomplished.

h. Noble Army Community Hospital, Fort McClellan will keep each person's medical records during onsite operations. Site health and safety officer will deliver the medical records, in a sealed envelope, to the hospital.

6.0 COMPREHENSIVE WORKPLAN

TEU will surface sampling, auger hole sediment and water sample the investigation methods at Fort McClellan.

6.1 INITIAL SITE INSPECTION

See SAIC Site Investigation Work Plan Section 5.2.

6.2 PRIOR SITE PREPARATION

- a. Request for training areas (sites) will be submitted to Range Control.
- b. Request for ambulance support will be submitted to Chief, Clinical Support Division, Noble Army Community Hospital, no less than 14 days prior to the activity.
- c. Port-o-lets on sites will be requested through DPTMSEC, ATTN: Chief, Range and Training Division, to Director of Engineering and Housing (DEH) 4 weeks prior to use. All requests must indicate the from and to dates of use and a justification.

6.3 DAILY SITE PREPARATION

- a. Daily site preparation will include site safety briefing, medical screening of downrange personnel, orientation of site and positioning of equipment.
- b. OIC will request permission from Range Control to began operations. Hourly radio checks will be conducted.
- c. Call to TEU Operations Branch.

6.4 GEOPHYSICAL SURVEYS (MAGNETOMETER SWEEP)

- a. Purpose is to identify areas of subsurface metal to determine boring sites.
- b. Area map will be plotted with isolated magnetic objects or cluster of magnetic objects included in the daily log.
- c. EOD technician will compile the data and include it in the final report. Unexploded ordnance will be reported to Ft. McClellan EOD detachment.

6.5 SHALLOW SOILS AND SEDIMENT SAMPLING

a. USATHAMA geophysical sampling and analytical procedures will be followed.

b. A total of 26 auger holes are planned at 12 sites at Ft. McClellan.

c. Two soil samples from each auger hole will be collected for laboratory analysis. The upper few inches of grass, roots and surface debris will be scraped away with a stainless steel shovel. The upper sample will be taken at about .5 to 1.5 feet. Next the hole will be augered to the 4.5 feet. A sterile sampling container will be used to get a composite sample at this depth.

d. All shovels, auger equipment and auger will be decontaminated before starting each auger hole using procedures described in the Sampling and Analysis Plan. A log entry will be prepared that describes location, depth, sample intervals, in low level monitor reading and soil conditions for each auger hole.

e. Sampling equipment contaminated with agent will be decontaminated with the appropriate solution (see Attachment E).

6.6 ANALYTICAL SAMPLE PACKAGING

a. Packaged according to the QAP.

b. Information on samples will be recorded in daily log.

6.7 SITE CLOSEDOWN

a. Notify Range Control that operations have ceased. At that time permission to be relieved of responsibility for the range will be requested from Range Control.

b. Clean equipment.

c. Double bag disposal suits for sanitary disposal.

d. Equipment will be checked to the PEL before leaving the hot zone.

6.8 STORAGE OF ANALYTICAL SAMPLES

Samples will be stored in a refrigerator in a secured building until transported.

6.9 PROJECT COMPLETE OPERATIONS

A complete trip report with enclosures covering the entire project will be completed within two weeks of project turned into Chief, Operation Branch TEU and USATHAMA.

6.10 SITE SECURITY

a. All equipment will be secured in a padlocked motorpool or equal security.

b. Personnel/visitors requesting entry onto the worksite:

(1) Need to be given clearance from Site manager/OIC.

(2) USATHAMA and range control will be notified of actions taken and why for unauthorized personnel entering worksite.

7.0 DECONTAMINATION

It is expected that concentrations above the PEL will not be encountered during this operation. However, a four step personnel decontamination station (PDS) will be established.

7.1 STANDARD PROCEDURES

a. Decontamination area located between the Hot Line and the Contamination Control Line.

b. Decontamination area established upwind of exclusion area.

c. Upon leaving the contamination area, all personnel must proceed through the PDS.

d. All stations are set up one to two meters apart. The distance between station 8 and 9 is a minimum of 30 meters.

Station 1:

Equipment Drop and
Shuffle Pit

1. Deposit all tools used downrange on plastic drop cloth. The shuffle pan consists of a large metal pan with smooth edges. Upon the first indication that personnel will be processed through PDS, household bleach will be poured into the shuffle pan to a depth of 3-4"

Station 2:
Outer Garment Wash

2. Wash splash suit, gloves and safety boots. Scrub with a long-handled scrub brush and decon solution. (one attendant assist at this station)

Station 3:
Outer Garment Rinse

3. Rinse off decon solution using water. (one attendant assist at this station)

Note: A container used as a sump will be between Stations 2 and 3.

Station 4:
Glove and Boot Wash

4. Wash gloves and boots with hot soapy water. One long handled brush will be provided to help processing personnel.

Station 5:
Glove and Boot Rinse

5. Rinse gloves and boots. One long handled brush provided to help processing personnel.

Station 6:
Mask and Hood Wash

6. Sponges are provided at this station. (one attendant assist at this station)

Station 7:
Mask and Hood Rinse

7. Sponges are provided at this station. (one attendant assist at this station)

Station 8:
Outer Glove, Garment

8. One chair with boot puller at the foot of the chair. Place outer gloves, outer garment and boots in plastic-lined container. (one attendant assist at this station).

- Station 9:
Coverall Removal
9. Remove clothing and place in plastic-lined container.
- Station 10:
Undergarment Removal
10. Remove undergarments and place in plastic-lined container.
- Station 11:
Mask Removal and Shower
11. Remove mask, hold breath and proceed through shower. The contamination control line (CCL) is marked by a long piece of engineer tape secured to the surface outside the shower exit. The shower is on the upwind side of the CCL.
- Station 12:
Redress and First Aid
12. Clothing is provided for processed personnel. All processed personnel are checked for signs of agent exposure, heat injuries and vital signs.

7.2 MINIMAL DECONTAMINATION

Less extensive procedures for decontamination can be established when the type and degree of contamination are known, or when the potential for transfer is judged to be minimal by the site health and safety officer. Stations 4 through 7 will be deleted and 8 through 10 will be consolidated. This will consist of a four step PDS.

7.3 CLOSURE OF THE PDS

All disposable clothing and plastic sheeting used during the operation will be bagged, and disposed in the sanitary system.

7.4 PERSONNEL PROTECTIVE CLOTHING AND EQUIPMENT DISPOSAL

Any and all M18A2 components (i.e., blue band tubes), personal protective clothing and equipment (PPC&E), and any material which may be construed as 3X waste will be the responsibility of the project officer designated by Ft. McClellan.

