SITE SAFETY AND HEALTH PLAN
REMEDIAL INVESTIGATION
AT THE NIAGARA FALLS
STORAGE SITE
NIAGARA COUNTY, NEW YORK

Contract DACW-49-97-D-0001
Delivery Order 0012

Prepared For:

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LIST OF ACRONYMS/ABBREVIATIONS

ALARA	As Low As Reasonably Achievable
AMSL	Above Mean Sea Level
ARAR	Applicable, Relevant and Appropriate Requirements
BRA	Baseline Risk Assessment
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CHMM	Certified Hazardous Materials Manager
COR	Contracting Officer Representative
CRZ	Contaminant Reduction Zone
DI	Deionized
DOD	Department of Defense
DOT	Department of Transportation
EZ	Exclusion Zone
FSP	Field Sampling Plan
FUSRAP	Formerly Used Sites Remedial Action Program
HNO_3	Nitric Acid
HP	Health Physicist
HPLC	High Performance Liquid Chromatography
HTW	Hazardous and Toxic Waste
ICP	Inductively Coupled Plasma (Spectroscopy)
ICS	Interference Check Standard
ID	Identification
IDW	Investigation Derived Waste
mg/kg	milligrams per kilogram (ppm)
mg/L	milligrams per liter (ppm)
MSA	Method of Standard Additions
nCi/g	nano curries per gram
NFSS	Niagara Falls Storage Site
NYSDEC	New York State Department of Environmental Conservation
P.E.	Professional Engineer
PAH	Polynuclear Aromatic Hydrocarbon

LIST OF ACRONYMS/ABBREVIATIONS (Cont.)

PCBs	Polychlorinated Biphenyls
pCi/g	Picocuries Per Gram
pCi/L	Picocuries Per Liter
ppb	parts per billion
PPE	Personal Protective Equipment
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RA	Radium
RAM	Radioactive Material
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RSO	Radiation Safety Officer
SM	Site Manager
SOP	Standard Operating Procedure
SOW	Scope of Work
SSHO	Site Safety and Health Officer
SSHP	Site-Specific Safety and Health Plan
SW-846	Test Methods for Evaluating Solid Waste
SZ	Support Zone
TCE	Trichloroethene
TCL	Target Compound List (Organic-related)
TEDE	Total Effective Dose Equivalent
Th	Thorium
TWA	Time Weight Average
U	Uranium
ì g/L	micrograms per liter (ppb)
ì g/kg	micrograms per kilogram (ppb)
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USGS	United States Geological Survey
VOC	Volatile Organic Compound

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SECTION 1

1.0 INTRODUCTION

1.1 Project Description

This Site Safety and Health Plan Addendum (SSHPA) was prepared for the United States Army Corps of Engineers (USACE). This plan addresses health and safety related procedures used during the Trench Sampling task at the Niagara Falls Storage Site (NFSS) located in the Township of Lewiston, Niagara County, New York. The location of the NFSS is shown in Figure 1-1 of the original SSHP.

The purpose of this SSHPA is to summarize project organization and responsibilities related to safety. This Plan will identify hazards; specify personal protective equipment (PPE) to be used at the site; identify personnel health and safety training requirements; summarize continuous monitoring techniques to be used; establish emergency procedures; describe medical surveillance programs in effect; ensure that appropriate first aid equipment is available; and provide for accident record keeping and safety inspections.

This Addendum and the original SSHP are in compliance with the U.S. Army Corps of Engineers Safety and Health Requirements Manual (EM 385-1-1, revised 1996), the U.S. Army Corps of Engineers Safety and Occupational Health Requirements for Hazardous Waste Site Remedial Actions (Engineer Regulation 385-1-92, 1 Sept. 2000), the Occupational Safety and Health Administration (OSHA) requirements (29 CFR 1910 and 1926, specifically 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response), and the U.S. Environmental Protection Agency's (USEPA) hazardous waste requirements (40 CFR 260-270).

This SSHPA has been prepared to address additional activities, which will be performed under Contract DACW49-97-D-0001, Work Order No. 0012.

1.2 Site Background Information/Setting

There are no changes to this section of the original SSHP.

SECTION 2

2.0 AREAS OF STUDY

The activities addressed by this Plan include the collection of soil samples from trenches at the locations specified in Section 3 of the Field Sampling Plan (FSP) for Trenching at the NFSS.

2.1 Summary of Investigation Tasks

Maxim will collect soil samples from the trenches as specified in Section 11 of the FSP.

SECTION 3

3.0 HAZARD IDENTIFICATION AND RISK ANALYSIS

3.1 Preliminary Evaluation

A preliminary evaluation of each task, the overall site characteristics, and hazards associated with investigative tasks was performed by the Site Manager and the Project Health and Safety Officer during the preparation of this document. This preliminary evaluation has resulted in the identification of potentially hazardous conditions and will aid in the selection of appropriate employee protection methodologies and PPE. Evaluation of work site characteristics and hazards is an on-going process and will continue throughout the duration of the project.

The primary physical hazards during this project are hazards associated with trenches, excavations and excavating equipment, operation of sampling equipment, slip/trip/fall on uneven terrain, and electrical hazards associated with the use of electrical equipment in the outdoor situations.

Chemical and radiological contamination may be encountered in the area of study during soil sample collection.

3.2 Hazard Identification

Hazards or conditions that may pose hazards are identified so site workers may be adequately protected. Emphasis is placed on identifying conditions that may cause death or serious harm and the protective measure implemented to avoid such hazards. All site workers must be diligent in identifying hazards in the work place and should bring them to the attention of supervisory personnel. All workers on-site have the authority to stop work if a potentially dangerous or unsafe condition exists.

Physical hazards known to be encountered in conducting field operations at this site are: unsure footing; trip, slip, and fall; weather; open trenches, excavating equipment operations; and biological hazards.

Chemical hazards will include those associated with, or resulting from, contact with the soils, rubble and debris that may be present at the trench locations and TNT test kit reagents. Material Safety Data Sheets (MSDS) for potential contaminants of concern are found in Appendix C of the original SSHP. Material Safety Data Sheets (MSDS) for chemicals and reagent used during sampling will be available onsite during the sampling activities.

A list of possible chemical hazards that may be encountered during this investigation is presented in Table 3-1 of this SSHPA. Information presented in this table includes: chemical name, Threshold Limit Value (TLV) and Permissible Exposure Limits (PEL) (if available), symptoms of exposure, route of exposure, media, action levels and work practice controls.

3.3 Risk Analysis – Trenching

The hazards that have been identified in the following sections have the potential to cause death or serious injury. Sampling operations are potentially dangerous and require strict adherence to safe practices and safety procedures. If additional hazards are identified during the performance of this work, protective measures will be implemented.

Site Activity Hazard Analysis has been performed and is presented in Table 3-2 of this document.

3.3.1 Physical Hazards

The following sections detail physical hazards, which have been identified that could result in injury to on-site workers during this activity.

3.3.1.1 Electrical Hazards

3.3.1.1.1 Aboveground Utilities

Aboveground utilities are not located near the Trench sampling locations.

3.3.1.1.2 Underground Utilities

Underground utilities are not expected to be present at sampling locations.

3.3.1.1.3 Electrical Equipment

Battery powered chemical and radiological monitoring equipment will be used during this task.

3.3.1.2 Fire Hazards - The use of vehicles equipped with catalytic converters, gasoline-powered pumps, and diesel-powered excavating equipment in overgrown areas may increase the potential of fire.

3.3.1.3 Trip/Slip/Fall - Personnel engaged in trenching and sampling will be working in some areas with rubble piles, debris and dense stands of trees and underbrush. These areas may also be wet and the conditions muddy thereby increasing the risk of this exposure of on-site workers to these hazards.

3.3.1.4 Noise/Hearing Protection – The use of excavating equipment and gasoline powered trash pumps may produce noise in excess of the 85dB action level.

3.3.1.5 Thermal Stress – During the time of year the field sampling will be performed, the weather conditions in the study area may range from near freezing to daily highs well

above 70 degrees Fahrenheit. This range in temperatures can subject site workers to an increased potential for hypothermia and/or heat stress/stroke during performance of on-site activities. The use of personal protective equipment during the sampling activities will likely increase the potential for heat stress/stroke. Activities associated with the performance of this task will occur during the spring of 2002.

3.3.1.5.1 Heat Stress/Stroke - The potential for heat stress at the site will be variable depending upon the temperature at the time this task is being performed. Daytime high temperatures exceeding 70^{o} F increase the potential for heat related illnesses to occur. Sampling personnel will be wearing Tyvek® coveralls, overboots and gloves and hard hats which limit the body's ability to dissipate heat.

3.3.1.5.2 Cold Stress/Hypothermia - The potential for cold stress/hypothermia will be variable depending upon the temperature at the time this task is being performed. The potential for hypothermia also increases with increasing wind speed.

3.3.1.6 Flying Debris – The use of excavating equipment may cause pieces of wood, debris, soil or other objects to be mobilized and expose workers to this hazard.

3.3.1.7 Pinch/Puncture/Shear - These hazards are present excavating equipment, vehicles and sampling equipment used during this task. Workers should remain vigilant of pinch/puncture/shear points on field vehicles, excavating equipment, and field sampling equipment

3.3.1.8 Trenching Hazards – This task includes the excavation of trenches to facilitate sample collection. Hazards associated with this task include: person(s), vehicle(s) or equipment falling into the trench; engulfment by collapsing, toppling or sliding sidewalls; engulfment by bottom heaving or squeezing; engulfment by boiling of the excavation bottom (caused by an upward flow of water into the trench); excavated material falling back into the open trench; and hazardous atmospheres. These hazards may be present during this task.

3.3.1.9 Equipment Hazards – Hazards associated with the use of large diesel or gasoline-powered excavating equipment may be present during the performance of this task. These hazards include: equipment backing over personnel working in the vicinity of the equipment; personnel being struck by the boom or bucket, and exposure to falling loads of excavated materials.

3.3.2 Chemical Hazards

The potential chemical hazards that could be encountered during on-site activities are presented in Table 3-1 of this SSHP Addendum. During trench entry for sampling, volatile organic compounds, nitroaromatics, heavy metals, petroleum derivatives and radiological contaminants such as thorium, radium and radon gas could be encountered. Chemical hazards include those associated with or resulting from contacts with water and/or the soil, sediments/sludge that may be present in the trench and from reagents and chemicals used in the TNT field screening activities.

3.3.4 Biological Hazards

The personnel involved in activities at the site may be exposed to threats from biological hazards such as mosquitoes, ticks, spiders, rodents, and snakes and pathogens that may be present in soils on the NFSS. Infections of the West Nile Virus were found in birds collected from Niagara County in the year 2000 and 2001. Mosquitoes, which have feed on infected birds, could potentially transmit the virus to human beings. Irritant plants such as poison ivy, poison oak, poison sumac, and greenbriar, are also present on the NFSS. Table 3-3 of the original SSHP lists poisonous spiders and other animals indigenous to the work area.

3.3.4 Unexploded Ordnance [UXO/Ordnance Explosive Waste -(OEW)]

Unexploded ordnance is not expected at the site. There is no history of use or disposal of UXO at the facility. Low levels of nitroaromatic compounds may be present in trenches placed within the Acidification Area sewers. Previous sampling has not indicated the presence of nitroaromatic compound in concentrations (10% Trinitrotoluene [TNT] in soil) sufficiently high to cause an explosive hazard.

3.3.5 Radiation Hazards

The historic use of the facility is described in Section 2 of the original SSHP. The majority of radioactive materials have been previously consolidated into the waste containment structure; however, recent RI activities have identified localized areas of elevated soil contamination throughout the site. Radionuclide concentrations outside of the WCS are low, with the highest activity radionuclide being U-238 at 13.8 pCi/g (average).

3.4 Action Levels and Hazard Mitigation/ Trenching

This section identifies action levels and mitigation methods to be employed during the previously identified investigative activities. The action levels identify situations where specific protective equipment or engineering controls will be employed to reduce worker exposure and risk to specific hazards during this task. These action levels and mitigation methods are presented in Table 3-1. Site Activity Hazard Analysis has been performed and is presented in Table 3-2.

3.4.1 Physical Hazards

The following sections detail physical hazards, which have been identified that could result in injury to on-site workers during this activity.

3.4.1.1 Electrical Hazards

3.4.1.1.1 Aboveground Utilities

Utilities of this type will not be encountered in the study area; therefore no action levels or hazard mitigation methods are required.

3.4.1.1.2 Underground Utilities

Active electrical or pressurized underground utilities that are currently in use are not expected to be present in the trench locations at the NFSS. Based upon the review of available plant drawings depicting sewage and water lines from the operational period of the Lake Ontario Ordnance Works (LOOW), no pipelines or sewer line are present within the planned trench locations. In order to identify any active utilities on the site, the Maxim Site Manager will contact the New York one-call utility locator service (I-800-892-7962) and non-subscriber utilities a minimum of seven days in advance of the anticipated sampling date so that utilities can be clearly marked prior to the initiation of excavating activities. Available plant drawings will be available onsite with each trenching crew and shall be consulted to determine if utility lines may be present near trench locations.

3.4.1.2.3 Electrical Equipment

Batteries will power the monitoring equipment that will be used during this task. Care should be exercised when the electrical connections to the battery are made to ensure that personnel do not come in direct contact with the battery terminals and when connecting the equipment to electrical outlets for recharging.

3.4.1.2 Fire Hazards – Caution will be used when driving vehicles in tall, dry grasses and when operating any diesel or gasoline-powered equipment in areas of the site where dry grass or woody vegetation is present. A fire extinguisher will be kept in all vehicles used on-site.

All fueling operations will be conducted on “cold machines”. The fueling of excavating equipment will take place at the beginning of each work shift. If fueling is required after a period of operation, the equipment will be allowed a sufficient period of time to cool down prior to re-fueling. A fire watch will be maintained during all fueling operations, with fueling being conducted by one worker and another worker standing by in close proximity equipped with a fire extinguisher rated for petroleum product fires (4A: 20:BC at a minimum). Gasoline-powered equipment such as trash pumps will also be fueled "cold" and a fire watch will be maintained during fueling of the equipment.

3.4.1.3 Trip/Slip/Fall – Each worker should be aware of local conditions that would contribute to an increase risk of this hazard and immediately correct any such situation. The work area at each trench location will be cleared of dense brush and trees less than 8 inches diameter breast height (dbh) prior to the initiation of the trenching activities. Brush and downed trees will be moved at least 30 feet from the actual trenching location. On-site workers should exercise care when walking in areas of overgrown vegetation, debris, rubble piles, wet grass, mud or near the trench openings.

3.4.1.4 Noise/Hearing Protection – Personnel working within 25 feet of operating excavating equipment or trash pumps will be required to wear ear protection with a minimum noise reduction rating (NRR) of 25dBa.

3.4.1.5 Thermal Stress - Many factors contribute to prevention of thermal stress induced illnesses. These include: acclimatization; consumption of copious amounts of fluids and appropriate work/rest periods in temperature controlled environments.

3.4.1.5.1 Heat Stress/Stroke - If ambient temperatures exceed 70^0F, site training will include training in heat stress control measures, recognition of heat stress induced illness symptoms and first aid for heat stress.

Specific mitigation measures for prevention of heat related illness include: frequent breaks in a cool area, pacing your work maintenance of hydration. Mitigation controls, monitoring protocols and action levels to prevent injury to site workers from heat stress are presented in SOP 14 presented in Appendix B of the original SSHP.

3.4.1.5.2 Cold Stress/Hypothermia - If ambient temperatures exist which increase the risk of cold stress or hypothermia site training will include instruction in cold stress control measures, recognition of cold stress induced illness symptoms and in first aid for cold stress.

Specific mitigation measures for prevention of cold stress related illness include: frequent breaks in a warm, dry area; wearing of layered clothing with wind breaking properties to protect against the effects of wind chill; avoidance of wet clothing and maintenance of hydration. Mitigation controls, monitoring protocols and action levels to prevent injury to site workers from cold stress/hypothermia are presented in SOP 14 presented in Appendix B of the original SSHP.

3.4.1.6 Flying Debris – All on-site personnel will be required to wear ANSI-approved hard hats and safety glasses equipped with side shields while engaged in trenching activities. The use of safety glasses w/side shields is mandatory for all employees while inside the perimeter fence of the NFSS. The only exceptions to this requirement are, while site workers are completely inside the fully enclosed cab of excavating equipment or vehicle or inside of the job/office trailers located at the site.

3.4.1.7 Pinch/Puncture/Shear – All on-site workers are required to wear steel-toed

boots during all on-site activities. Care should be exercised when exiting vehicles used during this task. Personnel involved in these activities will be made aware of all pinch/shear points which are present on the excavating and sampling equipment used during this task.

3.4.1.8 Trenching Hazards – The installation of trenches will be performed in a manner consistent with 29 CFR 1926.65 through 1926.652 (29 CFR Subpart P "Excavations", the OSHA Technical Manual, Section V Chapter 2, Excavations: Hazard Recognition in Trenching and Shoring, presented in Appendix A and Maxim's Trenching and Excavating Standard Operating Procedures presented in Appendix B. Specific methods for the installation of trenches, methods for removal of water from the trenches and the methods by which samples will be collected are described in Maxim's Trenching Plan (April 2002).

Maxim will monitor the atmosphere in the trench based on the requirements of 29 CFR 1915.12. If a trench greater than four feet in depth is allowed to remain open overnight, the atmosphere in the trench will be tested at the beginning of the workday prior to the starting of any equipment that may be a source of ignition of flammable gases. The atmosphere in the trench will be tested in this order: oxygen content, flammability and toxicity. If the monitoring of the trench atmosphere indicates that the O_2 concentration is less than 19.5% or greater than 22.0 %, no entry of the trench will be allowed. If the atmospheric testing of the trench indicates that the trench contains an oxygen deficient atmosphere, the trench will be labeled "Not Safe for Workers". If the atmospheric testing of the trench indicates that the trench contains an oxygen-enriched atmosphere, the trench will be labeled "Not Safe for Workers" and "NOT SAFE for HOT WORK". If ventilation of the trench is performed, the atmosphere will be tested and have an O_2 concentration between 19.5% and 22.0 % O_2 by volume, prior to trench entry. The warning labels may be removed when testing verifies that the O2 concentration to be between 19.5% and 22.0 % O2 by volume.

If the atmospheric testing of the trench indicates that flammable vapors or gases are present in the trench at concentrations equal to or greater than 10% of the Lower Explosive Limit (LEL), the space shall be labeled "NOT SAFE for WORKERS" and "NOT SAFE for HOT WORK". Ventilation shall be provided at volumes and flow rates sufficient to ensure that the concentration of flammable vapors is maintained below 10% of the LEL. The warning labels may be removed when the concentration is verified by testing to be below 10% of the LEL.

If the atmospheric testing of the trench indicates that the trench contains an air concentration of a material, which exceed a PEL or is an IDLH environment, the space shall be labeled "NOT SAFE for WORKERS". Ventilation shall be provided at volumes and flow rates sufficient to ensure that the air concentrations are maintained below the PEL, or in the case of contaminants for which there is no PEL, below IDLH concentrations. The warning label may be removed when the concentration is verified by testing to be maintained below the PEL or IDLH concentrations.

To mitigate for the potential for entrapment or engulfment of workers entering the trench,

Maxim may employ a combination of benching and/or trench boxes to provide for the protection of sampling personnel that may be required to enter the trench.

Water that enters a trench will be removed by using a gasoline-powered trash pump of sufficient size to assure that water does not accumulate in the trench. The amount of IDW water produced will be minimized where practicable. Only water from trenches that directly interferes with investigation activities will be removed.

3.4.1.9 Equipment Hazards - Personnel shall remain aware of the location of the excavating equipment at all time. Movement of the excavating equipment will be performed with the aid of a spotter that is in direct radio communication with the operator while the equipment is being moved. Workers will not be allowed to work under raised loads. During excavation of a trench, trench box placement or removal, or trench backfilling activities, personnel will not be allowed within 10 feet of the maximum extension of the boom of the excavator. During the collection of soils samples from the excavator bucket, the bucket will be placed on the ground and the excavator motor will be shut down.

Excavating equipment will be equipped with functioning back-up alarms and horns. All excavating equipment will be inspected on a daily basis. This inspection will be documented on the Equipment Inspection Form presented as Exhibit 3-1.

3.4.2 Chemical Hazards

Material Safety Data Sheets (MSDSs) for potential contaminants of concern are found in Appendix C of the original SSHP. MSDSs for the chemicals and reagents used in the TNT field testing activities will be available on-site during the trenching and testing activities.