8.0 REFERENCES

- a. Chemical Weapons and Materiel Escorts TEUR 50-1 dtd 1 July 1990
- b. USATEU Chemical Accident/Incident Response and Assistance Plan (CAIRAP) dtd 31 December 1990 with change 1 dtd 23 January 1991
- c. Range and Terrain Ft. McClellan Reg 350-2 dtd 2 October 1987 with change 1
- d. AR 50-6 Chemical Surety Program 12 Nov 86
- e. AMCR 385-131 Safety Regulation for Chemical Agents H, HD, HT, GB, and VX 9 Oct 87
- f. 29 CFR, 1910, March 6, 1989

9.0 FORMS

- a. ENG Form 3394
- b. DA Form 1594

ATTACHMENT A - RISK ASSESSMENT

1. The Detection and Identification area

a. Background - "The Detection and Identification (D and I) Area is located on the Main Post (see figure 2-5). The 1.1 acre site was used from the 1950's to 1972 for GB training. The Navy may have used mustard (HD) at the site in the late 1950's for training purposes. Training routinely consisted of application of tests kits to detection and identification agents contained in 40 milliliter vials. Agents often were mixed as a 10 percent solution with water. It has been reported that agent stimulants CK, GC, CX, and AC also were used the training area. All training aids from this site and a building from Area T-4 were burned twice in a dug pit and buried. The remains are still located in the pit. The pit containing the burned materials is identified by Stake F (see Figure 2-5). Decontaminants STB and DS-2 were used on surface soils and the area was cleared for surface use. Subsurface sampling at the site has not been conducted. the D and I Area is heavily wooded. A survey marker (stake "F") was found in the field during a recent site visit (October 1991) that approximately locates the former pit area." Section 2.2.1.1 p. 2-19 Task Order 1 Site Investigation Work Plan Fort McClellan, Alabama SAIC 8 Nov 91

b. Discussion - STB and DS-2 are adequate decontaminants. No bulk agent or chemical round disposal took place at this site.

c. Hazard level - Low

d. No chemical agent exposure is foreseen at this site.

e. Recommendation level of protection - Approved protective clothing for EPA hazardous level D.

2. Area T-4

a. Background - "Area T-4 was a Biological Simulant Test Area located on the main post (see Figure 2-6) Records indicate that 0.25-acre site was used between 1965-1971 for biological simulants (BG and SM) training. Decontamination of the agents on the surface soils was performed by adding STB and DS-2. Contamination from HD was not detected in surface soil samples collected in April and July 1973; however, subsurface soil samples were not taken at that time. The use of the area was limited to surface activity in the unlikely event that some HD may have been used at the site, and because subsurface sampling has not been conducted at the site. The area of the former site was observed during an October 1991 site visit by USATHAMA an SAIC." Section 2.2.1.2 p. 2-19 Task Order 1 Site Investigation Work Plan Fort McClellan, Alabama SAIC 8 Nov 91.

- b. Discussion - No samples will be taken here.
- c. Hazard level - N/A
- d. Recommendation level of protection - NA

3. T-5 Toxic Hazards Detection and Decontamination Training Area

a. Background - "Area T-5 is the Toxic Hazards Detection and Decontamination Training Area located between Sunset Hill and Howitzer Hill (see Figure 2-7). The 11.4 -acre site was used between 1961 and 1973 to train students in the methods of detecting and decontaminating toxic agents (HD and HX). GB also is reported as being used. The quantities of agent used in training exercises ranged for 20 to 40 milliliters per exercise. The training sites were decontaminated and checked at the end of each exercise. Decontamination of the agents on residual soils was performed by adding STB and/or DS-02. In addition to HD, HX, and GB used during training, the site may have been the location of a 110 gallon HD spill. Available evidence indicates that the contaminated soil was chemically decontaminated, removed, and ultimately disposed of at Range J (Pelham Range). Surficial soil samples were taken at the unit in December 1972, April 1973, and July 1973 and analyzed for chemical agents HD, GB, and VX, with all results being below detection limits. The area was permitted of surface use because subsurface sampling was not conducted. Survey monuments "C" and "D" were located in the field during an October 1991 site visit. Additional building foundations and an asphalt pad also were found at this time. Area T-5 is heavily wooded." Section 2.2.1.3 pp. 2-19-2-20 Task Order 1 Site Investigation Work Plan, Fort McClellan, Alabama SAIC, 8 Nov 91.

- b. Discussion - STB and DS-2 are adequate decontaminants for the spill. No bulk agent or chemical round disposal was performed at this site.
- c. Hazard level - low
- d. No chemical agent exposure is foreseen at this site.
- e. Recommendation level of protection - Approved protective clothing for EPA hazardous level D.

4. T-6 Agent Decontamination Training Area

a. Background - "Area T-6 was an Agent Decontamination Training Area also referred to as Naylor Field) located near the based of the eastern slope of Howitzer Hill (see Figure 2-8). The 7.5 acre site was used until 1973 for training in techniques of decontamination chemical agents, including HD. The area contained eight training

sites that consisted of concrete pads on which equipment was parked. The equipment was contaminated with not more than 40 milliliters of HD during each exercise. Decontaminants STB and DS-2 were used during the exercises. Random surface soil samples taken at the site in March 1973 revealed no agent contamination, and the area was cleared for surface activity. Subsurface sampling has not been conducted in Area T-5. Several concrete pad structures and a small metal hut were located on the heavily wooded site during an October 1991 site visit." Section 2.2.1.4 p2-20 Task Order 1 Site Investigation Work Plan Fort McClellan, Alabama, SAIC, 8 Nov 91.

b. Discussion - STB and DS-2 are adequate decontaminants for HD. No bulk agent or chemical munitions burial took place at this site.

c. Hazard level - low

d. No chemical agent exposure is foreseen at this site.

e. Recommendation on level of protection - Approved protective clothing for EPA hazardous level D.

5. T-24a Chemical Munitions Disposal Training Area

a. Background - "Area T-24A was a Chemical/Munitions Disposal training area located on the main post south of Holloway Hill (see Figure 2-11). The 1.5-acre site was used until 1973 for chemical munitions disposal training with CG, BZ, GB, and HD. Quantities of HD used during each training exercise were approximately 4.46 kilograms. Quantities of CG, B2 (sic), and GB were 40 milliliters, on M-6 canister, and 740 grams, respectively, per exercise. Two square burning pits, each 16 feet on a side, were used for training exercises and were enclosed by a fenced area measuring 40 by 80 meters. The depths of the pits are unknown; however, standard operating procedures (SOPs) recommended a depth of 6 feet. At closure, the pits reportedly were filled with soil, although some depressions were observed in 1988. Decontaminations of agents on residual soils was performed with STB and DS-2. The site may have had a large HD spill in the past, although this has not been confirmed. Surface sampling conducted in April and July 1973 in the proximity of the pits was negative for the agents in question. Sample depths ranged from 3 to 10 centimeters, and therefore, may not have represented the depths at which agents may have been in the training pits. An unauthorized dump was identified in 1990 at the western end of the fenced area. The enclosed site area was heavily overgrown during an October 1991 site visit. A survey marker was located within the enclosure showing the location of a former burn pit. Two 81-mm mortar shells also discovered at the site in October 1991." Section 2.2.1.7 pp. 2-27 - 2-29 Task Order 1 Site Investigation Work Plan Fort McClellan, Alabama SAIC, 8 Nov 91.

b. Discussion - STB is adequate decontaminant for HD. DS-2 is adequate decontaminant for CG, BZ, GB and HD agents. Unconfirmed buried drum of mustard took place at the site. Mag sweep will take place before all boring activities.

c. Hazard level - moderate

d. Probable chemical agent exposure is possible but not foreseen.

e. Recommendation on level of protection - Approved protective clothing for EPA hazardous level C.

6. T-31 Technical Escort Reaction Area

a. Background - "Area T-31 (Technical Escort Reaction Area) was a toxic hazard training area located on the main post (see figure 2-9) near Range 31. The 3.4 - acre site was used between 1957 and 1969 for training with GB and HD in quantities of 20 to 40 milliliters. Six different sites within Area T-31 were used for training exercises. Training aids used at the site were moved to area T-38. Area T-31 was used to store undetermined types of chemical agents. Several spills were reported to have occurred on site from these stored materials. No information is available on quantities of materials spilled. The types and quantities of decontaminants used to treat residual soils contaminated with agents are currently unavailable, but are believed to have included STB and DS-2. No sampling has been conducted at the site. The site area was heavily overgrown during an October 1991 site visit. Several concrete pads and structures were located at that time." Section 2.2.1.5 pp. 2-23 - 2-26 Task Order 1 Site Investigation Work Plan Fort McClellan, Alabama, SAIC, 8 Nov 91.

b. Discussion - STB and DS-2 are adequate decontaminants. No bulk agent or chemical disposal took place at this site.

c. Hazard level - low

d. No chemical agent exposure is foreseen at this site.

e. Recommendation on level of protection - Approved protective clothing for EPA hazardous level D.

7. T-38 Technical Escort Reaction Area

a. Background - "Area T-38 (Technical Escort Reaction Area) is located on the main post west of Reservoir Hill (shown in figure 2-10). The 6-acre site was used between 1961 and 1972 for training escort personnel in techniques of eliminating toxic hazards caused by mishaps to chemical munitions during transport. The area also was used for storage of toxic agents and munitions, including GB, VX, and

HD. Storage included four 1-ton HD containers. In addition, unspecified decontaminants (likely STB and DS-2) were stored on at least two sites and were used for reported spills and contaminated training aids. Residual surface contamination with HD was reported in January 1973. Subsequent sampling March 1973 indicated that Area T-38 was free from surface contamination. No subsurface sampling or water quality monitoring has occurred at this site. A concrete decontamination pad was located in the field during and October 1991 site visit. In addition, there is an unconfirmed report of the burial of a drum of agent in the southern portion of the site (location not specified). Section 2.2.1.6 p 2-26, Task Order 1, Site Investigation Work Plan, Fort McClellan, Alabama, SAIC, 8 Nov 91.

b. Discussion - STB and DS-2 are adequate decontamination. No bulk agent or chemical disposal was performed at this site.

c. Hazard Level - low

d. No chemical agent exposure is foreseen at this site.

e. Recommendation of level of protection - Approved protective clothing for EPA level D.

8. Old Toxic Training Area

a. Background - "The Old Toxic Training Area is located within a fenced area on the main post behind building 3183 (see Figure 2-12). The 10,000 square-foot ditch area was used during the 1950's for training exercises in the identification and detection of HD. The quantities of agent used during training are not documented. Additionally, documented evidence that other agents also may have been used in this area is not available. According to facility personnel, the chemicals were placed on the ground surface. Decontaminants such as STB and DS-2 were likely used on surficial soils, but their quantities are not known. Chemical agents appear to have been placed on the ground surface and likely decontaminated with STB and DS-2. No sampling has been conducted at the Old Toxic Training Area." Section 2.2.1.8 p 2-29, Task Order 1, Site Investigation Work Plan, Fort McClellan, Alabama, SAIC, 8 Nov 91.

b. Discussion - STB and DS-2 are adequate decontaminant. No bulk agent or chemical round disposal was performed at this site.

c. Hazard level - low

d. No chemical agent exposure is foreseen at this site.

e. Recommendation of level of protection - Approved protective clothing for EPA level D.

9. Range I - Agent Shell Tapping Area

a. Background - "Range I was an Agent Shell Tapping Area located on Pelham Range (see figure 2-13 and 2-16). The 0.5 - to 1-acre site was used between 1963 and 1964 for chemical agent shell tapping purposes. The agent used on site is assumed to have been HD. The area has been physically rearranged, with the top 2 feet of soil having been moved to an unknown location. A concrete marker was located at the site during an October 1991 site visit." Section 2.2.1.9 p 2-29 Task Order 1 Site Investigation Work Plan, Fort McClellan, Alabama, SAIC, 8 Nov 91.

b. Discussion - No bulk agent or chemical round disposal took place at this site.

c. Hazard level - low

d. No chemical agent exposure is foreseen at this site.

e. Recommendation on level of protection - Approved protective clothing for EPA level D.

10. Range J - Agent Training Area

a. Background - "Range J was an Agent Training Area located on Pelham Range (see Figure 2-14 and 2-16). The 139-by 50 foot fenced area was used until 1963 for training and agent disposal. The agents used at the site are unknown, but believed to be HD. The site also was reportedly used for disposal of a 110-gallon HD spill that occurred on the main post in 1955. Evidence of drummed soil disposed of at the site was observed at the site in October 1991. Limited monitoring has been conducted on site. Available data indicate that no surface contamination exists. A survey monument dated August 1973 was located within the fenced area during the October 1991 walkover." Section 2.2.1.9 p 2-29, Task Order 1, Site Investigation Work Plan, Fort McClellan, Alabama, SAIC 8 Nov 91.

b. Discussion - Bulk decontaminated soil took place at this site. No chemical round disposal was performed at this site.

c. Hazard level - moderate

d. Possible chemical agent exposure at this site is possible, but not foreseen.

e. Recommendation of level of protection - Approved protective clothing (Army TAP level A) for EPA level D.

11. Range K

a. Background - "Range K was an Agent Training Area located on Pelham Range (see Figures 2-15 and 2-16). The 2-acre area was used for agent training. Limited information on the site is available, including time of operation and agents used. The site has been physically rearranged (bulldozed) and records indicate that the area was cleared in 1967. Surface monitoring was conducted in 1980 and no surface contamination was detected. No subsurface testing has been conducted. Evidence of a former training area at this site was not observed at the site during an October 1991 site tour. An approximately 5-foot diameter area of ponded drainage was noted in the site area. In addition, evidences of site usage as a bivouac area was observed." Section 2.2.1.11 p. 2-32 Task Order 1 Site Investigation Work Plan Fort McClellan, Alabama SAIC 8 Nov 91

b. Discussion - No bulk agent or chemical round disposal took place at this site.

c. Hazard level - low

d. No chemical agent exposure is foreseen at this site.

e. Recommendation level of protection - Approved protective clothing for EPA level D.