All trenching activities will be performed in a Modified Level D PPE ensemble. This ensemble will include hooded, poly-coated Tyvek® coveralls or hooded spun-bound polyethylene coveralls; nitrile gloves (inner and outer); steel-toed boots, chemically resistant overboots; safety glasses w/side shields, hard hats and hearing protection with a minimum noise reduction rating (NRR) of 25dBa. On-site workers involved in this task should be alert to the potential of the presence of any chemical odors or visible signs of chemical contamination while trenching samples are being collected.

The atmosphere in the work zone will be monitored with a photo-ionization detector (PID) equipped with a 10.2 eV lamp and a toxic gas meter capable of monitoring % O_2, LEL, CO, and (H_2S).

If PID monitoring indicates the presence of volatile organic compounds exceeding the action levels presented in Table 3-2 in the breathing zone, colorimetric indicator tubes will be used to in an attempt to identify these compounds. If the colorimetric tubes indicate the presence of contaminants in the breathing zone above the PEL or TLV, all workers will immediately evacuate the work zone in an upwind direction and contact the SSHO. The SSHO will determine the appropriate engineering controls, work practices or modifications to PPE that

will be taken to protect workers and allow work to continue.

If the Gastech GX-82 toxic gas meter exceeds the preset standards (10% LEL, < 19.5% oxygen, and hydrogen sulfide - 10 ppm) all work will stop and all personnel will move in an upwind direction away from the work area. After evaluating the data, the safety officer will consult with the CIH, if necessary and decide on the proper action to protect all personnel.

After evaluating the data, the SSHO will consult with the CIH, the Maxim PM and USACE Site Supervisor and determine the proper action to protect all personnel. If safe work standards cannot be met, the SSHO will contact the Project Manager (PM) and USACE Site Supervisor.

Full-faced air purifying respirators (APRs) equipped with organic vapor/acid gas/P100 cartridges (OV/AG/P100) will be available for use in the event that work zone monitoring indicates any of the action levels presented in Table 3-1 of the original SSHP will be exceeded and an upgrade to levels C is required.

If work conditions require an upgrade to a level of protection above level C (Levels A or B), the Site Safety and Health Officer (SSHO), the Maxim Certified Industrial Hygienist (CIH), Maxim Project Manager (PM), in consultation with the USACE Industrial Hygienist will determine the appropriate protective measures which will be employed to adequately protect on-site workers.

3.4.3 Biological Hazards

Mosquitoes and biting insects may be prevalent during the time of the year this task will be performed. Birds that were with confirmed west Nile Virus infections have been documented in Niagara County. Workers involved in this task will be required to wear protective Tyvek® or spunbound polyethylene coveralls that will reduce the occurrence of insect bites. Insect repellents used in combination with headnets will also contribute to a reduction of exposure to this hazard. High boots and heavy gloves can also help to minimize exposure to many of these biological hazards. Onsite workers will be required to wash their hands with an antibacterial soap or antibacterial gel prior to eating or drinking.

3.4.4 Unexploded Ordnance (UXO/Ordnance Explosive Waste (OEW)

While trenching is being performed in the Acidification Area, Maxim will employ two field-screening methodologies to determine the presence or absence of TNT and if present, to the presence or absence of TNT concentrations greater than or equal to 10%. The specific requirements for use of these TNT screening methods are described below.

Pre-Trenching Walkover Survey/Field Testing Protocol

Prior to installation of trenches in the Acidification Area, Maxim will conduct a visual inspection of the trench area for TNT chunks or nodules and/or red soil staining which may be indicative of TNT contamination. Specific testing requirements are presented below.

Stained Soil

If this inspection reveals soil staining indicative of TNT contamination, field-testing using the Espray test kits will be performed to determine if TNT is present. If the Espray test yields a positive result, Maxim will perform verification testing using the DTEK TNT explosive test kit to determine if the explosive concentration is equal to or greater than 10%. If this testing indicates that the concentration is less than 10% the trenching may proceed with periodic Espray testing. If this testing indicates a concentration equal to or greater than 10%, the excavation will not be initiated and the SSHO will be contacted immediately. The SSHO, in consultation with the USACE Site Supervisor, the USACE IH, the Maxim CIH and the Maxim PM will determine the appropriate measures that will be employed to adequately protect on-site workers.

TNT Chunks or Nodules Greater than One-half Inch in Size

If suspect TNT pieces or nodules greater than one-half inch in size are present, Maxim will determine if the nodules or pieces contain TNT using the Espray test kits. If the Espray test yields a positive indication of TNT, the excavation will not be initiated and the SSHO will be contacted immediately. The SSHO, in consultation with the USACE Site Supervisor, the USACE IH, the Maxim CIH and the Maxim PM will determine the appropriate measures that will be employed to adequately protect on-site workers. A decision flow-chart for Pre-Trenching Walkover Survey/Field Testing Protocol is presented as Exhibit 3-2.

Trenching Field Testing Protocol

During trench installation in the Acidification Area, Maxim will visually inspect the trench sidewalls and excavated material for visual evidence for red soil staining which may be indicative of TNT contamination and for TNT chunks or nodules. Maxim will also conduct periodic screening of the soils from the sidewalls and of excavated material using the Espray field testing methodology.

If the field-testing using the Espray test kits indicates TNT contamination, Maxim will perform verification testing using the DTEK TNT explosive test kit to determine if the explosive concentration is equal to or greater than 10%. If this testing indicates that the concentration is less than 10% the trenching may proceed with periodic Espray testing. If this testing indicates a concentration equal to or greater than 10%, excavating activities will cease immediately and all personnel will evacuate the work zone and the SSHO will be contacted immediately. The SSHO, in consultation with the USACE Site Supervisor, the USACE IH, the Maxim CIH and the Maxim PM will determine the appropriate measures that will be employed to adequately protect on-site workers.

If suspect TNT pieces or nodules greater than one-half inch in size are present, Maxim will determine if the nodules or pieces contain TNT using the Espray test kits. If the Espray test yields a positive indication of TNT, excavating activities will cease immediately and all personnel will evacuate the work zone and the SSHO will be contacted immediately. The SSHO, in consultation with the USACE Site Supervisor, the USACE IH, the Maxim CIH and the Maxim PM will determine the appropriate measures that will be employed to adequately protect on-site workers. A decision flow chart for Trenching Field Testing Protocol is

presented as Exhibit 3-3.

3.4.5 Radiation Hazards

All sampling activities will be monitored by a Health Physicist (HP) Technician to ensure that radiological hazards, should they be encountered, do not pose a threat to on-site personnel. Radiation exposures to workers and the public will be kept below regulatory limits and As Low As Reasonably Achievable (ALARA). Because of the low specific activity, as well as historical dose monitoring results during RI activities (<10 mrem/worker), radiological hazards for any individuals are not anticipated to exceed 100 mrem total effective dose equivalent during this investigation.

Prior to excavating soil at a trench, a gamma survey of the trench area and immediate vicinity will be performed. Areas which have gamma radiation at levels approximately two times background, or greater, will be "flagged" per the field sampling plan Section 2.

Worker training requirements are detailed in specified in Section 5.0 of this document. Dosimetry for monitoring radiological exposures is specified in Section 8.0 of this Addendum. Task specific monitoring requirements are specified in the RPP Addendum presented in Appendix C.

Section 4

4.0 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

4.1 Project Organization

A project organizational chart, which identifies responsibilities related to health and safety, is presented in Figure 2-1 of the original Quality Assurance Project Plan (QAPP). The responsibilities are outlined in Section 4-2 of the original SSHP.

4.2 Identification of Responsibilities

Site Manager - Dave Germeroth will serve as the Site Manager for this task.

Section 5

5.0 TRAINING

All training related to the performance of on-site activities will be completed in accordance with Maxim's SOP 3.0 "Accident Prevention, Training and Medical Surveillance" presented in Appendix C of the original SSHP.

5.1 Comprehensive Health and Safety Indoctrination

At the onset of on-site activities, the project personnel (including subcontractors) will be required to have read the Site Safety and Health Plan and this SSHPA and sign the Statement of Understanding (Exhibit 5-1) attesting that they have read and understand the SSHP and this SSHPA

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Prior to the initiation of each phase of the field operations, the Site Manager will review the plan with all site personnel. They will be verbally informed of the known and possible hazards of working on this site and instructed on the proper safety procedures that they will be required to practice. All personnel will be instructed and trained in the proper use of all safety equipment and their limitations. All field personnel will be informed of relevant safety procedures and will be furnished with emergency telephone numbers. All on-site personnel and visitors will be briefed on the potential physical and chemical hazards before they are allowed on site. These briefings will be documented in the site log, listing name, date, and subject.

5.2 Specialized Training - Maxim Personnel

All Maxim field personnel and supervisors have attended an OSHA required (29 CFR 1910.120) 40-hour training course for safety at hazardous materials sites, 8-hour HAZWOPER annual refreshers as appropriate, and are American Red Cross certified to administer First Aid and CPR. Maxim supervisory personnel have received OSHA required 8 hour training for "Hazardous Waste Site Supervision." In addition, all personnel have been trained in the use and limitations of respirators, and the use of personal protective equipment. Qualitative respirator fit testing is performed for all personnel prior to commencement of field activities. A summary of the health and safety training acquired by Maxim personnel is provided in Table 5-1.

Copies of updated training certificates are presented in Appendix D.

5.3 Specialized Training - Subcontractors

There are no changes to this section of the SSHP.

5.4 Site-Specific Training

There are no changes to this section of the SSHP.

5.5 Radworker Training

All Maxim and subcontractor personnel will be required to have completed instruction in radiation safety or annual updates as appropriate. This training will meet the requirements specified in 385-1-1 Section 06.E.3b and 10 CFR 19.12. This training will be obtained prior to the personnel being involved with on-site sampling activities. This training must include the following elements: health effects of ionizing radiation; exposure limits (including those for pregnant workers); use of dosimetry and instruments; effects of radiation on the embryo/fetus; employee rights and responsibilities; site contaminants and probability of exposure; required monitoring; and exposure control methodologies.

Section 6

6.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The normal work uniform for this site will be Level D.

During all trenching operations, Modified Level D PPE consisting of poly-coated Tyvek® or spun-bound polyethylene coveralls, steel-toed boots, rubber overboots, nitrile gloves (inner and outer), hard hats and safety glasses with side shields will be required for all sampling personnel. Full-faced APRs equipped with organic vapor/P100 filters will be on-hand in the event an up-grade to Level C is required. If a hazardous situation or the possibility of exposure is encountered or anticipated at sampling locations, the SSHO, in consultation with the Site Manager, the USACE Site Supervisor, and the Maxim CIH will evaluate the situation and upgrade the level of PPE as needed. If conditions are encountered that require a higher level of PPE than Level C, operations will cease and the USACE COR and the Maxim program manager will be advised.

All PPE will be kept in weatherproof containers. Prior to use, each piece of PPE will be inspected prior to use.

All Maxim personnel will be fit-tested for their assigned respirator prior to entering the site. Fit testing documentation for Maxim employees is provided in Appendix D. All subcontractor personnel will be fit-tested prior to site entry and will provide documentation of the fit testing to the SSHO prior to performance of any on-site activities.

Upon donning the respirator, the individual will perform a positive and negative pressure fit check. At the end of each day, respirators will be cleaned, dried, and placed in weatherproof container. Respirator cartridges will be replaced as needed. Visitors will be required to have fit-test documentation available for review and have a respirator of the brand and size with which they were fit-tested with available for use on-site.

A list of personal protective equipment is in Table 6-1 of the original SSHP.

6.1 Levels of Protection

Various levels of protection are described in SOP 8.0 “Personal Protective Equipment.” Levels of protection to be worn on-site will vary. Level D protection is necessary to enter the site. Modified Level D protection will be worn during all sampling activities. Levels of protection required during this investigation will be as follows:

Activity	Level of Protection
Trenching	Modified D: Modified by the inclusion of hard hat, nitrile gloves (inner and outer) chemically resistant poly-coated Tyvek® or spun bound polyethylene coveralls, steel-toed boots, chemically resistant rubber overboots safety glasses w/side shields, hearing protection(minimum NRR of 25dBa)
Trench Sampling	Modified D: Modified by the inclusion of hard hat, nitrile gloves (inner and outer) chemically resistant poly-coated Tyvek® or spun bound polyethylene coveralls, steel-toed boots, chemically resistant rubber overboots safety glasses w/side shields, hearing protection(minimum NRR of 25dBa)

Section 7

7.0 MEDICAL SURVEILLANCE

Bioassay analysis will not be performed unless work area sampling indicates the presence of airborne concentration of radionuclides. The Derived Air Concentration is 3E-11 uCi/ml. Table 2 of the RPP states that the Project Manager, H&S Manager, USACE HP, Project CHP, will be notified and bioassays will be instituted if > 12 DAC/week is encountered.

Table 5-1 presents the dates of the employees' most recent annual medical exam. Copies of the most recent Fit-for-Duty Statements are included in Appendix E. Exposure of personnel above the OSHA PEL to any of the hazardous substances listed in Table 3-1 will require a physician examination.

Section 8

8.0 DOSIMETRY

Maxim will utilize Personal Monitoring Devices (PMD) to maintain a permanent dose record of each for each on-site worker. Maxim and subcontractor personnel will be required to wear a Thermoluminescent Dosimeter (TLD) for monitoring exposure to non-alpha radiation while on the NFSS. TLD badges have a nominal detection range of 0.1 to 10,000 rads. The dosimetry program will be administered in accordance with the Radiation Protection Plan Addendum presented in Appendix C of this document. Each site worker and visitor subject to this site safety and health plan will wear a film badge while on-site, except in health physics designated office and the Maxim job trailer. All dosimetry, including the control badge will be collected and evaluated at the end of the field phase of these activities or a quarterly basis.

The Site Radiation Safety Officer (RSO) will be responsible for management of the on-site dosimetry program. Each on-site employee will be required to wear his or her film badge when he or she is present on the NFSS site. The TLD badge will remain at the work site when personnel are off-site.

The Site RSO will maintain records of dosimetry while personnel are on the project site. Maxim will maintain the employee records at the Maxim St. Louis Office.

Section 9

9.0 EXPOSURE MONITORING DURING SAMPLE COLLECTION

9.1 Environmental Exposure Monitoring

There are no changes to this section of the SSHP.

Section 10

10.0 STANDARD OPERATING PROCEDURES (SOPs), ENGINEERING CONTROLS AND WORK PRACTICES

There are no changes to this section of the SSHP.

Section 11

11.0 SITE ACCESS AND WORK ZONES

The NFSS is a locked, restricted access facility. The SSHO and the RSO will be responsible for controlling site access and for establishing work zones which will provide for protection of site workers and visitors in work areas which present physical, chemical or radiological hazards. The established work zones will aid in the minimization of the number of employees which are potentially exposed to site hazards and will also minimize the potential for the spread of contamination. The SSHO and the RSO will monitor the implementation the establishment of the work zones and report any deviations from the requirements to the Site Manager or stop work until the proper work zones are established. The names of all contractor, subcontractor and vendor personnel entering the site will be documented in a log which will be maintained at the job trailer. The log will include the date, name, agency or company, and time entering and leaving the site.

11.1 Exclusion Zone

The primary function of the exclusion zone is to protect personnel who are not involved in the work from the hazards associated with the task(s) being performed. The exclusion zone is the work zone where the greatest potential for contamination to occur exists. The amount of equipment and the number of personnel allowed in the exclusion zone will be kept to a minimum in order to control the spread of contamination and physical hazards.

11.2 Contamination Reduction Zone

The contamination reduction zone will be established around and outside of the exclusion zone. A point of ingress and egress to the exclusion zone will be established to control the flow or personnel and equipment into the exclusion zone. The point of ingress and egress will be delineated with signage or barricade tape. Personnel and equipment will be scanned for radiological contamination by HP personnel prior to movement past the point of ingress and egress.

When entering the contamination reduction zone, all personnel will be required to have donned the appropriate level of protection as prescribed in Section 6 of this document. Doffing of PPE and personnel decontamination (if required) will be performed in the contamination reduction zone.

11.3 Support Zone

The support zone is the clean and relatively hazard free area which will be established outside of the contamination reduction zone and will be the primary location for the staging of equipment and supplies which may be used during investigative activities. The requirements for entry into the support zone are the same as the general requirements for site work. These requirements are: the training requirements presented in Section 5.0 and the medical

surveillance requirements presented in Section 7.0.

Section 12

12.0 PERSONAL HYGIENE AND DECONTAMINATION

12.1 Personal Hygiene

Portable toilets will be provided at a location near the project office trailer. Four units will be provided and will be maintained, on a weekly schedule, by a supplier.

Waterless hand soap and antiseptic waterless gel will be provided for hand and face washing in the project office trailer, portable toilets and support zones.

12.2 Decontamination

Decontamination, if implemented, will be performed by scrubbing the contaminated surface with water soaked scrub brushes in an area with plastic sheeting, or wiping down a surface with water saturated cloth.

Section 13

13.0 EQUIPMENT DECONTAMINATION

Decontamination, if implemented, will be performed by scrubbing the contaminated surface with water soaked scrub brushes in an area with plastic sheeting, or wiping down a surface with water saturated cloth.

Section 14

14.0 EMERGENCY AND SITE EQUIPMENT

Maxim will provide all emergency equipment, which includes the following items:

Fire Extinguisher - Maxim will provide a 2A:10:BC extinguisher for every vehicle.

First Aid Kit - Maxim will provide a physician-approved first aid kit in each on-site vehicle and the office trailer.

Eye Wash Station - Maxim will provide each Maxim field team member with a portable eye wash bottle that will be located as close as possible to work hazards. All personnel will be trained in its operation.

Spill Kit - Spill clean-up materials will be present at each trenching location. These materials will consist of three-inch diameter absorbent socks, adsorbent spill pads, will be kept in the support vehicle so it is available for use at each work site. All personnel will be trained in the use of the spill materials.

All emergency equipment will be kept in the support vehicle as close to each operation as possible.

Section 15

15.0 EMERGENCY RESPONSE AND CONTINGENCY PROCEDURE

A Release Contingency Plan has been prepared for this activity and is presented in Appendix F.

15.1 Emergency Procedures

In the event that an emergency develops on-site, the procedures outlined within this section will be immediately followed.

Emergency conditions are considered to exist if:

1) Any member of the field crew is involved in an accident or experiences any adverse effects or symptoms of exposure while on the site;

2) A condition is discovered that suggests the existence of a situation more hazardous than anticipated;

3) After an explosion, or;

4) A fire occurs on-site while working.

In case of any of the above events, the following procedures will be followed.

1) Notify the paramedics, security and/or fire department immediately.

2) Signal and implement the evacuation procedure.

3) Isolate the area.

4) Stay upwind of any fire.

5) Keep the area surrounding the problem clear after the incident.

6) Complete the accident report form and distribute to the appropriate personnel.

Emergency numbers will be posted in each vehicle and kept readily available to the field crew. All personnel will be aware of the location of the closest telephone and/or radio communications.

The following is a list of the emergency phone numbers:

Fire Dept.:	(716) 492-4111
Police:	(716) 461-4727
Hospital:	(716) 461-3232
Ambulance Service	911 (or) call Fire Dept. above
Poison Control:	1-800-382-9097
National Response Center (NRC) **Toxic Chemical and Oil Spills:**	1-800-424-8802
USACE Buffalo Site Safety and Health Officer **Tony Cappella**	(716) 879-4173
USACE Buffalo Site Supervisor **Dennis Rimer**	(716) 879-4444
USACE Buffalo Project Manager **Dr. Judith Leithner**	(716) 879-4234
USACE Buffalo Field Health Physicist **Clint Verelle**	(716) 863-6612
USACE Buffalo Health Physicist **Chris Hallam**	(716) 879-4171
Maxim - St. Louis Office	(314) 426-0880
FAX	(314) 426-4212
NFSS Maxim Office Trailer	(716) 754-9141

NOTE: The emergency 911 number should work on mobile phones. When providing Maxim's mobile phone number to emergency personnel, ensure that the any required "ROAM" access number for the area the unit is operating in is stated. In addition, the area code (314) should be stated along with the phone number.

In the event of an emergency, the Site Manager (SSHO in his absence) will assume responsibility for implementing the Emergency Response and Contingency Plan.

Section 16

16.0 ACCIDENT PREVENTION

There are no changes to this section of the SSHP.

Section 17

17.0 LOGS, REPORTS, AND RECORDKEEPING

There are no changes to this section of the SSHP.