12. Range L (Lima Pond)

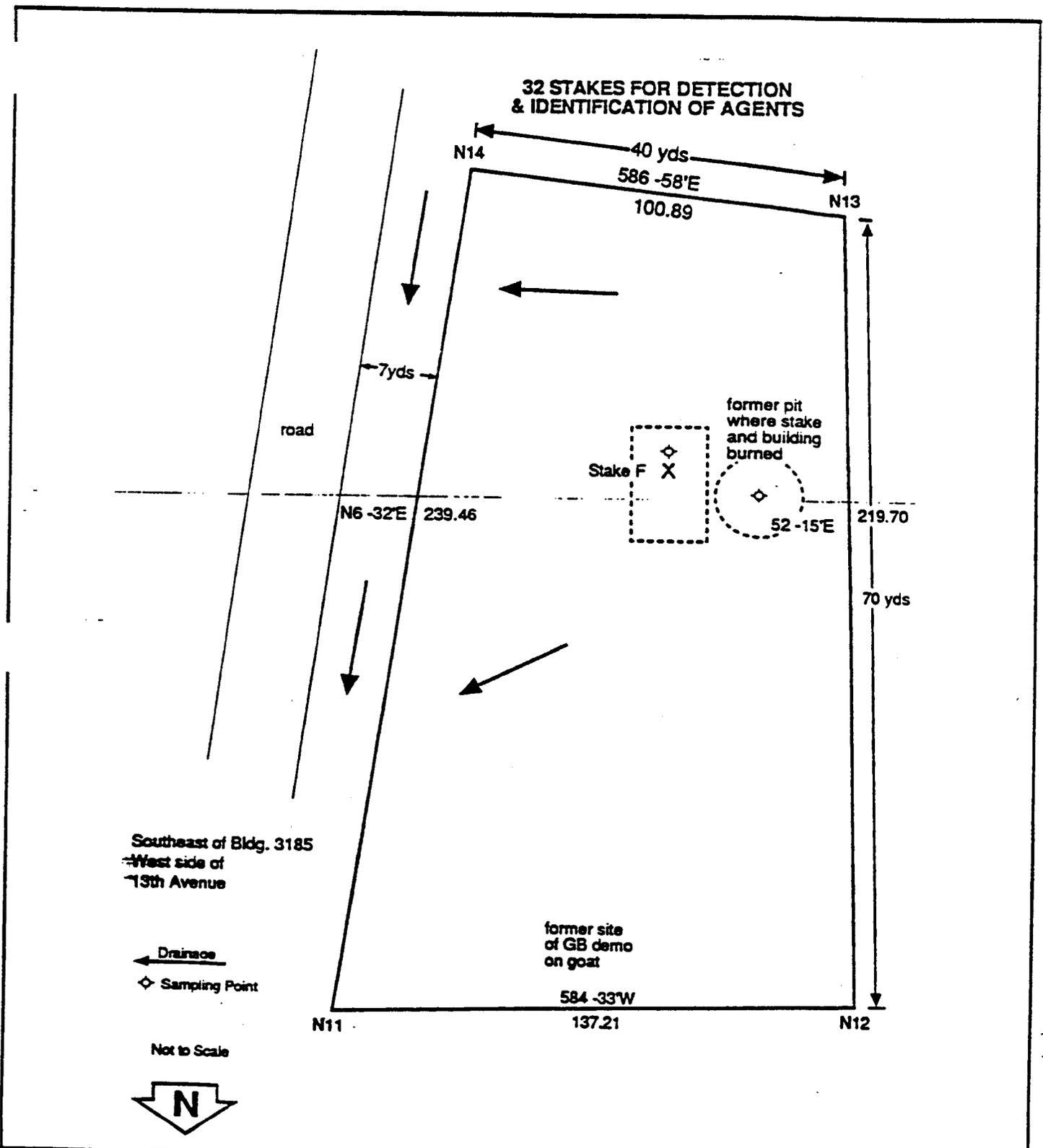
a. Background - "Range L was a Chemical Munitions Disposal Area located on Pelham Range (see figure 2-16). The 0.5-acre site reportedly was used for the disposal of captured World War II munitions, including chemical munitions. According to Post personnel, a shallow man-made pond (Lima Pond) was the dump site for these munitions. The pond is a bermed area topographically higher than the surrounding wooded terrain. The pond is estimated to be approximately 30 feet deep, although the actual depth of the pit below the pond bed is unknown. Three water sample were collected from Lima Pond in 1982 and analyzed for HD, VX, and GB. All analytical results were below detection limits for HD (i.e., 2mg/L), VX(i.e., 1.14 mg/L), and GB (i.e., 0.5 mg/L). However, no determination has been made on the presence or absence of munitions, and no pond sediment samples have been taken for analyses. Surface soil sampling at Range L indicated no detectable surface soil contamination. The depth of water in the pond was low (<2 feet) during an October 1991 site visit. Few indicators of munitions dumping were evident at the site, although empty ammunition crates were observed along the pond walls." Section 2.2.1.12 pp. 2-32, 2-36 Task Order 1 Site Investigation Work Plan Fort McClellan, Alabama SAIC 8 Nov 91.

- b. Discussion - Sediment and water samples will be taken. Mag sweep of area will take place. No intrinsic work will be performed.
- c. Hazard level - Moderate
- d. Possible chemical agent exposure is possible but not foreseen.
- e. Recommendation - Approved protective clothing for EPA level D.

13. Old Water Hole

a. Background - "The Old Water Hole is reportedly a disposal site located between New Mt. Sellers Cemetery and the prisoner of war (POW) camp on Pelham Range (see Figure 2-16). Post personnel reported that a variety of munitions, including chemical agents, may have been disposed of at a possible sinkhole. Efforts to locate the site have been unsuccessful. The site is reportedly a sinkhole, which would not have any release controls. A rectangular, shallow, topographic depression approximately 85 by 35 feet was located by Fort McClellan Department of Environmental Health personnel in the approximate area between the cemetery and the POW camp. An additional circular depression was located near the main depression in this area. Fort McClellan personnel indicate that the depression periodically fills with water, although it was dry during an October 1991 site visit. Several small-caliber bullet shells were found at the site." Section 2.2.1.13 p. 2-36 Task Order 1 Site Investigation Work Plan Fort McClellan, Alabama SAIC 8 Nov 91.

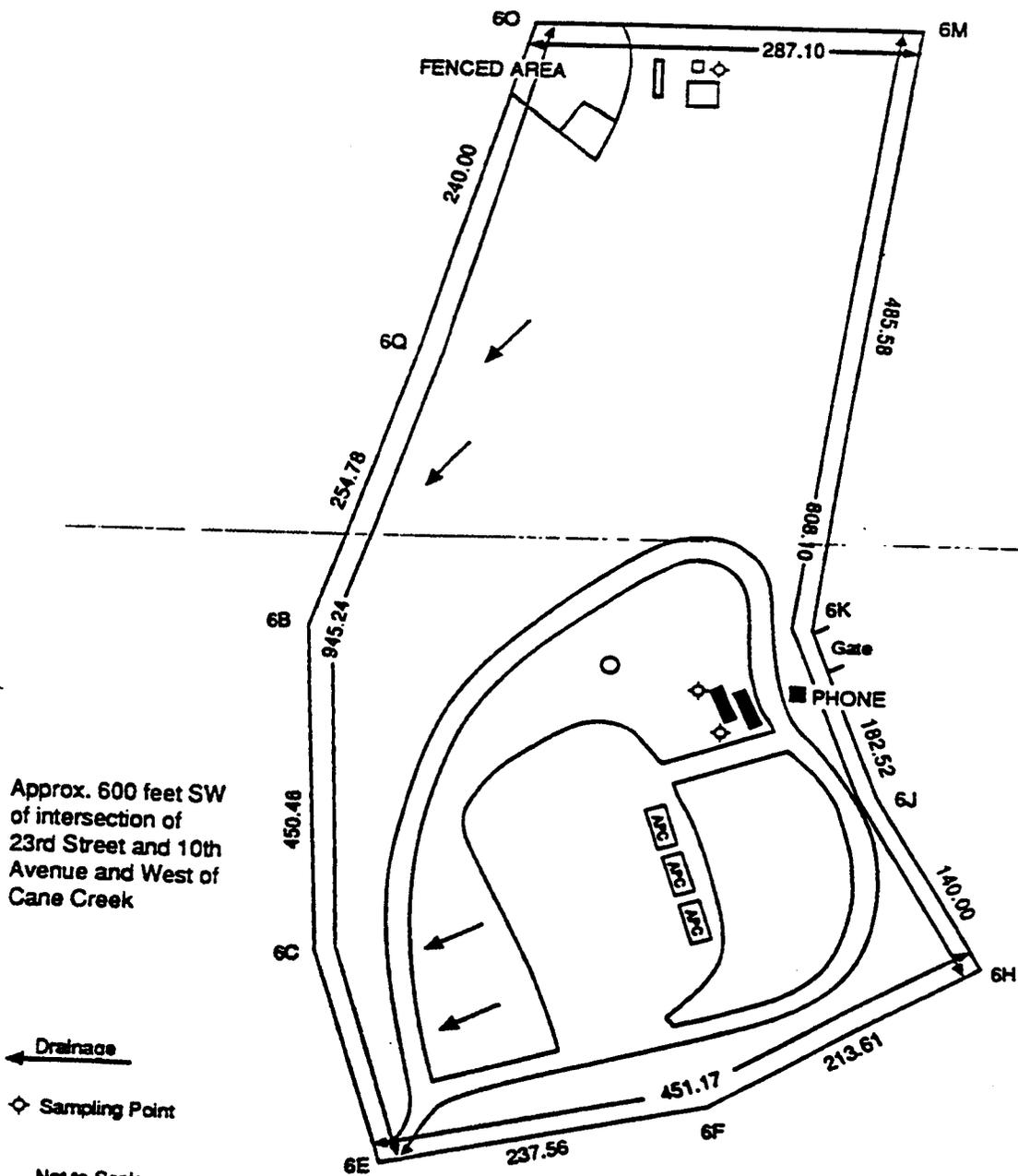
- b. Discussion - Possible site was found. Mag sweep will take place before any intrinsic work.
- c. Hazard level - Low
- d. No chemical agent exposure is foreseen at this site.
- e. Recommendation level of protection - Approved protective clothing for EPA level D.



DETECTION AND IDENTIFIATION AREA
—FORT McCLELLAN—

Figure 3-10

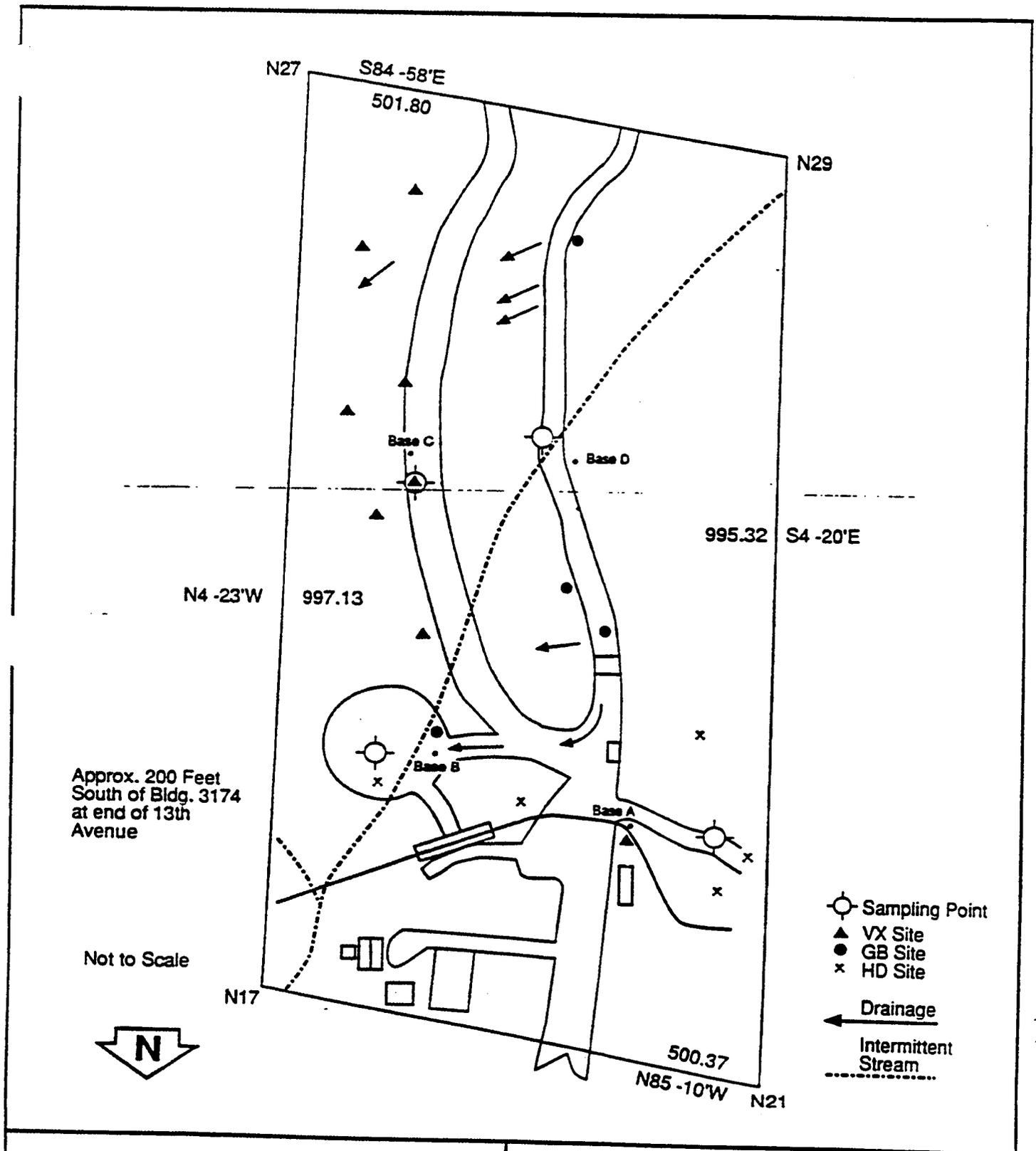
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Materials Agency
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**T6 CHEMICAL AREA (HOWITZER HILL)
AGENT DECONTAMINATION AREA -
FORT McCLELLAN**