TABLES

Table 3-1
Contaminants of Concern

Chemical	Chemical and Physical Properties	TLV, PEL, STEL, IDLH	Health Effects/Hazards	Media	Exposure Routes
Thorium 230	Solid	DAC = 3E-11 uCi/ml	Cancer	1,2,3	Inhalation ; Ingestion; Contact
Radon 222	Gas	DAC = 3E-11 uCi/ml	Cancer	1,2,3	Inhalation ; Contact
Radium 226	Solid	DAC = 3E-11 uCi/ml	Cancer	1,2,3	Inhalation ; Ingestion; Contact
Uranium 238	Solid	TLV: 0.2 mg/m3, A1; DAC = 3E-11 uCi/ml	Cancer; Liver Damage	1,2,3	Inhalation ; Ingestion; Contact
Uranium 235	Solid	TLV: 0.2 mg/m3, A1; ; DAC = 3E-11 uCi/ml	Cancer; Liver Damage	1,2,3	Inhalation ; Ingestion; Contact
Plutonium Isotopes	Solid	DAC = 3E-12 uCi/ml when in VP "G"	Cancer	1,2,3	Inhalation ; Ingestion; Contact
Boron	Solid	PEL: 15 mg/m^3 REL: 10 mg/m3	Eye, Skin, and respiratory irritant; cough; conjunctivitis; skin redness; reacts with water to form boric acid.	1,2,3	Inhalation ; Ingestion; Contact
Lead	Solid	PEL: 0.05 mg/m^3 REL: 0.10 mg/m3	Eye irritant; kidney damage; central nervous system damage; blood and gastrointestinal disorders.	1,2,3	Inhalation ; Ingestion; Contact
Thallium	Prperties variable depending on the specific compound	PEL: 0.1 mg/m^3 REL: 0.1 mg/m3	Eye, liver, kidney damage; central nervous system damage; blood and gastrointestinal disorders.	1,2,3	Inhalation ; Ingestion; Contact
Zinc	Solid	PEL: 5 mg/m^3 REL: 5 mg/m3	Respiratory system damage	1,2,3	Inhalation
1,2-Dichloroethane	Colorless Liquid with a pleasant chloroform-like odor. F.P. 56^0F; IP: 11.05; eV; LEL 6.2%	PEL: TWA - 50 ppm C - 100ppm, 200 ppm (5 minute max peak three hour) REL: Ca	Potential cancer. Eye, irritant; corneal opacity; central nervous system depressant/depression; nausea; vomiting; dermititis;liver, kidney cardiovascular damage.	1,2,3	Inhalation ; Ingestion; Absorption; Contact
Trichloroethene	Liquid; VP; 58 mmHg	PEL: TWA 100 ppm C - 200ppm, 300 ppm (5 minute max peak three hour) REL: Ca	Potential cancer. Eye; skin; lung; liver; heart; kidney; cardiovascular damage.	1,2,3	Inhalation ; Ingestion; Absorption; Contact
Tetrachloroethene	Liquid; VP; 14 mmHg	PEL: TWA 100 ppm C - 200ppm, 300 ppm (5 minute max peak three hour) REL: Ca	Potential cancer. Eye; skin; lung; liver; heart; kidney; and central nervous system damage.	1,2,3	Inhalation ; Ingestion; Contact

FP = Flash Point
IDLH = Immediately Dangerous to Life or Health
IP = Ionization Potential
STEL = Short-term exposure limit

TLV = Threshold Limit Value
TWA = Time-weighted Average
VP = Vapor Pressure
PEL = Permissible Exposure Limit

A1 = Confirmed Human Carcinogen
A2 = Animal Carcinogen
REL
Ca = occupational carcinogen

Media
1 Soil, sediment
2 Surface water
3 Groundwater

TABLE 3-2 *ACTIVITY HAZARD ANALYSIS*		
Contract No. DACW49-95-D-0001	**Project: Trenching NFSS**	**Facility: Niagara Falls Storage Site**
Date: May, 2002	**Location: Lewiston, NY.**	**Estimated Start Date: May 2002**
Phase of Work	**Safety Hazard**	**Precautionary Actions**
Trenching	Contact with Underground Utilities	1. Contact the New York One-Call System at least seven days prior to mobilization to the site. Contact non-subscriber utilities within the project area concerning the location of utilities at the project site at least seven days prior to mobilization to the site. 2. Coordinate with USACE concerning location of private and non-subscriber utilities which may be located on-site near the work areas. 3. Maintain employee alertness during clearing operations around overhead supports and near overhead lines. 4. Maintain required clearances of equipment from overhead conductors. 5. Maintain required clearances of equipment poles and towers.
	Slips, Trips and Falls	1. Maintain employee alertness around brush clearing operations. 2. Practice good housekeeping. 3. Be alert on uneven terrain and steep grades.
	Lockout/Tagout	1. Ensure that stored energy in hydraulic systems is released prior to performing maintenance on hydraulic systems.
	Cold-related problems	1. Pace your work. 2. Take frequent breaks (warm and dry rest area). 3. Wear layered clothing with wind breaking material on the outside. 4. Maintain hydration.
	Heat-related problems	1. Pace your work 2. Force fluid intake. 3. Take frequent breaks in shaded areas.

TABLE 3-2
ACTIVITY HAZARD ANALYSIS

Contract No. DACW49-95-D-0001	**Project: Trenching NFSS**	**Facility: Niagara Falls Storage Site**
Date: May, 2002	**Location: Lewiston, NY.**	**Estimated Start Date: May 2002**
Phase of Work	**Safety Hazard**	**Precautionary Actions**
TRENCHING (cont.)	Backing over workmen	1. Before moving make sure all people are clear. 2. Slow down when backing up or when on ramps and curves. 3. Back up alarms are required on all brush clearing equipment. 4. Pedestrian workers should not work in the vicinity of excavating equipment equipment. 5. Instruct employees never to walk in front or back of moving equipment. 6. Try to make eye contact with operators you are near.
	Explosions/Fire	1. Fuel only "cold" equipment. 2. Maintain fire watch while fueling equipment. 3. Do not fuel or perform maintenance while equipment is running. 4. When jumping batteries be sure of your connections. 5. Know where fire extinguishers are and how to use them. 6. Never use gasoline or any other combustible solvent as a cleaning agent. 7. Ground dispenser nozzle to equipment prior to fueling. 8. Conducted TNT testing when trenching in the Acidification Area as detailed in Section 3.4.4 of the SSHPA.
	Back injuries	1. Instruct personnel how to lift materials. 2. Instruct personnel to get help and/or to use lifting equipment.
	Machinery Hazards	1. Do not wear loose clothing or jewelry around moving machinery. 2. Do not perform maintenance on equipment while equipment is in operation. 3. Tie up long hair or place it under a net or cap.
	Hearing loss	1. Equipment operators shall wear hearing protection with minimum noise reduction rating of 25dBA or greater.
	Direct Contact with unidentified wastes	

TABLE 3-2 *ACTIVITY HAZARD ANALYSIS*		
Contract No. DACW49-95-D-0001	**Project: Trenching NFSS**	**Facility: Niagara Falls Storage Site**
Date: May, 2002	**Location: Lewiston, NY.**	**Estimated Start Date: May 2002**
Phase of Work	**Safety Hazard**	**Precautionary Actions**
Trenching (cont.)	Radiological Hazards Radiological Contamination Internal Exposure External Exposure Skin Contamination	1. See Radiation Protection Plan (Appendix C). 2. Level D PPE 3. Minimal unprotected contact, radiological frisk, clean hands and face prior to taking anything by mouth.
	Weather	1. Avoid working in conditions which could escalate potential site hazards such as rain, mud, lightning, etc.

EXHIBITS

Exhibit 3-1
Daily Equipment Inspection Form
Niagara Falls Storage Site

Date:_____ Time:_____ Inspector:_____

Item	Passed	Failed	Date of Corrective Action of Failed Item
Air Filter			
Back-up Alarm			
Battery			
Belts			
Hoses			
Radiator Level			
Brakes			
Parking Brake			
Hydraulic Lines			
Hydraulic Connectors			
Engine Oil Level			
Fire Extinguisher			
First Aid Kit			
Horn			
Kill Switch			
Oil/Grease Buildup			
Rollover Protection			
Seat Belt			
Tires/Tracks			
Fuel Level			
Transmission Level			
Hydraulic Fluid Level			

Exhibit 3-2
Pre-Excavation TNT Field Test Decision Flow Chart

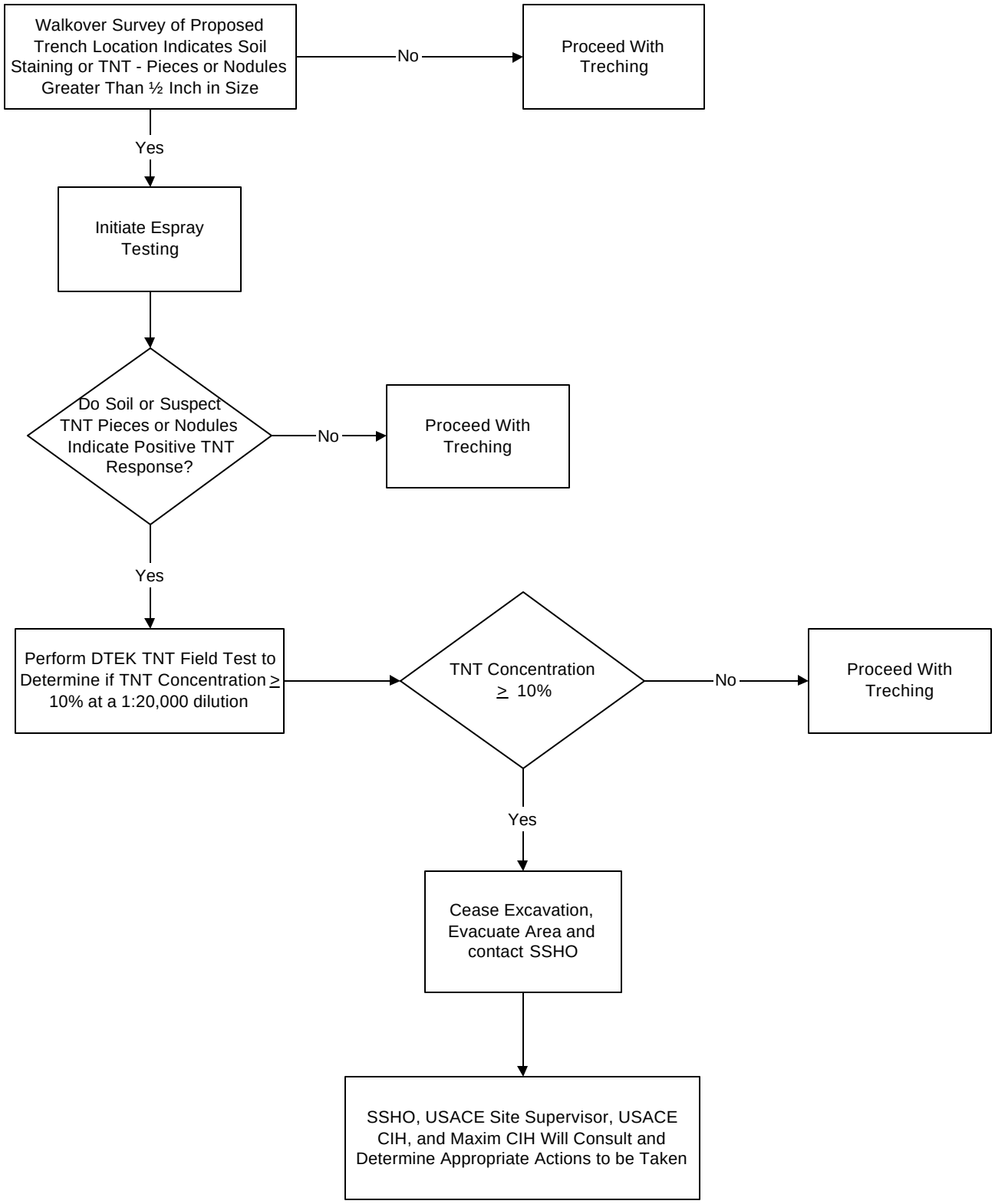


Exhibit 3-3
Trenching TNT Field Test Decision Flow Chart

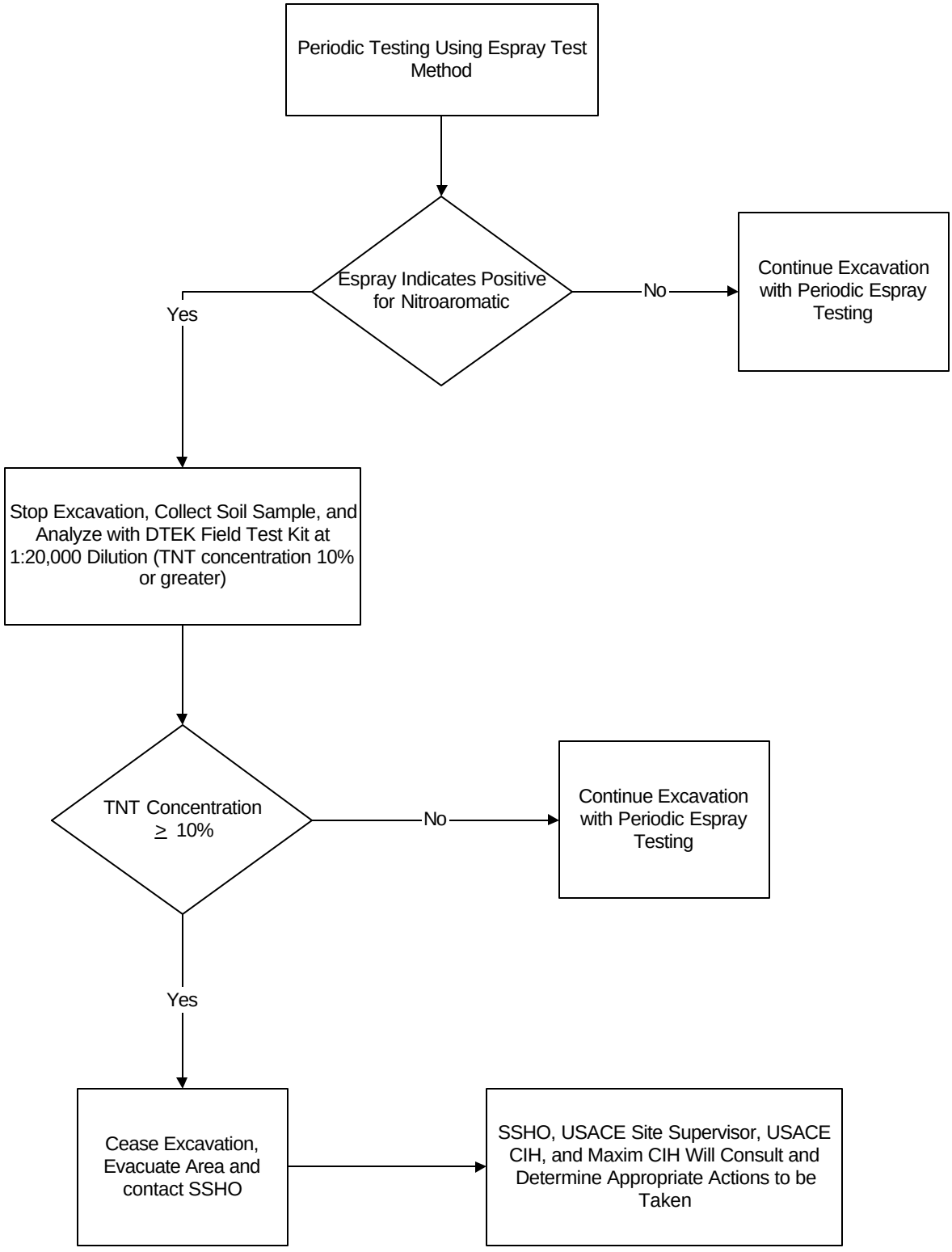


EXHIBIT 5-1
STATEMENT OF UNDERSTANDING

My signature indicates that I have read, understood, and will comply with the guidelines and procedures set forth in the Site Safety and Health Plan and the Site Safety and Health Plan Addendum for the Trenching and Sampling to at the Niagara Falls Storage Site located in Lewiston New, York.

_____

Printed of Typed Name

_____

Signature

_____

Date

APPENDICES

APPENDIX A
OSHA TECHNICAL MANUAL, SECTION V, CHAPTER 2, EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING

Provided in a separate file named **Appendix A.mht**

OSHA Technical Manual

SECTION V: CHAPTER 2

EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING

Contents:

I. INTRODUCTION.

Excavating is recognized as one of the most hazardous construction operations. OSHA recently revised Subpart P, *Excavations,* of 29 CFR 1926.650, .651, and .652 to make the standard easier understand, permit the use of performance criteria where possible, and provide construction employers with options when classifying soil and selecting employee protection methods.

This chapter is intended to assist *OSHA Technical Manual* users, safety and health consultants, OS field staff, and others in the recognition of trenching and shoring hazards and their prevention.

DEFINITIONS.

A. **ACCEPTED ENGINEERING PRACTICES** are procedures compatible with the standards of practice required of a registered professional engineer.

B. **ADJACENT STRUCTURE STABILITY** refers to the stability of the foundation(s) of adjacent

structures whose location may create surcharges, changes in soil conditions, or other disruptions that have the potential to extend into the failure zone of the excavation or trenc

C. **COMPETENT PERSON** is an individual who is capable of identifying existing and predictabl hazards or working conditions that are hazardous, unsanitary, or dangerous to employees, who *has authorization to take prompt corrective measures to eliminate or control these haz and conditions.*

D. **CONFINED SPACE** is a space that, by design and/or configuration, has limited openings fo entry and exit, unfavorable natural ventilation, may contain or produce hazardous substanc and is not intended for continuous employee occupancy.

E. **EXCAVATION**. An **Excavation** is any man-made cut, cavity, trench, or depression in an ea surface that is formed by earth removal. A **Trench** is a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth of a trench is greater t its width, and the width (measured at the bottom) is not greater than 15 ft (4.6 m). If a for other structure installed or constructed in an excavation reduces the distance between the and the side of the excavation to 15 ft (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

F. **HAZARDOUS ATMOSPHERE** is an atmosphere that by reason of being explosive, flammab poisonous, corrosive, oxidizing, irritating, oxygen-deficient, toxic, or otherwise harmful may cause death, illness, or injury to persons exposed to it.

G. **INGRESS AND EGRESS** mean "entry" and "exit," respectively. In trenching and excavatior operations, they refer to the provision of safe means for employees to enter or exit an excavation or trench.

H. **PROTECTIVE SYSTEM** refers to a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, and from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection

I. **REGISTERED PROFESSIONAL ENGINEER** is a person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer is registered in any state is deemed to be a "registered professional engineer" within the meaning of Subpart P when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

J. **SUPPORT SYSTEM** refers to structures such as underpinning, bracing, and shoring that provide support to an adjacent structure or underground installation or to the sides of an excavation or trench.

K. **SUBSURFACE ENCUMBRANCES** include underground utilities, foundations, streams, wate tables, transformer vaults, and geological anomalies.

L. **SURCHARGE** means an excessive vertical load or weight caused by spoil, overburden, vehi equipment, or activities that may affect trench stability.

M. **TABULATED DATA** are tables and charts approved by a registered professional engineer a used to design and construct a protective system.

N. **UNDERGROUND INSTALLATIONS** include, but are not limited to, utilities (sewer, telepho fuel, electric, water, and other product lines), tunnels, shafts, vaults, foundations, and othe underground fixtures or equipment that may be encountered during excavation or trenching work.

O. **UNCONFINED COMPRESSIVE STRENGTH** is the load per unit area at which soil will fail i

compression. This measure can be determined by laboratory testing, or it can be estimated the field using a pocket penetrometer, by thumb penetration tests, or by other methods.

P. **DEFINITIONS THAT ARE NO LONGER APPLICABLE**. For a variety of reasons, several te commonly used in the past are no longer used in revised Subpart P. These include the following:

1. **Angle of Repose** Conflicting and inconsistent definitions have led to confusion as to meaning of this phrase. This term has been replaced by **Maximum Allowable Slope**

2. **Bank, Sheet Pile, and Walls** Previous definitions were unclear or were used inconsistently in the former standard.

3. **Hard Compact Soil** and **Unstable Soil** The new soil classification system in revised Subpart P uses different terms for these soil types.

OVERVIEW: SOIL MECHANICS.