Figure 3-3

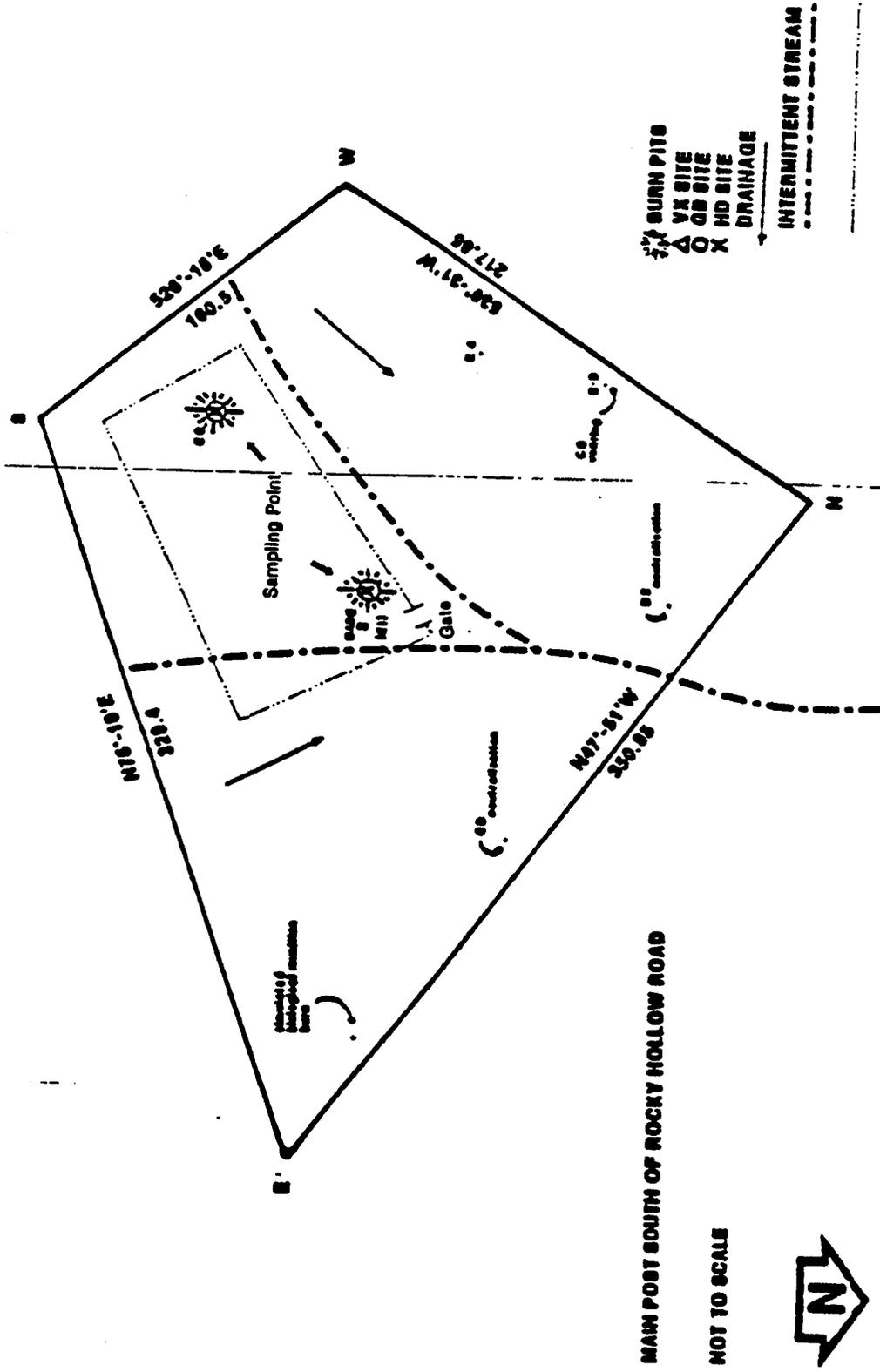
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**T5 CHEMICAL AREA - FORT McCLELLAN
 OD REACTION AREA**

Figure 3-2

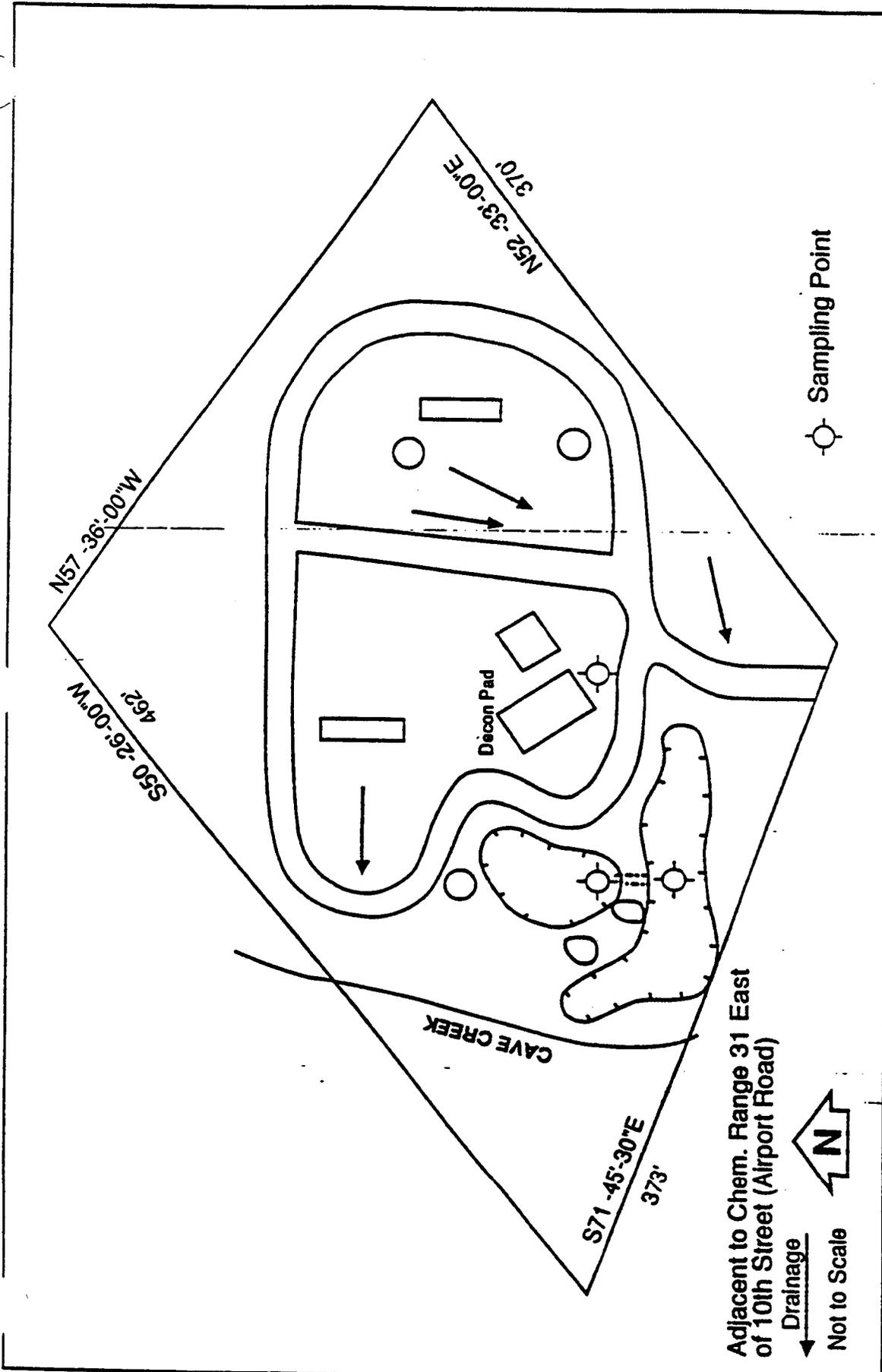
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**RANGE 24 ALPHA -- FORT MCCLELLAN
EOD DISPOSAL AREA**

Figure 3-4

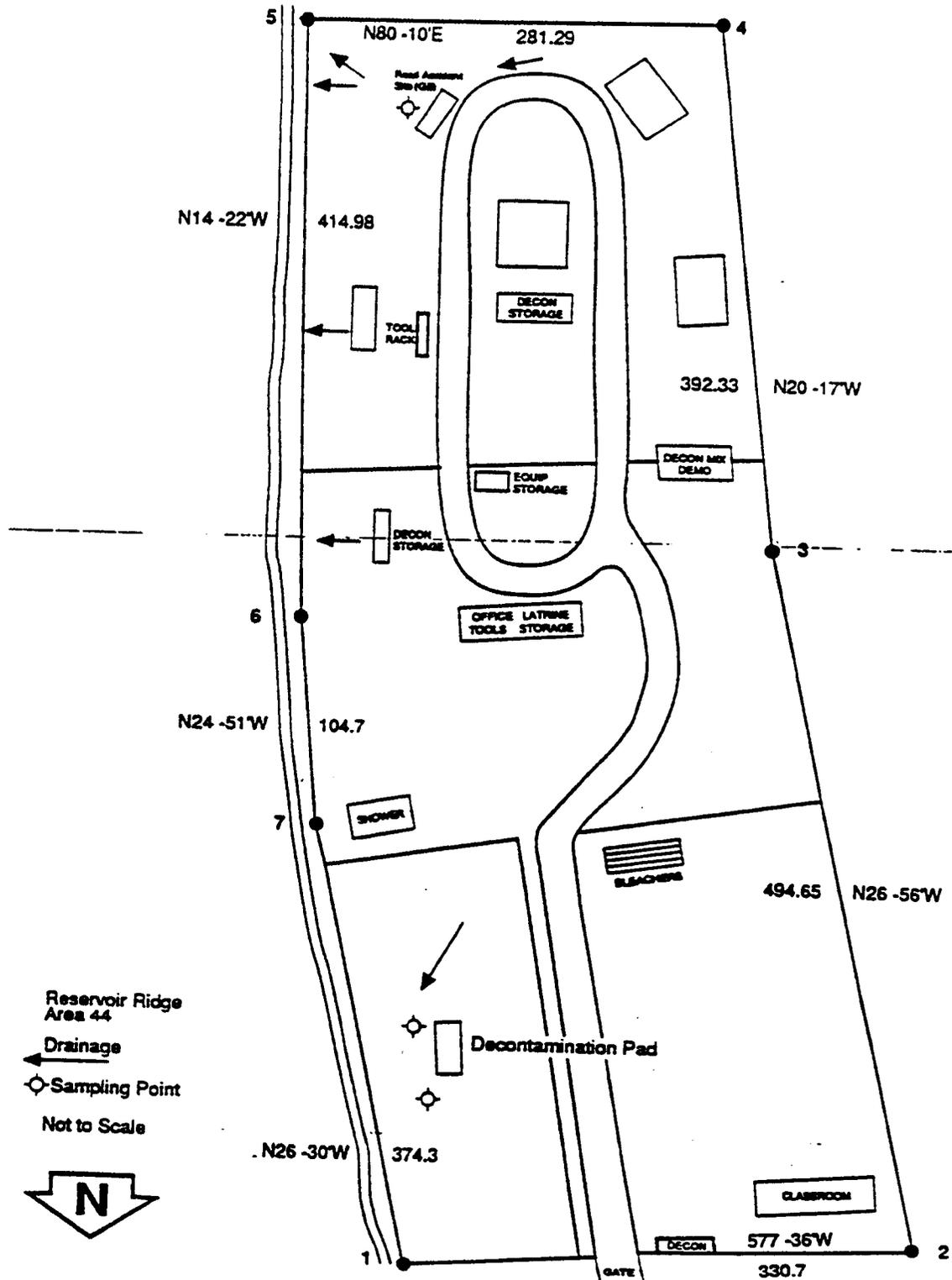
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TRAINING AREA T-31
—FORT McCLELLAN—

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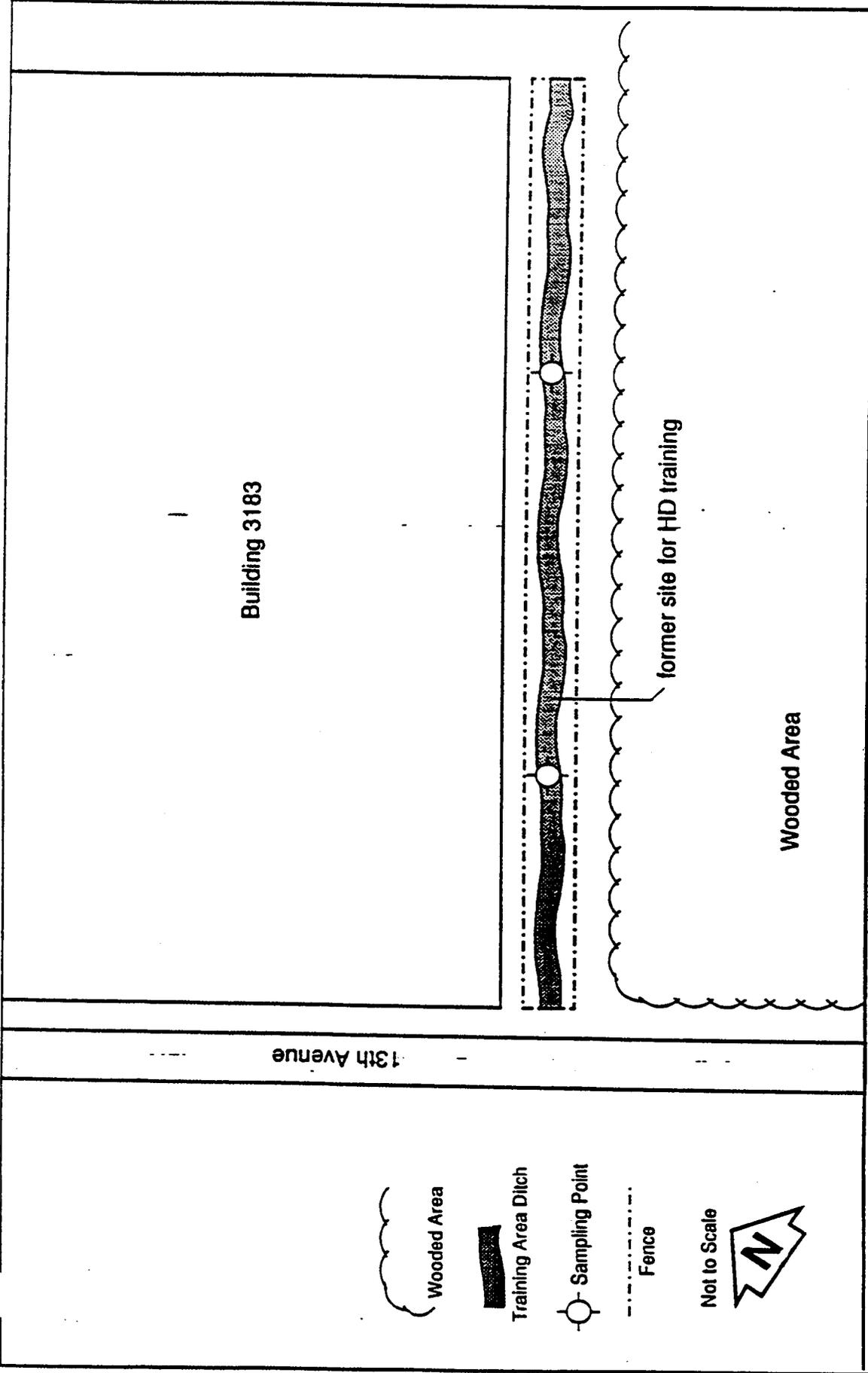
Figure 3-5