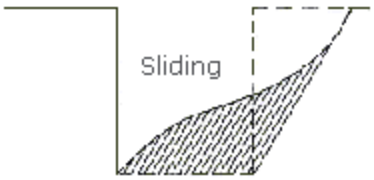
A number of stresses and deformations can occur in an open cut or trench. For example, increases decreases in moisture content can adversely affect the stability of a trench or excavation. The following diagrams show some of the more frequently identified causes of trench failure.

A. **TENSION CRACKS**. Tension cracks usually form at a horizontal distance of 0.5 to 0.75 times the depth of the trench, measured from the top of the vertical face of the trench. See the accompanying drawing for additional details.

FIGURE 5:2-1. TENSION CRACK.

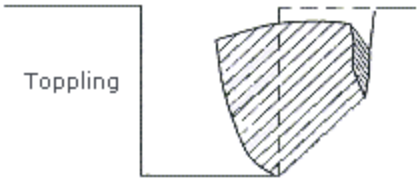
B. **SLIDING** or sluffing may occur as a result of tension cracks, as illustrated below.

FIGURE 5:2-2. SLIDING.



C. **TOPPLING**. In addition to sliding, tension cracks can cause toppling. Toppling occurs when the trench's vertical face shears along the tension crack line and topples into the excavation.

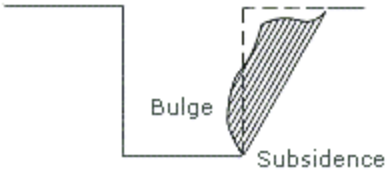
FIGURE 5:2-3. TOPPLING.



D. **SUBSIDENCE AND BULGING**. An unsupported excavation can create an unbalanced stress in the soil, which, in turn, causes subsidence at the surface and bulging of the vertical face of the trench. If

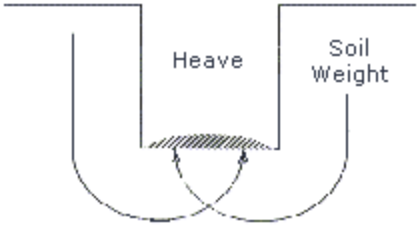
FIGURE 5:2-4. SUBSIDENCE AND BULGING.

uncorrected, this condition can cause face failure and entrapment of workers in the trench.



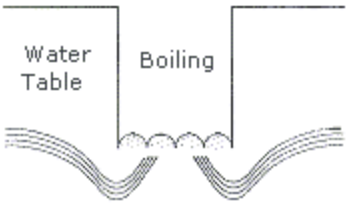
E. **HEAVING OR SQUEEZING**. Bottom heaving or squeezing is caused by the downward pressure created by the weight of adjoining soil. This pressure causes a bulge in the bottom of the cut, as illustrated in the drawing above. Heaving and squeezing can occur even when shoring or shielding has been properly installed.

FIGURE 5:2-5. HEAVING OR SQUEEZING.



F. **BOILING** is evidenced by an upward water flow into the bottom of the cut. A high water table is one of the causes of boiling. Boiling produces a "quick" condition in the bottom of the cut, and can occur even when shoring or trench boxes are used.

FIGURE 5:2-6. BOILING.



G. **UNIT WEIGHT OF SOILS** refers to the weight of one unit of a particular soil. The weight of soil varies with type and moisture content. One cubic foot of soil can weigh from 110 pounds to 140 pounds or more, and one cubic meter (35.3 cubic feet) of soil can weigh more than 3,000 pounds.

IV. DETERMINATION OF SOIL TYPE.

OSHA categorizes soil and rock deposits into four types, A through D, as follows:

A. **STABLE ROCK** is natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed. It is usually identified by a rock name such as granite or sandstone. Determining whether a deposit is of this type may be difficult unless it is known whether cracks exist and whether or not the cracks run into or away from the excavation.

B. **TYPE A SOILS** are cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (tsf) (144 kPa) or greater. Examples of Type A cohesive soils are often: clay, sil clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. (No soi Type A if it is fissured, is subject to vibration of any type, has previously been disturbed, is of a sloped, layered system where the layers dip into the excavation on a slope of 4 horizon to 1 vertical (4H:1V) or greater, or has seeping water.

C. **TYPE B SOILS** are cohesive soils with an unconfined compressive strength greater than 0.5 (48 kPa) but less than 1.5 tsf (144 kPa). Examples of other Type B soils are: angular gravel silt; silt loam; previously disturbed soils unless otherwise classified as Type C; soils that me the unconfined compressive strength or cementation requirements of Type A soils but are fissured or subject to vibration; dry unstable rock; and layered systems sloping into the tre at a slope less than 4H:1V (only if the material would be classified as a Type B soil).

D. **TYPE C SOILS** are cohesive soils with an unconfined compressive strength of 0.5 tsf (48 kP or less. Other Type C soils include granular soils such as gravel, sand and loamy sand, submerged soil, soil from which water is freely seeping, and submerged rock that is not stal Also included in this classification is material in a sloped, layered system where the layers d into the excavation or have a slope of four horizontal to one vertical (4H:1V) or greater.

E. **LAYERED GEOLOGICAL STRATA**. Where soils are configured in layers, i.e., where a layer geologic structure exists, the soil must be classified on the basis of the soil classification of weakest soil layer. Each layer may be classified individually if a more stable layer lies below less stable layer, i.e., where a Type C soil rests on top of stable rock.

V. TEST EQUIPMENT AND METHODS FOR EVALUATING SOIL TYPE.

Many kinds of equipment and methods are used to determine the type of soil prevailing in an area described below.

A. **POCKET PENETROMETER**. Penetrometers are direct-reading, spring-operated instruments used to determine the unconfined compressive strength of saturated cohesive soils. Once pushed into the soil, an indicator sleeve displays the reading. The instrument is calibrated i either tons per square foot (tsf) or kilograms per square centimeter (kPa). However, Penetrometers have error rates in the range of ± 20-40%.

1. **Shearvane (Torvane)**. To determine the unconfined compressive strength of the so with a shearvane, the blades of the vane are pressed into a level section of undisturb soil, and the torsional knob is slowly turned until soil failure occurs. The direct instrum reading must be multiplied by 2 to provide results in tons per square foot (tsf) or kilograms per square centimeter (kPa).

2. **Thumb Penetration Test**. The thumb penetration procedure involves an attempt to press the thumb firmly into the soil in question. If the thumb makes an indentation in soil only with great difficulty, the soil is probably Type A. If the thumb penetrates no further than the length of the thumb nail, it is probably Type B soil, and if the thumb penetrates the full length of the thumb, it is Type C soil. The thumb test is subjective is therefore the least accurate of the three methods.

3. **Dry Strength Test**. Dry soil that crumbles freely or with moderate pressure into individual grains is granular. Dry soil that falls into clumps that subsequently break in smaller clumps (and the smaller clumps can be broken only with difficulty) is probably clay in combination with gravel, sand, or silt. If the soil breaks into clumps that do no break into smaller clumps (and the soil can be broken only with difficulty), the soil is considered unfissured unless there is visual indication of fissuring.

B. **PLASTICITY OR WET THREAD TEST**. This test is conducted by molding a moist sample of the soil into a ball and attempting to roll it into a thin thread approximately 1/8 inch (3 mm diameter (thick) by 2 inches (50 mm) in length. The soil sample is held by one end. If the sample does not break or tear, the soil is considered cohesive.

C. **VISUAL TEST**. A visual test is a qualitative evaluation of conditions around the site. In a vi test, the entire excavation site is observed, including the soil adjacent to the site and the so being excavated. If the soil remains in clumps, it is cohesive; if it appears to be coarse-grai sand or gravel, it is considered granular. The evaluator also checks for any signs of vibratio

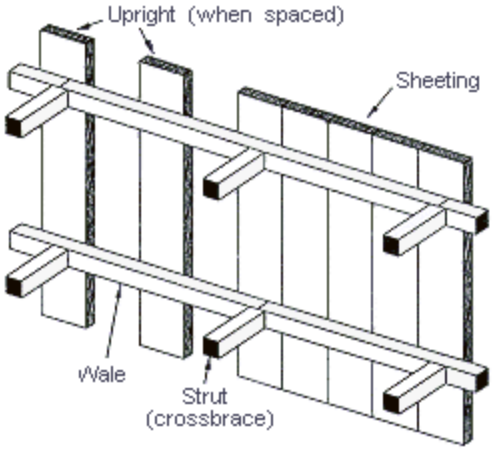
During a visual test, the evaluator should check for crack-line openings along the failure zor that would indicate tension cracks, look for existing utilities that indicate that the soil has previously been disturbed, and observe the open side of the excavation for indications of

layered geologic structuring.

The evaluator should also look for signs of bulging, boiling, or sluffing, as well as for signs o surface water seeping from the sides of the excavation or from the water table. If there is standing water in the cut, the evaluator should check for "quick" conditions (see Paragraph F. in this chapter). In addition, the area adjacent to the excavation should be checked for si of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.

VI. SHORING TYPES.

Shoring is the provision of a support system for trench faces used to prevent movement of soil, underground utilities, roadways, and foundations. Shoring or shielding is used when the location o depth of the cut makes sloping back to the maximum allowable slope impractical. Shoring system consist of posts, wales, struts, and sheeting. There are two basic types of shoring, timber and aluminum hydraulic. **FIGURE V:2-7. TIMBER SHORING.**

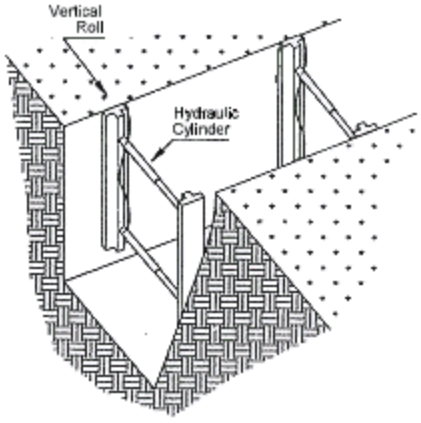


A. **HYDRAULIC SHORING**. The trend today is toward the use of hydraulic shoring, a prefabricated strut and/or wale system manufactured of aluminum or steel. Hydraulic shorir provides a critical safety advantage over timber shoring because workers do not have to en the trench to install or remove hydraulic shoring. Other advantages of most hydraulic syste are that they:

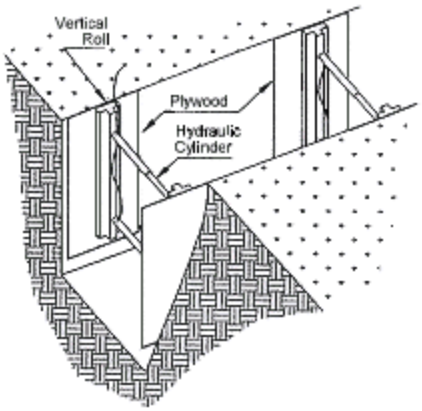
- Are light enough to be installed by one worker;
- Are gauge-regulated to ensure even distribution of pressure along the trench line;
- Can have their trench faces "preloaded" to use the soil's natural cohesion to prevent movemen and
- Can be adapted easily to various trench depths and widths.

All shoring should be installed from the top down and removed from the bottom up. Hydrau shoring should be checked at least once per shift for leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, and any other damaged or defective parts.

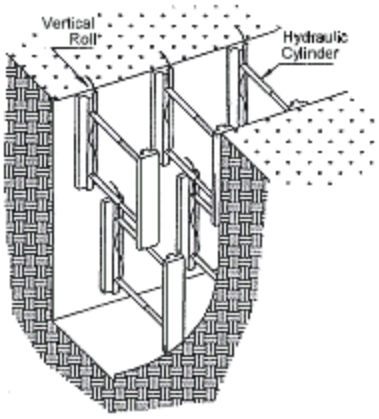
FIGURE V:2-8. SHORING VARIATIONS: TYPICAL ALUMINUM HYDRAULIC SHORING INSTALLATIONS.



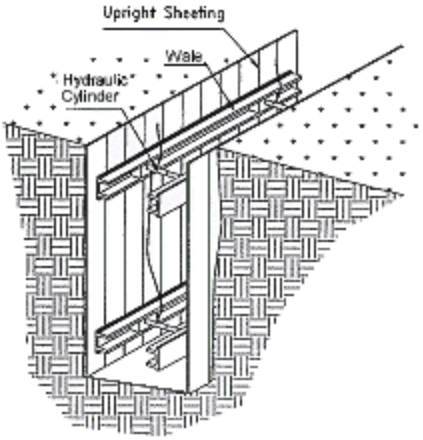
Vertical Aluminum Hydraulic Shoring (Spot Bracing)



Vertical Aluminum Hydraulic Shoring (With Plywood)



Vertical Aluminum Hydraulic Shoring (Stacked)



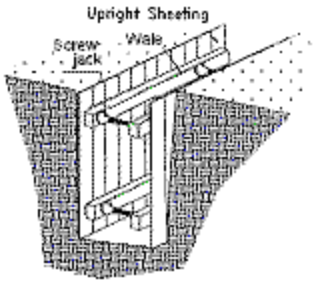
Aluminum Hydraulic Shoring Waler System (Typical)

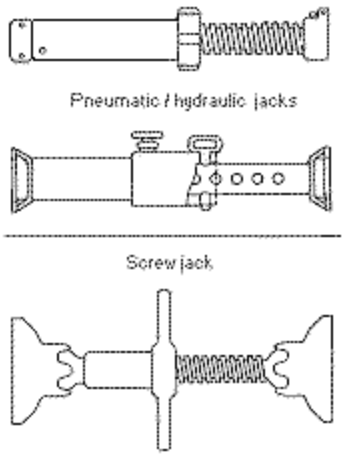
II. **PNEUMATIC SHORING** works in a manner similar to hydraulic shoring. The primary differe is that pneumatic shoring uses air pressure in place of hydraulic pressure. A disadvantage t the use of pneumatic shoring is that an air compressor must be on site.

1. **Screw Jacks**. Screw jack systems differ from hydraulic and pneumatic systems in tha the struts of a screw jack system must be adjusted manually. This creates a hazard because the worker is required to be in the trench in order to adjust the strut. In addition, uniform "preloading" cannot be achieved with screw jacks, and their weight creates handling difficulties.

2. **Single-Cylinder Hydraulic Shores**. Shores of this type are generally used in a wate system, as an assist to timber shoring systems, and in shallow trenches where face stability is required.

3. **Underpinning**. This process involves stabilizing adjacent structures, foundations, an other intrusions that may have an impact on the excavation. As the term indicates, underpinning is a procedure in which the foundation is physically reinforced. Underpinning should be conducted only under the direction and with the approval of a registered professional engineer. **FIGURE V:2-9. SHORING VARIATIONS.**





VII. SHIELDING TYPES.

A. **TRENCH BOXES** are different from shoring because, instead of shoring up or otherwise supporting the trench face, they are intended primarily to protect workers from cave-ins an similar incidents. The excavated area between the outside of the trench box and the face of trench should be as small as possible. The space between the trench boxes and the excavat side are backfilled to prevent lateral movement of the box. Shields may not be subjected to loads exceeding those which the system was designed to withstand.

FIGURE V:2-10. TRENCH SHIELD.

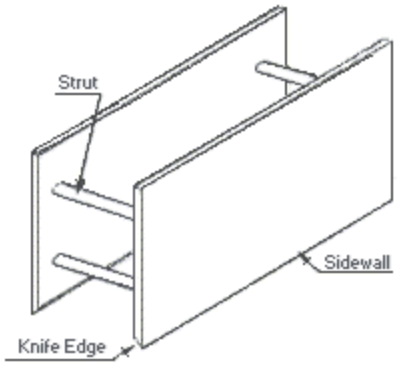
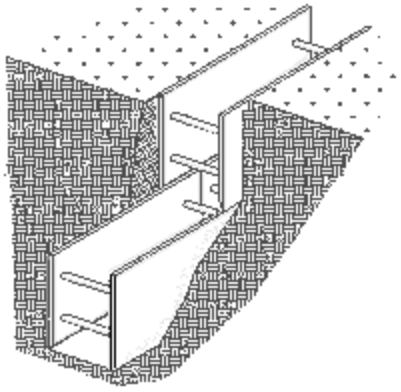


FIGURE V:2-11. TRENCH SHIELD, STACKED.

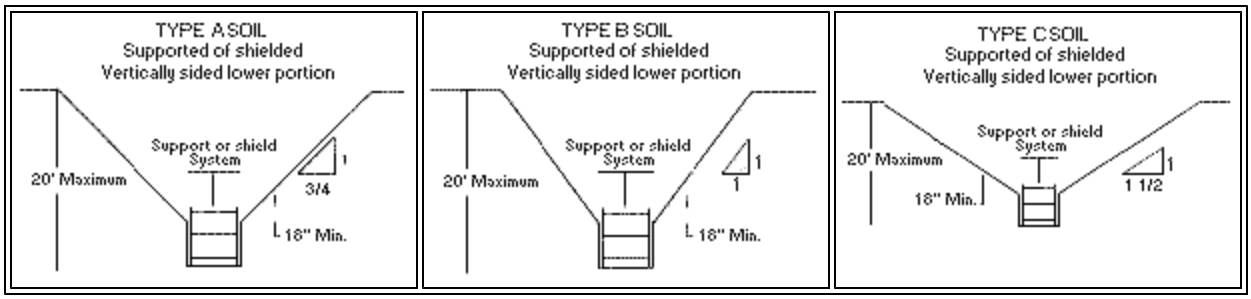


B. **COMBINED USE**. Trench boxes are generally used in open areas, but they also may be use combination with sloping and benching. The box should extend at least 18 in (0.45 m) abov the surrounding area if there is sloping toward excavation. This can be accomplished by providing a benched area adjacent to the box.

Earth excavation to a depth of 2 ft (0.61 m) below the shield is permitted, but only if the sh is designed to resist the forces calculated for the full depth of the trench and there are no indications while the trench is open of possible loss of soil from behind or below the bottom the support system. Conditions of this type require observation on the effects of bulging, heaving, and boiling as well as surcharging, vibration, adjacent structures, etc., on excavati

below the bottom of a shield. Careful visual inspection of the conditions mentioned above is primary and most prudent approach to hazard identification and control.

FIGURE V:2-12. SLOPE AND SHIELD CONFIGURATIONS.



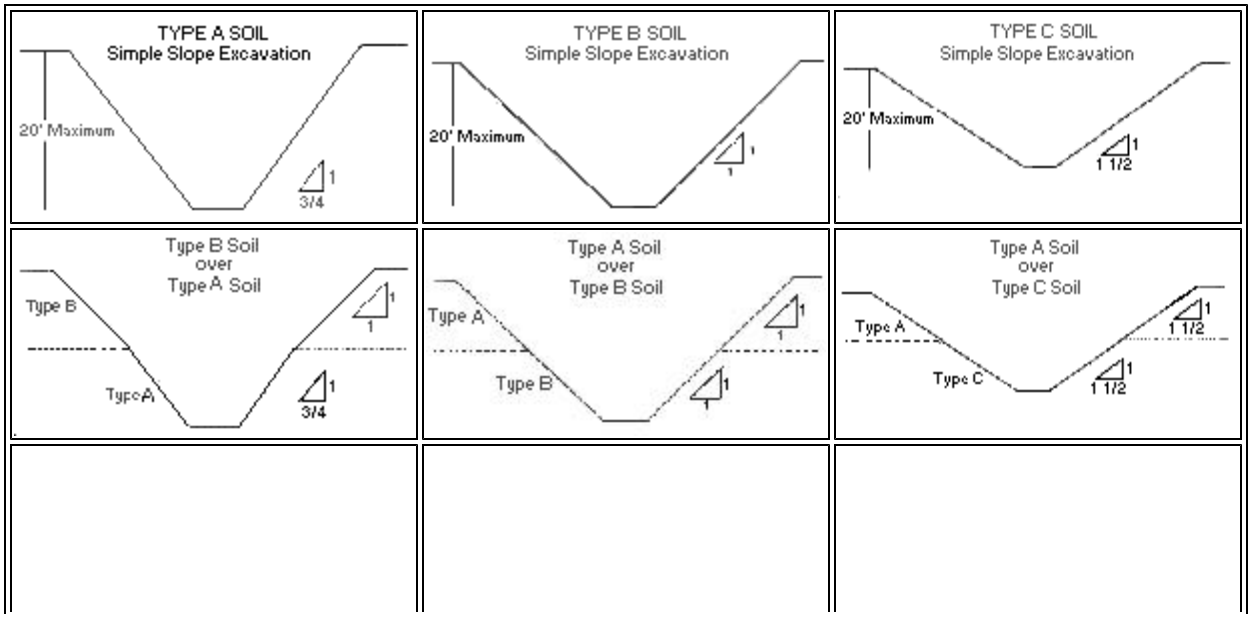
VIII. SLOPING AND BENCHING.