**T38 TRAINING AREA — FORT McCLELLAN
 TECHNICAL ESCORT REACTION AREA**

Figure 3-6

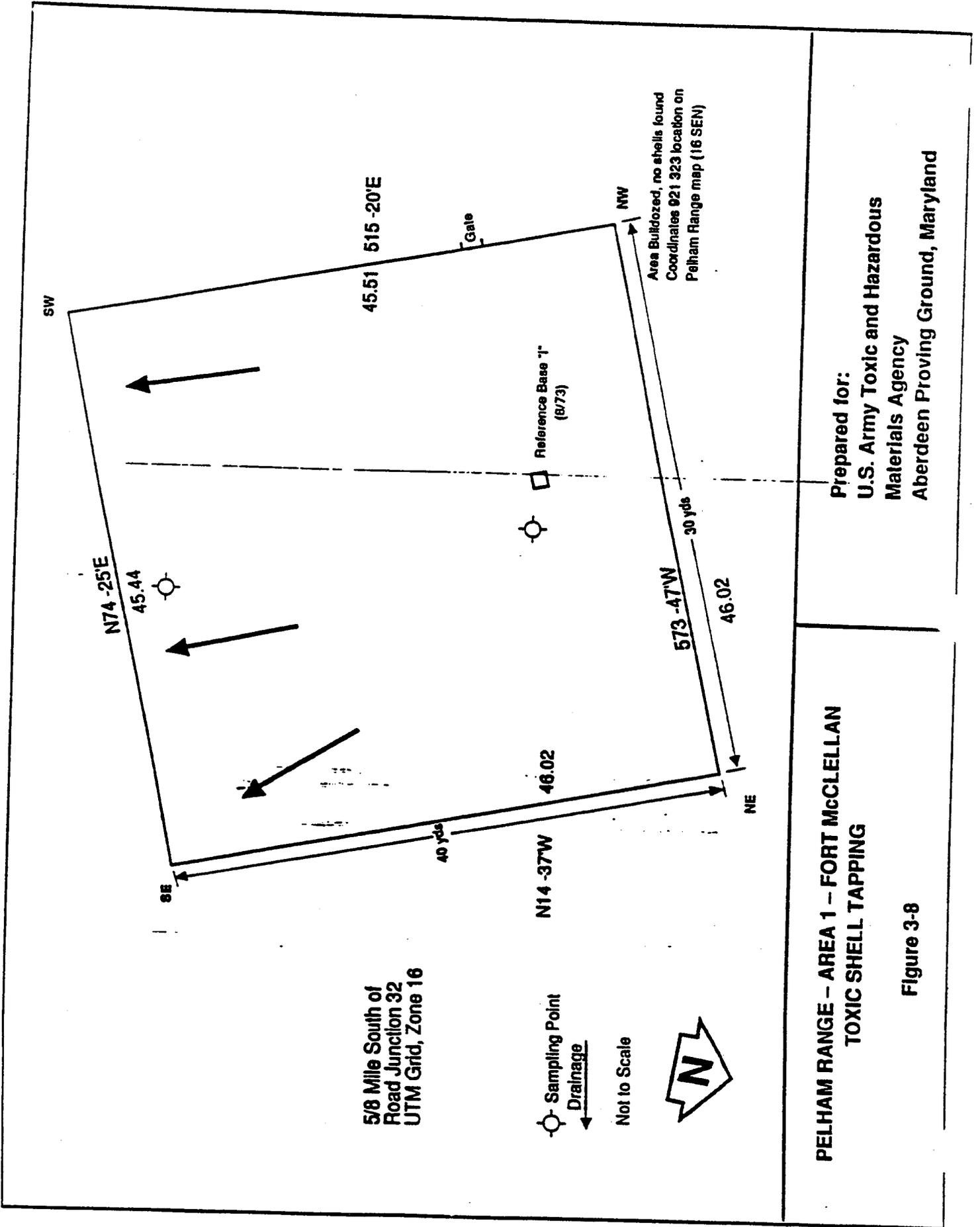
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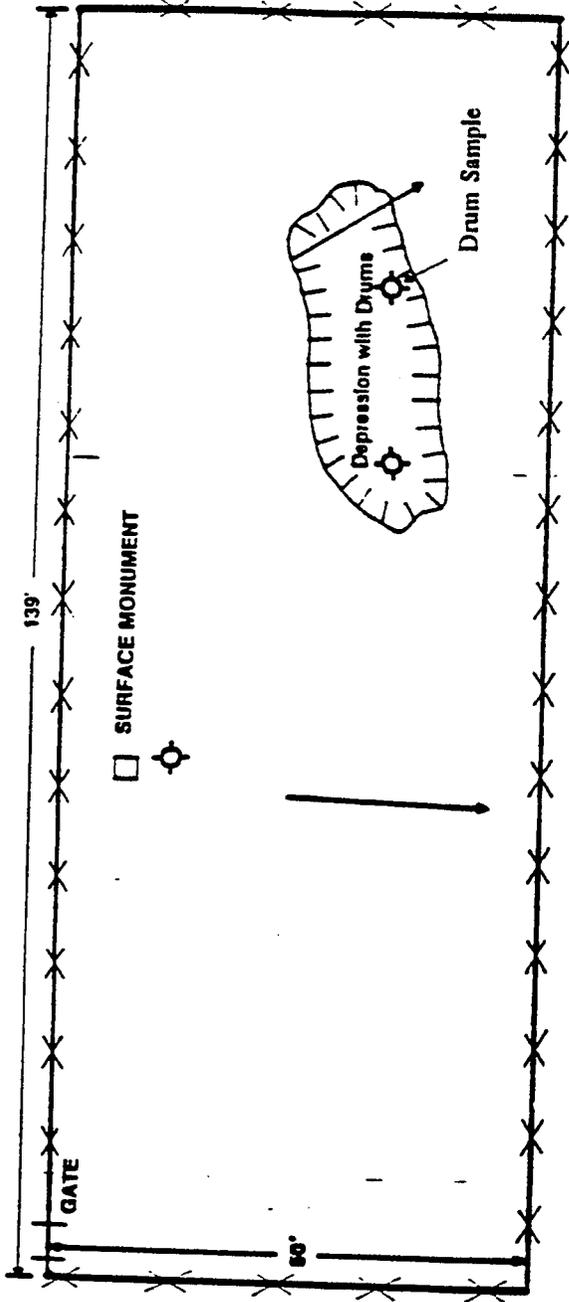


OLD TOXIC TRAINING AREA – FORT McCLELLAN

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Figure 3-7





⊕ SI Sample Location

NORTHEAST OF ROAD JUNCTION 20
UTM GRID, ZONE 18



NOT TO SCALE



PELHAM RANGE -- AREA J -- FORT McLELLAN
REPORT HD BURIAL SITE

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Figure 3-9.