A. **SLOPING**. Maximum allowable slopes for excavations less than 20 ft (6.09 m) based on soi type and angle to the horizontal are as follows:

TABLE V:2-1. ALLOWABLE SLOPES.

Soil type	Height/Depth ratio	Slope angle
Stable Rock	Vertical	90°
Type A	¾:1	53°
Type B	1:1	45°
Type C	1½:1	34°
Type A (short-term)	½:1	63°
(For a maximum excavation depth of 12 ft)		

FIGURE V:2-13. SLOPE CONFIGURATIONS: EXCAVATIONS IN LAYERED SOILS.



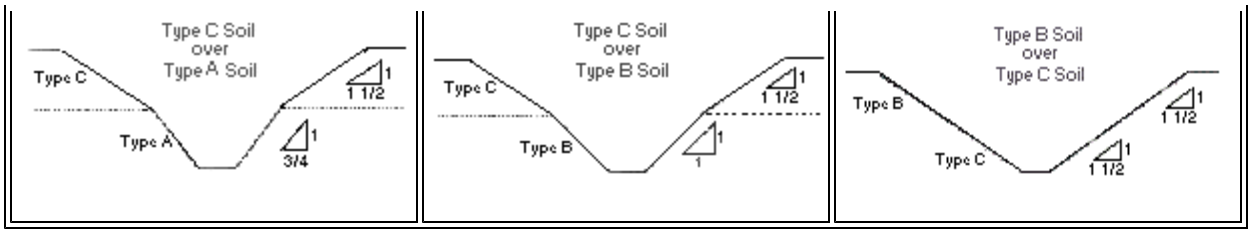
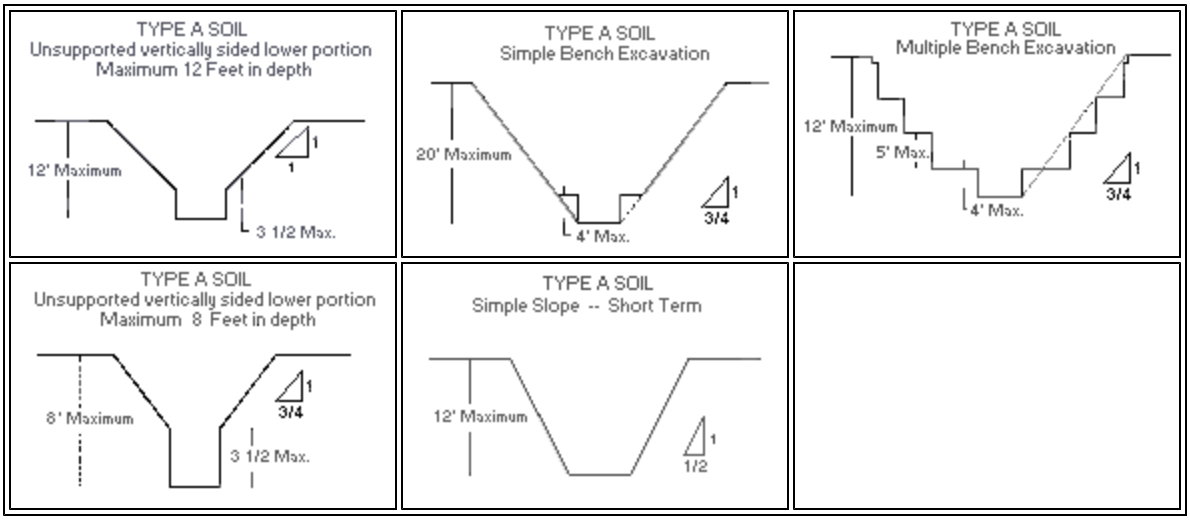


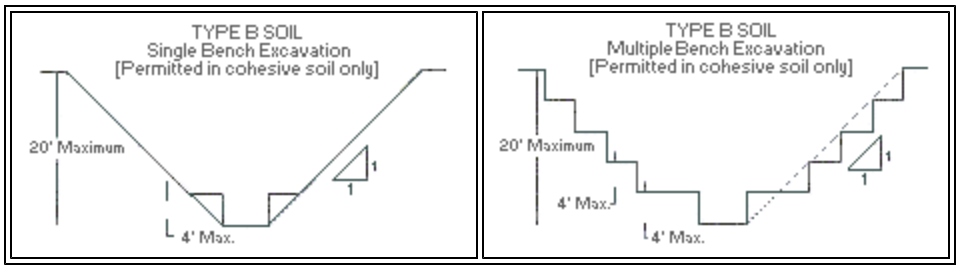
FIGURE V:2-14. EXCAVATIONS MADE IN TYPE A SOIL.



IX. **BENCHING.** There are two basic types of benching, simple and multiple. The type of soil determi the horizontal to vertical ratio of the benched side.

As a general rule, the bottom vertical height of the trench must not exceed 4 ft (1.2 m) for the fir bench. Subsequent benches may be up to a maximum of 5 ft (1.5 m) vertical in Type A soil and 4 (1.2 m) in Type B soil to a total trench depth of 20 ft (6.0 m). All subsequent benches must be be the maximum allowable slope for that soil type. For Type B soil the trench excavation is permitted cohesive soil only.

FIGURE V:2-15. EXCAVATIONS MADE IN TYPE B SOIL.

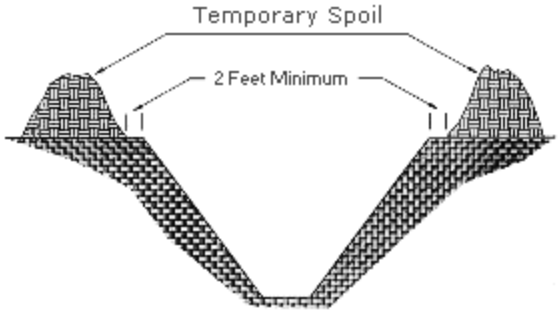


IX. **SPOIL.**

A. **TEMPORARY SPOIL.** Temporary spoil must be placed no closer than 2 ft (0.61 m) from the surface edge of the excavation, measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. This distance

requirement ensures that loose rock or soil from the temporary spoil will not fall on employe in the trench.

Spoil should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accidentally run, slide, or fall back into excavation. **FIGURE V:2-16. TEMPORARY SPOIL.**



B. **PERMANENT SPOIL**. Permanent spoil should be placed at some distance from the excavat Permanent spoil is often created where underpasses are built or utilities are buried. The improper placement of permanent spoil, i.e. insufficient distance from the working excavati can cause an excavation to be out of compliance with the horizontal-to-vertical ratio requirement for a particular excavation. This can usually be determined through visual observation. Permanent spoil can change undisturbed soil to disturbed soil and dramatically alter slope requirements.

X. SPECIAL HEALTH AND SAFETY CONSIDERATIONS.

A. **COMPETENT PERSON** . The designated competent person should have and be able to demonstrate the following:

- Training, experience, and knowledge of:
  - soil analysis;
  - use of protective systems; and
  - requirements of 29 CFR Part 1926 Subpart P.
- Ability to detect:
  - conditions that could result in cave-ins;
  - failures in protective systems;
  - hazardous atmospheres; and
  - other hazards including those associated with confined spaces.
- Authority to take prompt corrective measures to eliminate existing and predictable hazards and stop work when required.

B. **SURFACE CROSSING OF TRENCHES**. Surface crossing of trenches should be discouraged however, if trenches must be crossed, such crossings are permitted only under the following conditions:

- Vehicle crossings must be designed by and installed under the supervision of a registered professional engineer.
- Walkways or bridges must be provided for foot traffic. These structures shall:
  - have a safety factor of 4;
  - have a minimum clear width of 20 in (0.51 m);
  - be fitted with standard rails; and
  - extend a minimum of 24 in (.61 m) past the surface edge of the trench.

C. **INGRESS AND EGRESS**. Access to and exit from the trench require the following condition

- Trenches 4 ft or more in depth should be provided with a fixed means of egress.
- Spacing between ladders or other means of egress must be such that a worker will not have to travel more than 25 ft laterally to the nearest means of egress.
- Ladders must be secured and extend a minimum of 36 in (0.9 m) above the landing.
- Metal ladders should be used with caution, particularly when electric utilities are present.

D. **EXPOSURE TO VEHICLES**. Procedures to protect employees from being injured or killed b vehicle traffic include:

- Providing employees with and requiring them to wear warning vests or other suitable garments marked with or made of reflectorized or high-visibility materials.
- Requiring a designated, trained flagperson along with signs, signals, and barricades when necessary.

E. **EXPOSURE TO FALLING LOADS**. Employees must be protected from loads or objects falli from lifting or digging equipment. Procedures designed to ensure their protection include:

- Employees are not permitted to work under raised loads.
- Employees are required to stand away from equipment that is being loaded or unloaded.
- Equipment operators or truck drivers may stay in their equipment during loading and unloadin the equipment is properly equipped with a cab shield or adequate canopy.

F. **WARNING SYSTEMS FOR MOBILE EQUIPMENT**. The following steps should be taken to prevent vehicles from accidentally falling into the trench:

- Barricades must be installed where necessary.
- Hand or mechanical signals must be used as required.
- Stop logs must be installed if there is a danger of vehicles falling into the trench.
- Soil should be graded away from the excavation; this will assist in vehicle control and channeli of run-off water.

G. **HAZARDOUS ATMOSPHERES AND CONFINED SPACES**. Employees shall not be permitte to work in hazardous and/or toxic atmospheres. Such atmospheres include those with:

- Less than 19.5% or more than 23.5% oxygen;
- A combustible gas concentration greater than 20% of the lower flammable limit; and
- Concentrations of hazardous substances that exceed those specified in the *Threshold Limit Valu for Airborne Contaminants* established by the ACGIH (American Conference of Governmental Industrial Hygienists).

All operations involving such atmospheres must be conducted in accordance with OSHA requirements for occupational health and environmental controls (see Subpart D of 29 CPR 1926) for personal protective equipment and for lifesaving equipment (see Subpart E, 29 CI 1926). Engineering controls (e.g., ventilation) and respiratory protection may be required.

When testing for atmospheric contaminants, the following should be considered:

- Testing should be conducted before employees enter the trench and should be done regularly t ensure that the trench remains safe.
- The frequency of testing should be increased if equipment is operating in the trench.
- Testing frequency should also be increased if welding, cutting, or burning is done in the trench.

Employees required to wear respiratory protection must be trained, fit-tested, and enrolled respiratory protection program. Some trenches qualify as confined spaces. When this occurs compliance with the Confined Space Standard is also required.

H. **EMERGENCY RESCUE EQUIPMENT**. Emergency rescue equipment is required when a hazardous atmosphere exists or can reasonably be expected to exist. Requirements are as follows:

- Respirators must be of the type suitable for the exposure. Employees must be trained in their u and a respirator program must be instituted.
- Attended (at all times) lifelines must be provided when employees enter bell-bottom pier holes deep confined spaces, or other similar hazards.
- Employees who enter confined spaces must be trained.

I. **STANDING WATER AND WATER ACCUMULATION**. Methods for controlling standing wat and water accumulation must be provided and should consist of the following if employees a permitted to work in the excavation:

- Use of special support or shield systems approved by a registered professional engineer.
- Water removal equipment, i.e. well pointing, used and monitored by a competent person.
- Safety harnesses and lifelines used in conformance with 29 CFR 1926.104.
- Surface water diverted away from the trench.
- Employees removed from the trench during rainstorms.
- Trenches carefully inspected by a competent person after each rain and before employees are permitted to re-enter the trench.

J. **INSPECTIONS**. Inspections shall be made by a competent person and should be document The following guide specifies the frequency and conditions requiring inspections:

- Daily and before the start of each shift;
- As dictated by the work being done in the trench;
- After every rainstorm;
- After other events that could increase hazards, e.g. snowstorm, windstorm, thaw, earthquake, etc.;
- When fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom, other similar conditions occur;
- When there is a change in the size, location, or placement of the spoil pile; and
- When there is any indication of change or movement in adjacent structures.

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APPENDIX V: 2-1. SITE ASSESSMENT QUESTIONS

During first and subsequent visits to a construction or facility maintenance location, the compliance officer (or the site's safety officer or other competent person) may find the following questions use

1. Is the cut, cavity, or depression a *trench* or an *excavation*?
2. Is the cut, cavity, or depression more than 4 ft (1.2 m) in *depth*?
3. Is there *water* in the cut, cavity, or depression?
4. Are there adequate means of *access* and *egress*?
5. Are there any *surface encumbrances*?
6. Is there exposure to *vehicular traffic*?
7. Are *adjacent structures stabilized*?
8. Does *mobile equipment* have a *warning system*?
9. Is a *competent person in charge* of the operation?
10. Is *equipment operating* in or around the cut, cavity, or depression?
11. Are procedures required to monitor, test, and *control hazardous atmospheres*?

12. Does a competent person *determine soil type*?

13. Was a *soil testing device* used to determine soil type?

14. Is the *spoil* placed 2 ft (0.6 m) or *more from the edge* of the cut, cavity, or depression?

15. Is the *depth* 20 ft (6.1 m) *or more* for the cut, cavity, or depression?

16. Has a *registered professional engineer* approved the procedure if the depth is more than 20 (6.1 m)?

17. Does the procedure require *benching* or *multiple benching*? *Shoring*? *Shielding*?

18. If provided, *do shields extend at least 18 in (0.5 m) above* the surrounding area if it is slop toward the excavation?

19. If shields are used, is the depth of the cut *more than 2 ft (0.6 m) below the bottom of the shield*?

20. Are any required *surface crossings* of the cut, cavity, or depression the *proper width and fit with hand rails*?

21. Are means of *egress* from the cut, cavity, or depression *no more than 25 ft (7.6m) from the work*?

22. Is *emergency rescue equipment* required?

23. Is there *documentation of the minimum daily excavation inspection*?

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Occupational Safety & Health Administration
200 Constitution Avenue, NW
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APPENDIX B
TRENCHING AND SHORING SOP

TRENCHING AND EXCAVATION PROCEDURE

1.0 Purpose and Scope

As part of its goal to provide a safe and healthful workplace, this procedure is provided to demonstrate the required activities and protect workers from the hazards associated with trenching and excavation operations. This procedure applies to all work locations and workers involved in those operations.

2.0 Relevant Regulations

29 CFR 1926.650 through 1926.652 (29 CFR 1926 Subpart P, "Excavations") and USACE EM 385-1-1

3.0 Definitions

Accepted Engineering Practices are those requirements, which are compatible with standards of practice, required by a registered Professional Engineer.
Benching System is a method of protecting workers from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.
Cave-In is the separation of a mass of rock or soil material from the side of an excavation and its sudden movement into the excavation, either by sliding or falling, in sufficient quantity so that it could entrap, bury, or otherwise injure an worker.
Competent Person is defined by OSHA as one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to workers, and who has authority to take prompt corrective measures to eliminate them. The Competent Person must remain at the job site during operations.
Excavation is any manmade cut, cavity, trench, or depression in an earth surface, formed by earth removal operations.
Failure is the breakage, displacement, or permanent deformation of a structural member or connection that reduces structural integrity and its supportive capabilities.
Hazardous Atmosphere is an atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.
Professional Engineer is an individual licensed and registered under the laws of the State having jurisdiction to engage in the practice of engineering.
Sloping System is a method of protecting workers from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure and application of surcharge loads.
Spoil Pile is material excavated from an excavation, trench, tunnel, or excavated shaft.

Trench (Trench Excavation) is a narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of the trench as measured at the bottom is not greater than 15 feet.

4.0 General Procedure

1. The estimated location of utility installations, such as sewer, water, electrical service lines, etc., which may be affected shall be determined prior to opening an excavation.

2. Where possible, the equipment used to excavate the trench shall be positioned at one end of the trench.

3. The excavation shall begin and spoils shall be placed in a spoil pile a minimum of 2 feet from the sidewall of the excavation.

4. Health Physics personnel shall scan the excavation spoils. If the spoils register 2 times the background condition, those spoils shall be segregated and placed on plastic.

5. As the excavation proceeds, a Competent Person shall insure that the sidewalls of the trench remain stable. If spalls or splays of the sidewalls are observed, at a minimum the spoils pile should be moved away from the excavation. If necessary, the sidewalls shall be benched or sloped to increase the stability of the sidewalls.

6. As excavation activities take place, open excavations shall be protected by barricades, covers, or other means deemed appropriate by the Competent Person to prevent personnel from accidentally falling into the excavation.

7. Samples will be collected as set forth in Section 5.0 of this procedure.

8. Backfill the trench with the spoils generated (except those segregated materials) from the excavating.

9. Every effort should be made to backfill trenches the same day that they are excavated. If it is necessary to leave a trench open overnight, the trench should be surrounded with protective barricades and appropriate signs should be posted in accordance with the Site Safety and Health Plan.

10. Cover the segregated material with plastic to avoid transport of potential contaminants into the surrounding surface soils.

5.0 Sampling

The excavator bucket shall be decontaminated before and between each excavation location.

Soil samples shall be collected from "virgin" soil using the bucket of the machine that is used to excavate the trench. (Alternatively, a bucket auger or similar device can be used to collect soil samples. However, because this alternative method requires the worker to stand near the sidewall of the trench, it should be used only when project objectives specifically prohibit the collection of soil samples from the machine bucket.) The soil samples will be handled as set forth in the Field Sampling Plan.

6.0 Responsibilities

Competent Person

a. Shall understand the requirements of this procedure and be able to recognize potential hazards associated with excavation and trenching work.

b. Shall provide requirements for the use of protective shielding and shoring systems in excavations.

c. Shall inspect excavations, at a minimum, once a day for the purpose of identifying and abating potential hazards associated with the excavation.

d. Shall have the authority to stop all work being performed in an excavation due to a hazardous situation or hazardous practices.

e. Shall approve all hazard controls used at excavation sites at the facility.

f. Shall approve adequate measures to ensure underground utilities do not pose a safety or health hazard to personnel while the excavation is open.

Workers

a. Individual workers affected by this procedure are required to read, understand and comply with the requirements of this procedure; and

b. Report unsafe or unhealthful conditions and practices to the site manager or the health and safety manager.

APPENDIX C
RADIATION PROTECTION PLAN ADDENDUM

RADIATION PROTECTION PLAN ADDENDUM

for

TRENCHING ACTIVITIES

At

NIAGARA FALLS STORAGE SITE

LEWISTON, NY

Prepared: 05/10/02

Radiological Plan Addendum Overview

This document is describes the health physics plan that provides for the radiological safety of the field team during trenching activities at the Niagara Falls Storage Site. This document is the second addendum to the Maxim Technologies RPP. All provisions of the existing RPP will be followed; this document is only intended to describe the additional health physics requirements necessary for trenching activities.

Radiological Hazards

The radiological conditions on accessible areas at NFSS have been well documented, and the site does not have radiation or transferable contamination levels that pose a hazard to workers during non-intrusive activities. However, trenching activities may uncover previously undetected sources of radioactive material.

Radioactive material uncovered during trenching activities has the potential to cause the following adverse radiological conditions; personnel or equipment contamination, localized land contamination of the immediate trench area, contamination of the travel path from the trench to the decontamination pad, a radiation hazard, or an airborne radioactive material area hazard.

This RPP addendum will address the health physics controls necessary to mitigate the listed adverse conditions during each trenching task.

A radiological Activity Hazard Analysis has been prepared for trenching, and is presented in Table 1. Monitoring requirements and action levels for radiological hazards are presented in Table 2.

Access to the work area during trenching operations will be visually controlled while a trench is open. If a trench is left open overnight, the work area (restricted area) will be designated by surrounding the area with caution tape to prevent access.

Equipment Acceptance and Exit Surveys

A fixed and removable contamination survey will be performed on large equipment upon arrival, and prior to release from the site. Large equipment is expected to include; an excavator, excavator buckets, and trench boxes. Only equipment meeting the radiological requirements of an unconditional release will be accepted, or released from the site.

Trenching Controls

An ANSI 3.1 qualified health physics technician (HPT) will be present in the immediate work area during intrusive trenching activities. Before disturbing the soil, a soil laydown area will be established with plastic sheeting (or equivalent). Plastic sheeting will prevent potential cross-contamination of nearby surface soil.

Prior to excavating soil at a trench, a gamma survey of the trench area and immediate vicinity will be performed. Areas which have gamma radiation at levels approximately two times background, or greater, will be flagged.

During trenching, a breathing zone (lapel) particulate air sample will be collected on the individual with the highest potential of inhaling radioactive material (as determined by the HPT). This air sample will provide verification that ALARA dose goals are being met.

A fixed contamination survey will be intermittently performed on the excavator bucket to verify that gross contamination (>1000 dpm/100cm^2 direct frisk alpha) has not been encountered. Results of these surveys will be documented. If gross contamination is encountered; work will be halted, the area will be evacuated, and the USACE health physicist and project CHP will be contacted to assess the need for additional engineering controls and/or the need for respiratory protection.

As an additional precaution, soil removed from the trench will be intermittently monitored with a NaI 2x2 by the HPT. Instrument response will be evaluated by the HPT to apply professional judgment concerning the potential for internal exposure.

The HPT will intermittently conduct a dose-rate survey of the work area by the trench with a MicroRem meter. If general area dose rates of 2 mrem/hr (or greater) are encountered; work will be halted, the area will be evacuated, and the USACE health physicist and project CHP will be contacted. An exposure level of 2 mrem/hr is not considered significant as a dose rate hazard, but will serve as an indicator that high activity radioactive material has been encountered. Engineering controls, stay times, respiratory protection requirements, and container disposition requirements may then be reviewed based on situation-specific information.

In addition to intermittent surveys, the HPT will initiate any or all of the surveys listed above to investigate anomalies encountered during trenching (change in soil color, presence of a container, presence of underground piping, etc.).

Excavator operator(s) will be instructed to take caution not to breach unearthed containers (to the extent possible), and to notify the HPT when objects other than soil are encountered. When identified in time, unearthed containers will be remotely surveyed while still in the trench.

As described in the RPP, localized radiological controlled areas will be defined and posted as they are encountered (contaminated areas, radiation areas, and airborne radioactive material areas).

Trench Entry/Exit Controls

When entry into a trench is required, the following radiation safety controls will be implemented. The sides of the trench will be surveyed for gamma radiation with a NaI 2x2 prior to entry, when practical due to industrial safety concerns (cave-in). This survey will identify localized areas of elevated activity. Upon entry into the trench, a dose-rate survey will be performed before any other activity.

A lapel air sample will collected on at least one individual during any extended (> 5 minutes) trench entry. Any individual entering a trench deeper than five feet will wear hooded PVC coveralls (or equivalent).

Upon exit from a trench, shoe covers, gloves, and visible soil on coveralls will be surveyed for alpha contamination by direct measurement. Any PPE with apparent activity above background will be containerized and labeled as radioactive material. If multiple entries into the same trench are required and surficial contamination has not previously been detected, the HPT may relax this requirement.

Trench Closeout Controls

The excavator bucket, excavator tracks, trench boxes, and other equipment that came in contact with potentially contaminated material will be monitored for total contamination prior to removal from the immediate work area. Excess soil will be removed with shovels (as practical) prior to this survey.

This survey will be the primary mechanism to ensure that the travel path back to the decontamination pad, or the next trench, is not cross-contaminated. If it is determined that large equipment is contaminated, the contaminated equipment will be; contained using plastic, or placed on a flatbed lined with plastic, or decontaminated locally. Local decontamination, if implemented, will be performed by scrubbing the contaminated surface with water soaked scrub brushes in an area with plastic sheeting, or wiping down a surface with water saturated cloth.

Table 1 Radiological Hazard Analysis

Safety and Health Hazards	Probability/ Severity	Controls	Monitoring
TRENCHING			
Radiation Hazards	Very low/ very low	Measurement, evacuation at prescribed radiation level.	Intermittent dose rate measurements of work area. Measuring dose rates of unearthed containers.
Contamination Hazards	Low/very low	Exclusion zone around trench and plastic sheeted soil laydown area. Personal protective equipment - Level D. Hooded PVC coveralls for trench (>5') entry. Nitrile or PVC gloves for handling potentially contaminated material Wash face and hands prior to taking anything by mouth.	Equipment - exclusion zone exit equipment surficial contamination surveys (before relocating). Frisk of hands, feet, and soil contaminated PPE upon exclusion zone exit (before relocating), and upon trench exit. Surficial contamination surveys of vehicles and personnel prior to the release from site.
Airborne Hazards	Very low/ very low	Heavy equipment operator to take caution to avoid underground container breach. Keeping contaminated soil wet.	Personal air sampling during intrusive activities.

Table 2 Monitoring Requirements and Action Limits

Hazard or Measured Parameter	Area	Interval	Limit	Action	Tasks
Radiological total surface contamination with alpha sensitive survey instrument.	Excavator buckets, excavator tracks, and other equipment. Uncovered items/containers. RI personnel.	Equipment – site acceptance, site release, intermittently during trenching, at exclusion zone exit. Items - Upon uncovering items when no detectable dose rate is present. Personnel- Upon exit from trench, at trench exclusion zone exit, prior to field trailer entry, prior to leaving site.	Equipment and items – 100 dpm/100 cm^2 alpha. Equipment and items – >1000 dpm/100cm^2 alpha. Personnel – any detectable.	Equipment and items 100 dpm/100 cm^2 alpha.– Measurement of loose surface contamination, control as radioactive material. Unearthed equipment and items 1000 dpm/100 cm^2 alpha.– Evacuate. Notify Project Manager, H&S Manager, USACE HP,Project CHP to evaluate situational requirements. Personnel- decontamination and evaluation of PPE rqmts.	Trenching
Removable surface contamination determined by smearing surface of 100cm^2.	Excavator buckets, excavator tracks, and other equipment.. Uncovered items/containers. .	Site acceptance, site release, intermittently during trenching, following decontamination, when items are unearthed.	20 dpm/100cm^2 alpha.	Equipment and items - Remove by decontamination. If contamination cannot be removed, control as radioactive material. Unearthed items/containers – Wrap and control as radioactive material.	Trenching
Sampling for airborne radioactive particulates.	Breathing zone of the employee with the highest potential of inhaling radioactive material.	During intrusive activities. During extended (>5min.) trench entries.	DAC = 3E-11 uCi/ml **DAC = 3E-12 uCi/ml when in VP "G"** 12 DAC-hrs/week	Notify Project Manager, H&S Manager, USACE HP,Project CHP, and conduct bioassay if > 12 DAC/week. Review engineering controls and respiratory protection requirements if >.25 DAC on air sample.	Trenching and trench entry.

Hazard or Measured Parameter	Area	Interval	Limit	Action	Tasks
Radiation exposure with exposure meter.	By trench and in trench. Uncovered items/containers.	By trench upon uncovering an anomaly, and intermittently. In trench when entry is required. Also trench walls with NaI 2x2 to identify localized radiation when entry is required.	2 mrem/hr with exposure meter.	Evacuate. Notify Project Manager, H&S Manager, Project CHP, to evaluate situational requirements.	Trenching and trench entry.

APPENDIX D
TRAINING CERTIFICATES

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Gregory C. Dawdy

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-002 RWT**

Steve Passig, Radiation Safety Officer

MAXIM Technologies Inc®

Hereby Certifies

GREG DAWDY

has satisfactorily completed

HAZWOPER 8-HOUR REFRESHER TRAINING
29CFR.1910.120

Conducted
April 24, 2002
St. Louis, Missouri

Greg Dawdy
Training Facilitator

Yvonne M. Freix, CIH
Corporate Health and Safety

"Imagineering a Better World"

№ 2054

Riedel Environmental Technologies Inc.

Certificate of Completion

presented to

GREG DAWDY

in recognition of satisfactory completion
of the course of instruction entitled

29CFR 1910.120 Eight Hour Hazardous Materials Waste Site Management

December 18, 1990

Date[s] of Instruction

Michael A Amr

Instructor

RET-032 (2-89)

RESPIRATOR FIT TEST DOCUMENTATION

(Complete all sections)

Employee Information	
Name: Greg Dawdy	Employee Number: 11784
Company: Maxim Technologies	Department Number: 4509
Address: 1908 Innerbelt Bus. Ctr. Dr. St. Louis, MO 63114	Daytime Phone: 314-426-0880
	Fax: 314-426-0880

Respirator Information	
Manufacturer: MSA	Model Number: Comfo Elite
Type of face piece (check one): ☑ Full-face ☐ Half-face	Type of respirator (check one): ☑ Air Purifying _____ Atmosphere Supplying ☐ Air line _____ ☐ SCBA _____

Size of respirator (check one):

☐ Small ☐ Medium ☑ Large ☐ Extra Large ☐ Other (please indicate) _____

Fit Test Exercise Documentation

(The individual performing the test must initial either "PASS" or "FAIL" for each activity, and in order to pass the test, all activities must be initialed as "passed".)

	Banana Oil		Irritant Smoke	
Activity	**PASS**	**FAIL**	**PASS**	**FAIL**
Normal Breathing	✓		✓	
Deep Breathing	✓		✓	
Move Head Side-to-Side	✓		✓	
Move Head Up and Down	✓		✓	
Talking (Read *Rainbow Passage*)	✓		✓	
Other (Explain): Bending	✓		✓	

Signature of Tester: Mark L. Date: 7/19/01

Keep a copy in the employee's health and safety records maintained at the office of employment and send a copy to the Respiratory Protection Program Administrator.

American Red Cross
We'll be there.

This recognizes that

Gregory Dowdy

has completed the requirements for

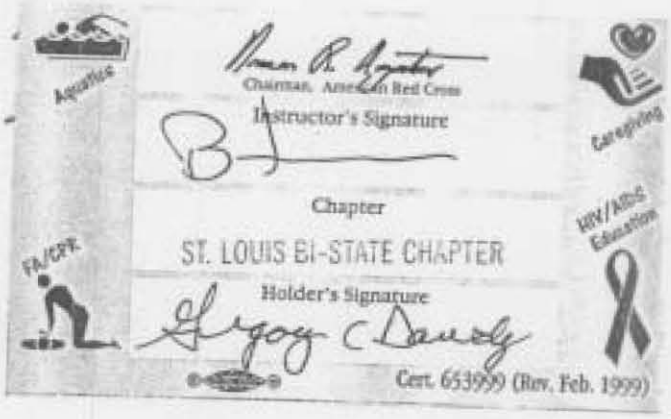
Workplace Training: First Aid

conducted by

St. Louis Bi-State

Date completed 1-19-00

The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.



American Red Cross
We'll be there.

This recognizes that

Gregory Dawdy

has completed the requirements for

Workplace - Adult CPR

conducted by

St. Louis Bi-State

Date completed 1/11/02

The American Red Cross recognizes this certificate as valid for 1 year(s) from completion date.

Aquatics

Chairman, American Red Cross

Instructor's Signature

Caregiving

Chapter

ST. LOUIS AREA CHAPTER

HIV/AIDS Education

FA/CPR

Holder's Signature

Gregg C Dawdy

Cert. 653999 (Rev. Feb. 1999)

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Daniel N. Logan

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-003 RWT**

Steve Passig, Radiation Safety Officer

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Jennifer Smith

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-004 RWT**

Steve Passig, Radiation Safety Officer

MAXIM Technologies Inc®

Hereby Certifies

JENNIFER SMITH

has satisfactorily completed

HAZWOPER 8-HOUR REFRESHER TRAINING
29CFR.1910.120

Conducted
April 24, 2002
St. Louis, Missouri

Greg Dawdy
Training Facilitator

Yvonne M. Freix, CIH
Corporate Health and Safety

Hazardous Material Waste Operations and Site Training Course

40 HOUR OSHA TRAINING

This is to certify that

Jennifer R Smith

has completed Security Training Center's
40 Hour Hazardous Waste Operations & Emergency Response Training Course
in compliance with OSHA 29CFR1910.120

July 14, 2000

DATE COMPLETED

INSTRUCTOR
Daniel P. Heitert, M.A.
Security Training Center
Certified by Missouri Coordinating Board for Higher Education

Safety Support Services, Incorporated

Environmental and Occupational Safety & Health Consultants

1410 S. Jefferson Avenue
St. Louis, Missouri 63104
Phone: (314) 773-4747

Does hereby certify that

Jennifer R. Smith

1825 Apple Blossom, Florissant, MO, 63031

has successfully completed and passed the course examination with a minimum score of 70 percent for re-accreditation under AHERA (TSCA Title II)

Asbestos Building Inspector Refresher

Class Date:	**March 28, 2002**
Examination Date:	**03/28/2002**
Certificate Number:	**SSS20020328-0432ABIR**
Certificate Expiration:	**03/28/2003**
Student SSN:	**491-86-4417**

Douglas L. Mueller, MS, CSP
Certified Safety Professional
OSHA Authorized Instructor

BCSP
DOUGLAS L. MUELLER
13006
CERTIFIED SAFETY PROFESSIONAL

This training course is accredited by the Missouri Department of Natural Resources and the Illinois Department of Public Health

Safety Support Services, Incorporated

Environmental and Occupational Safety & Health Consultants

1410 S. Jefferson Avenue
St. Louis, Missouri 63104
Phone: (314) 773-4747

Does hereby certify that

Jennifer R. Smith

1825 Apple Blossom, Florissant, MO, 63031

has successfully completed and passed the course examination with a minimum score of 70 percent for accreditation under EPA 40 CFR 745, 77 Illinois Admn. Code 845, and Missouri 19 CSR 30-70

Lead Risk Assessor Initial

Class Date:	**May 9, 2002**
Examination Date:	**05/09/2002**
Certificate Number:	**SSS20020509-0336LRA**
Expires (EPA Interim):	**11/09/2002**
Certificate Expiration:	**05/09/2003**
Student SSN:	**491-86-4417**

Douglas L. Mueller, MS, CSP
Certified Safety Professional
OSHA Authorized Instructor

BCSP
DOUGLAS L. MUELLER
13006
CERTIFIED SAFETY PROFESSIONAL

This training course is accredited by the US EPA, Missouri Department of Health, and the Illinois Department of Public Health

Safety Support Services, Incorporated

Environmental and Occupational Safety & Health Consultants

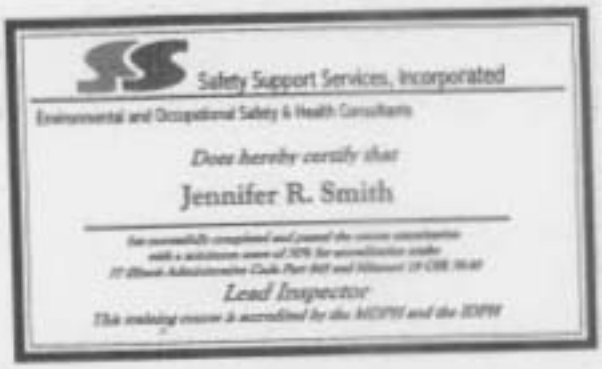
Does hereby certify that

Jennifer R. Smith

has successfully completed and passed the course examination with a minimum score of 70% for accreditation under AHERA (TSCA Title II)

Asbestos Building Inspector

This training course is accredited by the MDPH and the IDPH



Safety Support Services, Incorporated

Environmental and Occupational Safety & Health Consultants

Does hereby certify that

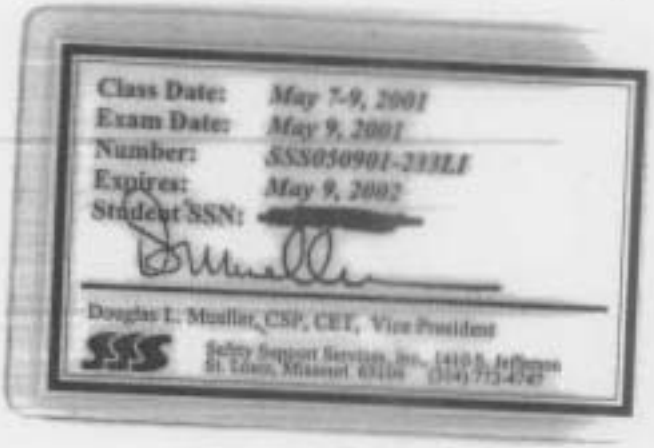
Jennifer R. Smith

has successfully completed and passed the course examination with a minimum score of 70% for accreditation under 77 Illinois Administrative Code Part 845 and Missouri 19 CSR 30-60

Lead Inspector

This training course is accredited by the MDPH and the IDPH


Class Date: April 9-11, 2001
Exam Date: April 11, 2001
Number: SSS041101-222ABI
Expires: April 11, 2002
Student SSN:
Douglas L. Mueller, CSP, CET, Vice President
SSS
Safety Support Services, Inc., 1410 S. Jefferson
St. Louis, Missouri 63104 (314) 773-4747


Class Date: May 7-9, 2001
Exam Date: May 9, 2001
Number: SSS050901-233LI
Expires: May 9, 2002
Student SSN:
Douglas L. Mueller, CSP, CET, Vice President
SSS
Safety Support Services, Inc., 1410 S. Jefferson
St. Louis, Missouri 63104 (314) 773-4747

RESPIRATOR FIT TEST DOCUMENTATION

(Complete all sections)

Employee Information	
Name: Jennifer Smith	Employee Number: 2236
Company: Maxim Technologies	Department Number: 4509
Address: 1908 Innerbelt Bus. Ctr. Dr. St. Louis, MO 63114	Daytime Phone: 314-426-0880
	Fax: 314-426-0880

Respirator Information	
Manufacturer: MSA	Model Number: Advantage 1000
Type of face piece (check one): ☒ Full-face ☐ Half-face	Type of respirator (check one): ☒ Air Purifying _____ Atmosphere Supplying ☐ Air line _____ ☐ SCBA _____

Size of respirator (check one):

☐ Small ☒ Medium ☐ Large ☐ Extra Large ☐ Other (please indicate) _____

Fit Test Exercise Documentation

(The individual performing the test must initial either "PASS" or "FAIL" for each activity, and in order to pass the test, all activities must be initialed as "passed".)

	Banana Oil		Irritant Smoke	
Activity	**PASS**	**FAIL**	**PASS**	**FAIL**
Normal Breathing	✓		✓	
Deep Breathing	✓		✓	
Move Head Side-to-Side	✓		✓	
Move Head Up and Down	✓		✓	
Talking (Read *Rainbow Passage*)	✓		✓	
Other (Explain): Bending	✓		✓	

Signature of Tester: Mark Z [illegible] Date: 7/2/01

Keep a copy in the employee's health and safety records maintained at the office of employment and send a copy to the Respiratory Protection Program Administrator.

American Red Cross
We'll be there.

This recognizes that

Jennifer Smith

has completed the requirements for

Workplace - Adult CPR

conducted by

St. Louis Bi-State

Date completed 1/11/02

The American Red Cross recognizes this certificate as valid for 1 year(s) from completion date.

Chairman, American Red Cross

Instructor's Signature

Chapter

ST. LOUIS AREA CHAPTER

Holder's Signature

Jennifer Smith

Cert. 653999 (Rev. Feb. 1999)

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Michael McLean

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-005 RWT**

Steve Passig, Radiation Safety Officer

Hazardous Material Waste Operations and Site Training Course

40 HOUR OSHA TRAINING

This is to certify that

Michael McLean

has completed Security Training Center's
40 Hour Hazardous Materials Training Course
in compliance with OSHA 29CFR1910.120

Daniel P. Heitert

INSTRUCTOR
Daniel P. Heitert, M.A.
Security Training Center
Certified by Missouri Coordinating Board for Higher Education

November 11, 1994

DATE COMPLETED

MAXIM Technologies Inc®

Hereby Certifies

MICHAEL MCLEAN

has satisfactorily completed

HAZWOPER 8-HOUR REFRESHER TRAINING
29CFR.1910.120

Conducted
April 24, 2002
St. Louis, Missouri

Greg Dawdy
Training Facilitator

Yvonne M. Freix, CIH
Corporate Health and Safety

RESPIRATOR FIT TEST DOCUMENTATION

(Complete all sections)

Employee Information	
Name: Mike McLean	Employee Number: 12181
Company: Maxim Technologies	Department Number: 4509
Address: 1908 Innerbelt Bus. Ctr. Dr. St. Louis, MO 63114	Daytime Phone: 314-426-0880
	Fax: 314-426-0880

Respirator Information	
Manufacturer: MSA	Model Number: Ultra-Twin
Type of face piece (check one): ☒ Full-face ☐ Half-face	Type of respirator (check one): ☒ Air Purifying _____ Atmosphere Supplying ☐ Air line _____ ☐ SCBA _____

Size of respirator (check one):

☐ Small ☐ Medium ☒ Large ☐ Extra Large ☐ Other (please indicate) _____

Fit Test Exercise Documentation

(The individual performing the test must initial either "PASS" or "FAIL" for each activity, and in order to pass the test, all activities must be initialed as "passed".)

	Banana Oil		Irritant Smoke	
Activity	**PASS**	**FAIL**	**PASS**	**FAIL**
Normal Breathing	✓		✓	
Deep Breathing	✓		✓	
Move Head Side-to-Side	✓		✓	
Move Head Up and Down	✓		✓	
Talking (Read *Rainbow Passage*)	✓		✓	
Other (Explain): Bending	✓		✓	

Signature of Tester: Mark Z Li Date: 6/29/01

Keep a copy in the employee's health and safety records maintained at the office of employment and send a copy to the Respiratory Protection Program Administrator.

Certificate of Completion

2 Hour Asbestos Awareness Training

The following individual has completed a two hour asbestos awareness training course which satisfies the requirements of 29 CFR 1926.1101(k)(6)(vi) for Class IV asbestos workers.

Topics covered in this class Included:

Definition of Hazards

Asbestos Hazards

Nature of Asbestos Hazards

Health Risks

Types of Asbestos Containing Materials

Minimizing Asbestos Hazards and Exposure to Asbestos

Date of Course: 23 February 2000

Attendee: Mike McLean

Instructor: David E. Germeroth, P.E., Asbestos Management Planner #: SSS122199-220AMPR

American Red Cross
We'll be there.

This recognizes that

Michael Nelson

has completed the requirements for

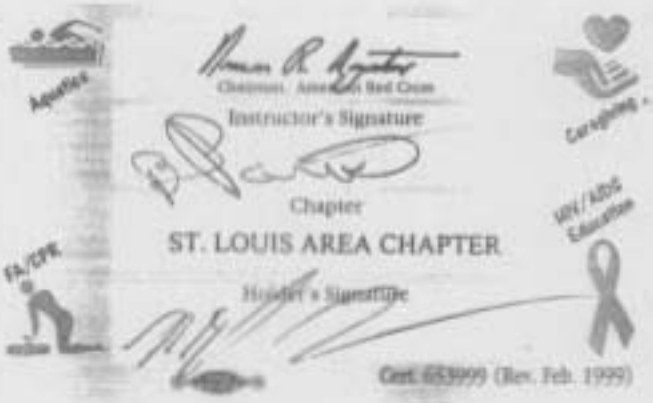
Workplace - Standard First Aid

conducted by

St. Louis Area Chapter

Date completed 1/4/02

The American Red Cross recognizes this certificate as valid for **3** year(s) from completion date.



American Red Cross
We'll be there.

This recognizes that

michael Mahan

has completed the requirements for

Workplace - Adult CPR

conducted by

St. Louis Bi-State

Date completed 1/11/02

The American Red Cross recognizes this certificate as valid for 1 year(s) from completion date.

Chairman, American Red Cross

Instructor's Signature

Chapter

ST. LOUIS AREA CHAPTER

Holder's Signature

Cert. 653990 (Rev. Feb. 1999)

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Brian Mulhearn

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-006 RWT**

Steve Passig, Radiation Safety Officer

G & S Safety Services Of Tennessee, Inc.

Environmental Training Division

presents this

Certificate Of Completion

to

JOHN B. MULHEARN

for 40 *hours of successful participation in*

HAZARDOUS WASTE OPERATIONS TRAINING

this 11th *day of* MARCH *19* 93

this course is part of a series in

Hazardous Waste Management Training

Ralph E. Kaun

Course Instructor

K W. 20

Director of Training

MAXIM Technologies Inc®

Hereby Certifies

BRIAN MULHEARN

has satisfactorily completed

HAZWOPER 8-HOUR REFRESHER TRAINING
29CFR.1910.120

Conducted
April 24, 2002
St. Louis, Missouri

Greg Dawdy
Training Facilitator

Yvonne M. Freix, CIH
Corporate Health and Safety

RESPIRATOR FIT TEST DOCUMENTATION

(Complete all sections)

Employee Information	
Name: Brian Mulhearn	Employee Number: 1902
Company: Maxim Technologies	Department Number: 4509
Address: 1908 Innerbelt Bus. Ctr. Dr. St. Louis, MO 63114	Daytime Phone: 314-426-0880
	Fax: 314-426-0880

Respirator Information	
Manufacturer: MSA	Model Number: Advantage 1000
Type of face piece (check one): ☐ Full-face ☑ Half-face	Type of respirator (check one): ☑ Air Purifying _____ Atmosphere Supplying ☐ Air line _____ ☐ SCBA _____

Size of respirator (check one):

☐ Small ☐ Medium ☑ Large ☐ Extra Large ☐ Other (please indicate) _____

Fit Test Exercise Documentation

(The individual performing the test must initial either "PASS" or "FAIL" for each activity, and in order to pass the test, all activities must be initialed as "passed".)

	Banana Oil		Irritant Smoke	
Activity	**PASS**	**FAIL**	**PASS**	**FAIL**
Normal Breathing	✓		✓	
Deep Breathing	✓		✓	
Move Head Side-to-Side	✓		✓	
Move Head Up and Down	✓		✓	
Talking (Read *Rainbow Passage*)	✓		✓	
Other (Explain): Bending	✓		✓	

Signature of Tester: Mark 2 Li Date: 7/23/01

Keep a copy in the employee's health and safety records maintained at the office of employment and send a copy to the Respiratory Protection Program Administrator.

American Red Cross
We'll be there.

This recognizes that

Brian Mulhern

has completed the requirements for

Workplace - Standard First Aid

conducted by

St. Louis Area Chapter

Date completed 3/11/02

The American Red Cross recognizes this certificate as valid for **3** year(s) from completion date.

Chairman, American Red Cross

Instructor's Signature

Chapter

ST. LOUIS AREA CHAPTER

Holder's Signature

Cert. 653999 (Rev. Feb. 1999)

American Red Cross
We'll be there.

This recognizes that

Brian Mulhearn

has completed the requirements for

Workplace - Adult CPR

conducted by

St. Louis Bi-State

Date completed 1/11/02

The American Red Cross recognizes this certificate as valid for 1 year(s) from completion date.

Aquatics

Chairman, American Red Cross

Instructor's Signature

Chapter

ST. LOUIS AREA CHAPTER

Holder's Signature

Fit/CPR

Caregiving

HIV/AIDS Education

Cert. 653999 (Rev. Feb. 1999)

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Thomas Lachajczyk

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-007 RWT**

Steve Passig, Radiation Safety Officer

GERAGHTY
& MILLER, INC.
Ground-Water Consultants

Certificate of Completion

Presented To

Thomas Lachajczyk

March 7-11, 1988

In Recognition of Having Successfully Completed
the Prescribed Course of Study for
Hazardous Waste Site Activities
40-Hour Initial
Health and Safety Training

Andrew J. Barker
Corporate Safety Manager
Geraghty & Miller, Inc.

Eric Koch
Geraghty & Miller, Inc.

"Imagineering a Cleaner World"

Riedel Environmental Services Inc.

Certificate of Completion

presented to

Thomas Lachajczyk

in recognition of satisfactory completion
of the course of instruction entitled

Eight-Hour Hazardous Waste Site Management

October 24, 1988
Date[s] of Instruction

Margaret Wichard
Instructor

RET-032 5/87

MAXIM Technologies Inc®

Hereby Certifies

TOM LACHAJCZYK

has satisfactorily completed

HAZWOPER 8-HOUR REFRESHER TRAINING
29CFR.1910.120

Conducted
April 29, 2002
St. Louis, Missouri

Mark Sievers
Training Facilitator

Yvonne M. Freix, CIH
Corporate Health and Safety

RESPIRATOR FIT TEST DOCUMENTATION

(Complete all sections)

Employee Information	
Name: Tom Lachajczyk	Employee Number: 60284
Company: Maxim Technologies	Department Number: 4509
Address: 1908 Innerbelt Bus. Ctr. Dr. St. Louis, MO 63114	Daytime Phone: 314-426-0880
	Fax: 314-426-0880

Respirator Information	
Manufacturer: MSA	Model Number: Comfo Elite
Type of face piece (check one): ☑ Full-face ☐ Half-face	Type of respirator (check one): ☑ Air Purifying _____ Atmosphere Supplying ☐ Air line _____ ☐ SCBA _____

Size of respirator (check one):

☐ Small ☑ Medium ☐ Large ☐ Extra Large ☐ Other (please indicate) _____

Fit Test Exercise Documentation

(The individual performing the test must initial either "PASS" or "FAIL" for each activity, and in order to pass the test, all activities must be initialed as "passed".)

	Banana Oil		Irritant Smoke	
Activity	**PASS**	**FAIL**	**PASS**	**FAIL**
Normal Breathing	✓		✓	
Deep Breathing	✓		✓	
Move Head Side-to-Side	✓		✓	
Move Head Up and Down	✓		✓	
Talking (Read *Rainbow Passage*)	✓		✓	
Other (Explain): Bending	✓		✓	

Signature of Tester: Mark L. Date: 7/20/01

Keep a copy in the employee's health and safety records maintained at the office of employment and send a copy to the Respiratory Protection Program Administrator.

American Red Cross
We'll be there.

This recognizes that
Thomas Lachance
has completed the requirements for

Workplace Training: First Aid

conducted by

St. Louis Bi-State

Date completed 1-19-00

The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that

Thomas Lachajczyk

has completed the requirements for

Workplace - Adult CPR

conducted by

St. Louis Bi-State

Date completed 6/10/02

The American Red Cross recognizes this certificate as valid for 1 year(s) from completion date.

Chairman, American Red Cross

Instructor's Signature

Chapter

ST. LOUIS AREA CHAPTER

Thomas Lachajczyk

Holder's Signature

Cert. 653999 (Rev. Feb. 1999)

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

David Germeroth

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-008 RWT**

Steve Passig, Radiation Safety Officer

P.O. Box 21
621 Ninth Street
Carlyle, Illinois 62231
(618) 594-4023

United
Science
Industries

David E. Germeroth

Has attended and satisfactorily passed an examination covering the contents of a course entitled

40-HOUR HAZARDOUS MATERIALS WORKER

(Designed to meet the requirements of 29 CFR 1910.120)

HM-0342
Certificate Number

February 28, 1991
Date

February 27, 1992
Expiration Date

Course Director

Exam Administrator

CERTIFICATE OF TRAINING

MAXIM TECHNOLOGIES, INC.

Hereby Certifies

DAVID GERMEROTH

_____

Social Security No.

has completed

MANAGER/SUPERVISOR TRAINING
according to 29 CFR 1910.120(e)(4)

02/21/96 — *Date*

ST LOUIS, MO — *Location*

_____

Instructor

MAXIM Technologies Inc®

Hereby Certifies

DAVE GERMEROTH

has satisfactorily completed

HAZWOPER 8-HOUR REFRESHER TRAINING
29CFR.1910.120

Conducted
April 24, 2002
St. Louis, Missouri

Greg Dawdy
Training Facilitator

Yvonne M. Freix, CIH
Corporate Health and Safety

RESPIRATOR FIT TEST DOCUMENTATION

(Complete all sections)

Employee Information	
Name: Dave Germeroth	Employee Number: 36759
Company: Maxim Technologies	Department Number: 4509
Address: 1908 Innerbelt Bus. Ctr. Dr. St. Louis, MO 63114	Daytime Phone: 314-426-0880
	Fax: 314-426-0880

Respirator Information	
Manufacturer: MSA	Model Number: Comfo Elite
Type of face piece (check one): ☒ Full-face ☐ Half-face	Type of respirator (check one): ☑ Air Purifying _____ Atmosphere Supplying ☐ Air line _____ ☐ SCBA _____

Size of respirator (check one):

☐ Small ☑ Medium ☐ Large ☐ Extra Large ☐ Other (please indicate) _____

Fit Test Exercise Documentation

(The individual performing the test must initial either "PASS" or "FAIL" for each activity, and in order to pass the test, all activities must be initialed as "passed".)

	Banana Oil		Irritant Smoke	
Activity	**PASS**	**FAIL**	**PASS**	**FAIL**
Normal Breathing	✓		✓	
Deep Breathing	✓		✓	
Move Head Side-to-Side	✓		✓	
Move Head Up and Down	✓		✓	
Talking (Read *Rainbow Passage*)	✓		✓	
Other (Explain): Bending	✓		✓	

Signature of Tester: Mark L [illegible] Date: 7/2/01

Keep a copy in the employee's health and safety records maintained at the office of employment and send a copy to the Respiratory Protection Program Administrator.

American Red Cross
We'll be there.

This recognizes that

Dava Barmroth

has completed the requirements for

Workplace - Adult CPR

conducted by

St. Louis Bi-State

Date completed 1/11/02

The American Red Cross recognizes this certificate as valid for 1 year(s) from completion date.

Aquatics

Chairman, American Red Cross

Instructor's Signature

Caregiver

Chapter

ST. LOUIS AREA CHAPTER

FA/CPR

HIV/AIDS Education

Holder's Signature

Cert. 653999 (Rev. Feb. 1999)

American Red Cross
We'll be there.

This recognizes that

Dave Garmeroth

has completed the requirements for

Workplace - Standard First Aid

conducted by

St. Louis Area Chapter

Date completed 1/13/02

The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

Chairman, American Red Cross

Instructor's Signature

Chapter

ST. LOUIS AREA CHAPTER

Student's Signature

Cert. 653999 (Rev. Feb. 1999)

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Jim Shetley

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-009 RWT**

Steve Passig, Radiation Safety Officer

Safety Support Services, Incorporated

Environmental and Occupational Safety & Health Consultants

1410 South Jefferson Avenue
St. Louis, Missouri 63104
Phone: (314) 773-4747

Does hereby certify that

Jim D. Shetley

has successfully completed the 40 hour initial course of instruction for accreditation under

29 CFR 1910.120

Hazardous Waste Operations and Emergency Response

Class Date: August 17-21, 1998
Exam Date: August 21, 1998
Number: SSS082198-271HW40
Expires: August 21, 1999
Student SSN:

Douglas L. Mueller, CSP, CET
Certified Safety Professional
Certified Environmental Trainer

BCSP
DOUGLAS L. MUELLER
13006
CERTIFIED SAFETY PROFESSIONAL

MAXIM Technologies Inc®

Hereby Certifies

JIM SHETLEY

has satisfactorily completed

HAZWOPER 8-HOUR REFRESHER TRAINING
29CFR.1910.120

Conducted
April 24, 2002
St. Louis, Missouri

Greg Dawdy
Training Facilitator

Yvonne M. Freix, CIH
Corporate Health and Safety

RESPIRATOR FIT TEST DOCUMENTATION

(Complete all sections)

Employee Information	
Name: Jim Shetley	Employee Number: 82868
Company: Maxim Technologies	Department Number: 4509
Address: 1908 Innerbelt Bus. Ctr. Dr. St. Louis, MO 63114	Daytime Phone: 314-426-0880
	Fax: 314-426-0880

Respirator Information	
Manufacturer: MSA	Model Number: Comfo Elite
Type of face piece (check one): ☒ Full-face ☐ Half-face	Type of respirator (check one): ☒ Air Purifying _____ Atmosphere Supplying ☐ Air line _____ ☐ SCBA _____

Size of respirator (check one):

☐ Small ☒ Medium ☐ Large ☐ Extra Large ☐ Other (please indicate) _____

Fit Test Exercise Documentation

(The individual performing the test must initial either "PASS" or "FAIL" for each activity, and in order to pass the test, all activities must be initialed as "passed".)

	Banana Oil		Irritant Smoke	
Activity	**PASS**	**FAIL**	**PASS**	**FAIL**
Normal Breathing	✓		✓	
Deep Breathing	✓		✓	
Move Head Side-to-Side	✓		✓	
Move Head Up and Down	✓		✓	
Talking (Read *Rainbow Passage*)	✓		✓	
Other (Explain): Bending	✓		✓	

Signature of Tester: Mark 2 Li Date: 6/29/01

Keep a copy in the employee's health and safety records maintained at the office of employment and send a copy to the Respiratory Protection Program Administrator.

American Red Cross
We'll be there.

This recognizes that

Jim Shetley

has completed the requirements for

Workplace - Adult CPR

conducted by

St. Louis Bi-State

Date completed 1/11/02

The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

Chairman, American Red Cross

Instructor's Signature

Chapter

ST. LOUIS AREA CHAPTER

Chapter Manager's Signature

Cert. 653909 (Rev. Feb. 1999)

American Red Cross
We'll be there.

This recognizes that

Jim Hatley

has completed the requirements for

Workplace - Standard First Aid

conducted by

St. Louis Area Chapter

Date completed 1/19/99

The American Red Cross recognizes this certificate as valid for **3** year(s) from completion date.

Chairman, American Red Cross

Instructor's Signature

Chapter

ST. LOUIS AREA CHAPTER

Holder's Signature

Jim Hatley

Cert. 653099 (Rev. Feb. 1999)

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Robert Bessent

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-010 RWT**

Steve Passig, Radiation Safety Officer

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Paul J. Smith

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-011 RWT**

Steve Passig, Radiation Safety Officer

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Mark Sievers

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-012 RWT**

Steve Passig, Radiation Safety Officer

ENVIRONMENTAL Training Center

CERTIFIES THAT

MARK L. SIEVERS

has successfully completed

40 HOUR INITIAL HEALTH & SAFETY TRAINING PER 29 CFR 1910.120 FOR

HAZARDOUS WASTE SITE OPERATIONS

SSN _____

Course date AUGUST 9 to 13, 1993

Requirement 29 CFR 1910.120

Certificate No. 7-SL080993-04

Training Site: 1988 INNERBELT BUSINESS CTR. DR.
ST. LOUIS, MISSOURI 63114-5760
TELEPHONE 314/428-7020

Instructor

Director, Training

PSH inc - Training Center

St. Louis, Missouri

This Certifies That

Mark L. Sievers

Has successfully completed an 8-hour
Manager/Supervisor course of instruction under

29 CFR 1910.120

Hazardous Waste Operation and Emergency Response

Class Date: *May 18, 1994*
Exam Date: *May 18, 1994*
Number: *PSH051894-002HWMS*
SSN:

Carol E. Hoag, President

Course Provider: **PSH Inc**

440 North 4th Street, Suite 203, St. Louis, Missouri 63102-2650
(314) 231-7774

MAXIM Technologies Inc®

Hereby Certifies

MARK SIEVERS

has satisfactorily completed

HAZWOPER 8-HOUR REFRESHER TRAINING
29CFR.1910.120

Conducted
April 29, 2002
St. Louis, Missouri

Mark Sievers
Training Facilitator

Yvonne M. Freix, CIH
Corporate Health and Safety

RESPIRATOR FIT TEST DOCUMENTATION

(Complete all sections)

Employee Information	
Name: Mark L. Sievers	Employee Number: 11998
Company: Maxim Technologies	Department Number: 4509
Address: 1908 Innerbelt Bus. Ctr. Dr. St. Louis, MO 63114	Daytime Phone: 314-426-0880
	Fax: 314-426-0880

Respirator Information	
Manufacturer: MSA	Model Number: Advantage 1000
Type of face piece (check one): ☒ Full-face ☐ Half-face	Type of respirator (check one): ☒ Air Purifying _____ Atmosphere Supplying ☐ Air line _____ ☐ SCBA _____

Size of respirator (check one):

☐ Small ☐ Medium ☒ Large ☐ Extra Large ☐ Other (please indicate) _____

Fit Test Exercise Documentation

(The individual performing the test must initial either "PASS" or "FAIL" for each activity, and in order to pass the test, all activities must be initialed as "passed".)

	Banana Oil		Irritant Smoke	
Activity	**PASS**	**FAIL**	**PASS**	**FAIL**
Normal Breathing	✓		✓	
Deep Breathing	✓		✓	
Move Head Side-to-Side	✓		✓	
Move Head Up and Down	✓		✓	
Talking (Read *Rainbow Passage*)	✓		✓	
Other (Explain): Bending	✓		✓	

Signature of Tester: Nancy M Dubea Date: 7/2/01

Keep a copy in the employee's health and safety records maintained at the office of employment and send a copy to the Respiratory Protection Program Administrator.

American Red Cross
We'll be there.

This recognizes that

MARK SIEVERS

has completed the requirements for

Workplace Training: First Aid

conducted by

St. Louis Bi-State

Date completed 1-19-00

The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

American Red Cross
We'll be there.

This recognizes that

Mark Sievers

has completed the requirements for

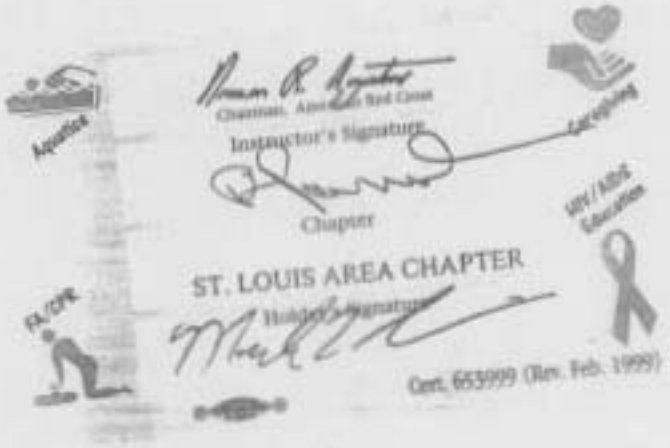
Workplace – Adult CPR

conducted by

St. Louis Bi-State

Date completed 1/11/02

The American Red Cross recognizes this certificate as valid for 1 year(s) from completion date.



Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Brad Lindenbusch

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-013 RWT**

Steve Passig, Radiation Safety Officer

Hazardous Material Waste Operations and Site Training Course

40 HOUR OSHA TRAINING

This is to certify that

Brad Lindenbusch

has completed Security Training Center's
40 Hour Hazardous Materials Training Course
in compliance with OSHA 29CFR1910.120

Daniel P. Heitert

INSTRUCTOR
Daniel P. Heitert, M.A.
Security Training Center
Certified by Missouri Coordinating Board for Higher Education

August 1, 1994

DATE COMPLETED

Training Provider of Record:
Environmental Training Center
1986 Innerbelt Business Ctr. Dr.
St. Louis, MO 63114-5760
Tel. (314) 428-7020

ENVIRONMENTAL Training Center

Training Location:
Maxim Technologies
1908 Innerbelt Business Ctr. Dr.
St. Louis, MO 63114
Tel. (314) 426-0080

Certifies that

BRAD J. LINDENBUSCH

has successfully completed

8 Hours of Annual Health & Safety Training Per 29 CFR 1910.120(e) and (q) For

HAZARDOUS WASTE SITE OPERATIONS

AND EMERGENCY RESPONSE

Employee No: 499-70-7367
Course Date: 03/20/01
Requirement: 29 CFR 1910.120 (e) and (q)
Certificate #: 7-SL032001/08
Expires: 03/20/02

Jeanine S. Arrighi, CET
DIRECTOR

404

RESPIRATOR FIT TEST DOCUMENTATION

(Complete all sections)

Employee Information	
Name: Brad Lindenbusch	Employee Number: 1514
Company: Maxim Technologies	Department Number: 4509
Address: 1908 Innerbelt Bus. Ctr. Dr. St. Louis, MO 63114	Daytime Phone: 314-426-0880
	Fax: 314-426-0880

Respirator Information	
Manufacturer: MSA	Model Number: Comfo Elite
Type of face piece (check one): ☑ Full-face ☐ Half-face	Type of respirator (check one): ☑ Air Purifying _____ Atmosphere Supplying ☐ Air line _____ ☐ SCBA _____

Size of respirator (check one):

☐ Small ☑ Medium ☐ Large ☐ Extra Large ☐ Other (please indicate) _____

Fit Test Exercise Documentation

(The individual performing the test must initial either "PASS" or "FAIL" for each activity, and in order to pass the test, all activities must be initialed as "passed".)

	Banana Oil		Irritant Smoke	
Activity	**PASS**	**FAIL**	**PASS**	**FAIL**
Normal Breathing	✓		✓	
Deep Breathing	✓		✓	
Move Head Side-to-Side	✓		✓	
Move Head Up and Down	✓		✓	
Talking (Read *Rainbow Passage*)	✓		✓	
Other (Explain): Bending	✓		✓	

Signature of Tester: Mark Lin Date: 7/2/01

Keep a copy in the employee's health and safety records maintained at the office of employment and send a copy to the Respiratory Protection Program Administrator.

American Red Cross
We'll be there.

This recognizes that

Brad Lindenbusch

has completed the requirements for

Workplace - Adult CPR

conducted by

St. Louis Bi-State

Date completed 1/11/92

The American Red Cross recognizes this certificate as valid for 1 year(s) from completion date.

Chairman, American Red Cross

Instructor's Signature

Chapter

ST. LOUIS AREA CHAPTER

Holder's Signature

Brad Lindenbusch

Cert. 653999 (Rev. Feb. 1995)

American Red Cross
We'll be there.

This recognizes that
Brad Lindenbusch
has completed the requirements for

Workplace Training: First Aid

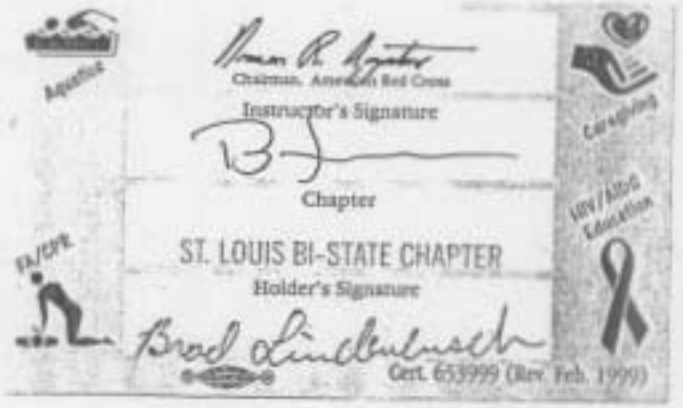
conducted by

St. Louis Bi-State

Date completed 1-19-00

The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.

2



Certificate of Completion

2 Hour Asbestos Awareness Training

The following individual has completed a two hour asbestos awareness training course which satisfies the requirements of 29 CFR 1926.1101(k)(6)(vi) for Class IV asbestos workers.

Topics covered in this class included:

Definition of Hazards

Asbestos Hazards

Nature of Asbestos Hazards

Health Risks

Types of Asbestos Containing Materials

Minimizing Asbestos Hazards and Exposure To Asbestos

Attendee: Brad Lindenbusch Brad Lindenbusch

Instructor: David E. Germeroth, P.E., Asbestos Management Planner #: SSS122199-396MP

Certificate of Completion

2 Hour Asbestos Awareness Training

The following individual has completed a two hour asbestos awareness training course which satisfies the requirements of 29 CFR 1926.1101(k)(6)(vi) for Class IV asbestos workers.

Topics covered in this class Included:

Definition of Hazards

Asbestos Hazards

Nature of Asbestos Hazards

Health Risks

Types of Asbestos Containing Materials

Minimizing Asbestos Hazards and Exposure to Asbestos

Date of Course: 23 February 2000

Attendee: Brad Linenbusch Brad Linenbusch

Instructor: David E. Germeroth, P.E., Asbestos Management Planner #: SSS122199-220AMPR

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Nancy Dickens

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-014 RWT**

Steve Passig, Radiation Safety Officer

MAXIM Technologies Inc®

Hereby Certifies

NANCY DICKENS

has satisfactorily completed

HAZWOPER 8-HOUR REFRESHER TRAINING
29CFR.1910.120

Conducted
April 29, 2002
St. Louis, Missouri

Mark Sievers
Training Facilitator

Yvonne M. Freix, CIH
Corporate Health and Safety

"Imagineering a Cleaner World"

Riedel Environmental Technologies, Inc.

Certificate of Completion

presented to

NANCY DICKENS

in recognition of satisfactory completion
of the course of instruction entitled

Forty-Hour Hazardous Materials Handling & Response

October 16 - 19, 1989
Date(s) of Instruction

Margaret Wichard
Instructor

"Imagineering a Cleaner World"

Riedel Environmental Technologies, Inc.

Certificate of Completion

presented to

NANCY M. DICKENS

in recognition of satisfactory completion
of the course of instruction entitled

Eight Hour Hazardous Waste Site Management

March 13, 1990
Date(s) of Instruction

Margaret L Wichard
Instructor

RESPIRATOR FIT TEST DOCUMENTATION

(Complete all sections)

Employee Information	
Name: Nancy Dickens	Employee Number: 28290
Company: Maxim Technologies	Department Number: 4509
Address: 1908 Innerbelt Bus. Ctr. Dr. St. Louis, MO 63114	Daytime Phone: 314-426-0880
	Fax: 314-426-0880

Respirator Information	
Manufacturer: MSA	Model Number: Comfo Elite
Type of face piece (check one): ☒ Full-face ☐ Half-face	Type of respirator (check one): ☑ Air Purifying _____ Atmosphere Supplying ☐ Air line _____ ☐ SCBA _____

Size of respirator (check one):

☐ Small ☒ Medium ☐ Large ☐ Extra Large ☐ Other (please indicate) _____

Fit Test Exercise Documentation

(The individual performing the test must initial either "PASS" or "FAIL" for each activity, and in order to pass the test, all activities must be initialed as "passed".)

	Banana Oil		Irritant Smoke	
Activity	**PASS**	**FAIL**	**PASS**	**FAIL**
Normal Breathing	✓		✓	
Deep Breathing	✓		✓	
Move Head Side-to-Side	✓		✓	
Move Head Up and Down	✓		✓	
Talking (Read *Rainbow Passage*)	✓		✓	
Other (Explain): Bending	✓		✓	

Signature of Tester: Mark L [illegible] Date: 7/2/01

Keep a copy in the employee's health and safety records maintained at the office of employment and send a copy to the Respiratory Protection Program Administrator.

American Red Cross
We'll be there.

This recognizes that

Nancy Dickens

has completed the requirements for

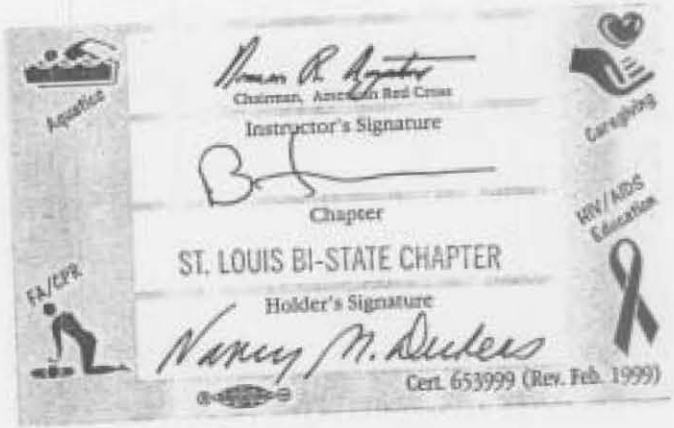
Workplace Training: First Aid

conducted by

St. Louis Bi-State

Date completed 1-19-00

The American Red Cross recognizes this certificate as valid for 3 year(s) from completion date.



American Red Cross
We'll be there.

This recognizes that

Nancy Dickens

has completed the requirements for

Workplace - Adult CPR

conducted by

St. Louis Bi-State

Date completed 1/11/03

The American Red Cross recognizes this certificate as valid for **1** year(s) from completion date.

Aquatics

Chairman, American Red Cross

Instructor's Signature

Caregiving

Chapter

HIV / AIDS Education

FA/CPR

ST. LOUIS AREA CHAPTER

Holder's Signature

Nancy M. Dickens

Cert. 663999 (Rev. Feb. 1999)

Science Applications International Corporation
An Employee-Owned Company

Does hereby certify that

Max Gricevich

has successfully completed the

Radiation Worker Training

course of instruction in accordance with the requirements of
10 CFR 19.12 and USACE EM 385-1-80.

Class Date: **May 2, 2002**
Expires: **May. 2, 2003**
Number: **SAIC 050202-015 RWT**

Steve Passig, Radiation Safety Officer

St. Louis Community College at Florissant Valley

Institute for Continuing Education

Certificate of Completion

This Certifies That

MAX GRICEVICH

Has Successfully Completed

GEOTECHNICAL & GEOENVIRONMENTAL EXPLORATION:
SAFETY AT WASTE SITES
(2.6 CEUs)

Donald F. Tanner

Associate Dean of Continuing Education

November 14, 1986

"Imagineering a Cleaner World"

Riedel Environmental Services Inc.

Certificate of Completion

presented to

Max Gricevich

in recognition of satisfactory completion
of the course of instruction entitled

Eight-Hour Hazardous Waste Site Management

October 24, 1988

Date(s) of Instruction

Instructor

Training Provider of Record:
Environmental Training Center
1986 Innerbelt Business Ctr. Dr.
St. Louis, MO 63114-5760
Tel. (314) 428-7020

ENVIRONMENTAL Training Center

Training Location:
Maxim Technologies
1908 Innerbelt Business Ctr. Dr.
St. Louis, MO 63114
Tel. (314) 426-0080

Certifies that

MAX GRICEVICH

has successfully completed

8 Hours of Annual Health & Safety Training Per 29 CFR 1910.120(e) and (q) For

HAZARDOUS WASTE SITE OPERATIONS

AND EMERGENCY RESPONSE

Employee No: 330-34-5954
Course Date: 03/20/01
Requirement: 29 CFR 1910.120 (e) and (q)
Certificate #: 7-SL032001/06
Expires: 03/20/02

Jeanine S. Arrighi, CET
DIRECTOR

404

RESPIRATOR FIT TEST DOCUMENTATION

(Complete all sections)

Employee Information	
Name: Max Gricevich	Employee Number: 42405
Company: Maxim Technologies	Department Number: 4509
Address: 1908 Innerbelt Bus. Ctr. Dr. St. Louis, MO 63114	Daytime Phone: 314-426-0880
	Fax: 314-426-0880

Respirator Information	
Manufacturer: MSA	Model Number: UltraTwin
Type of face piece (check one): ☑ Full-face ☑ Half-face	Type of respirator (check one): ☑ Air Purifying _____ Atmosphere Supplying ☐ Air line _____ ☐ SCBA _____

Size of respirator (check one):

☐ Small ☑ Medium ☐ Large ☐ Extra Large ☐ Other (please indicate) _____

Fit Test Exercise Documentation

(The individual performing the test must initial either "PASS" or "FAIL" for each activity, and in order to pass the test, all activities must be initialed as "passed".)

	Banana Oil		Irritant Smoke	
Activity	**PASS**	**FAIL**	**PASS**	**FAIL**
Normal Breathing	✓		✓	
Deep Breathing	✓		✓	
Move Head Side-to-Side	✓		✓	
Move Head Up and Down	✓		✓	
Talking (Read *Rainbow Passage*)	✓		✓	
Other (Explain): Bending	✓		✓	

Signature of Tester: Mark Lin Date: 6/29/01

Keep a copy in the employee's health and safety records maintained at the office of employment and send a copy to the Respiratory Protection Program Administrator.

American Red Cross
We'll be there.

This recognizes that

Max Grievich

has completed the requirements for

Workplace - Standard First Aid

conducted by

St. Louis Area Chapter

Date completed 1/11/02

The American Red Cross recognizes this certificate as valid for **3** year(s) from completion date.

Aquatics

Chairman, American Red Cross

Instructor's Signature

Caregiving

Chapter

ST. LOUIS AREA CHAPTER

HIV/AIDS Education

FA/CPR

Holder's Signature

Cert. 653999 (Rev. Feb. 1999)

American Red Cross
We'll be there.

This recognizes that

Max Griesbach

has completed the requirements for

Workplace - Adult CPR

conducted by

St. Louis Bi-State

Date completed 1/21/02

The American Red Cross recognizes this certificate as valid for 1 year(s) from completion date.

Aquatics

Chairman, American Red Cross

Instructor's Signature

Caregiving

Chapter

ST. LOUIS AREA CHAPTER

HIV/AIDS Education

Holder's Signature

FA/CPR

Cert. 653999 (Rev. Feb. 1999)

APPENDIX E
FIT-FOR-DUTY STATEMENTS

HEALTH STATUS MEDICAL REPORT

Employer Copy

TYPE OF EXAMINATION: Periodic Examination

EMPLOYEE:	Lindenbusch, Brad	COMPANY:	TT/Maxim Tech
SSN:	[redacted]	POSITION:	Geologist
DATE OF EXAM:	02/13/2002	LOCATION:	TT/Maxim_Tech-St. Louis
EXPIRATION DATE:	02/13/2003	SITE:	St. Louis

The following recommendations are based on a review of one or all of the following: a base history questionnaire, supporting diagnostic tests, physical examination, and the essential functions of the position applied for or occupied by the individual named above.

	Yes	No	Undecided
Has the employee any detected medical conditions that would increase his/her risk of material health impairment from occupational exposure in accordance with 29 CFR §1910.120?	☐	☑	☐
Does the employee have any limitations in the use of respirators in accordance with 29 CFR §1910.134?	☐	☑	☐

STATUS

1. ☑ **QUALIFIED** The examination indicates no significant medical condition. Employee can be assigned any work consistent with skills and training.

2. ☐ **QUALIFIED - WITH LIMITATIONS** The examination indicates that a medical condition currently exists that limits work assignments on the following basis:

3. ☐ **NOT QUALIFIED**

4. ☐ **DEFERRED** The examination indicated that additional information is necessary. The employee has been given the following instructions.

COMMENTS:

I have reviewed the medical data of the above named employee, and informed the employee of the results of the medical examination and any medical conditions that require follow-up examination or treatment.

Name of Physician: Peter P. Greaney, MD / Peter H. Wald, MD Date: 02/18/02

Signature: _____

WorkCare
333 S. Anita Drive, Suite 630, Orange, CA 92868
(714) 978-7488 • (800) 455-6155 • FAX (714) 456-2154

HEALTH STATUS MEDICAL REPORT

Employer Copy

TYPE OF EXAMINATION: Periodic Examination

EMPLOYEE:	Mulhearn, John	**COMPANY:**	TT/Maxim Tech
SSN:	[redacted]	**POSITION:**	Toxicologist
DATE OF EXAM:	04/30/2002	**LOCATION:**	TT/Maxim_Tech-St. Louis
EXPIRATION DATE:	04/30/2003	**SITE:**	St. Louis

The following recommendations are based on a review of one or all of the following: a base history questionnaire, supporting diagnostic tests, physical examination, and the essential functions of the position applied for or occupied by the individual named above.

	Yes	No	Undecided
Has the employee any detected medical conditions that would increase his/her risk of material health impairment from occupational exposure in accordance with 29 CFR §1910.120?	☐	☑	☐
Does the employee have any limitations in the use of respirators in accordance with 29 CFR §1910.134?	☐	☑	☐

STATUS

1. ☑ **QUALIFIED** The examination indicates no significant medical condition. Employee can be assigned any work consistent with skills and training.

2. ☐ **QUALIFIED - WITH LIMITATIONS** The examination indicates that a medical condition currently exists that limits work assignments on the following basis:

3. ☐ **NOT QUALIFIED**

4. ☐ **DEFERRED** The examination indicated that additional information is necessary. The employee has been given the following instructions.

COMMENTS:

I have reviewed the medical data of the above named employee, and informed the employee of the results of the medical examination and any medical conditions that require follow-up examination or treatment.

Name of Physician: Peter P. Greaney, MD / Peter H. Wald, MD Date: 05/02/02

Signature: [signature] MD

WorkCare
333 S. Anita Drive, Suite 830, Orange, CA 92868
(714) 978-7488 • (800) 455-6155 • FAX (714) 456-2154

MAXIM TECHNOLOGIES, INC.
TRANSMITTAL LETTER

Date 6/27/01

NAME OF EMPLOYEE: David Eastmond BIRTHDATE: 1/9/70

HOME ADDRESS: [redacted]

SECTION 1 FACILITY ADMINISTRATOR AUTHORIZING PHYSICAL (INITIALS)_____

CHARGE TO DEPT # _____ DEPT FASIC_____

PURPOSE OF PHYSICAL: PEP ____ ANNUAL ____ TERMINATION ____

TYPE OF PHYSICAL: CLASS 1 ____ CLASS 3 ____
ASBESTOS ____ DOT ____ OTHER_____

DRUG SCREEN: ____ 10-PANEL ____ DOT ____ NONE

Is job description attached? ____ Yes ____ No

SECTION 2 (PHYSICIAN TO COMPLETE THE NEXT TWO SECTIONS)

Services Performed:	Yes	No
Basic History/Sat. Physical Exam	✓	—
DOT Physical Exam	—	✓
Pulmonary Func. Study	✓	—
Chest X-Ray	✓	—
Back X-Ray	—	✓
Routine Urinalysis	✓	—
CBC	✓	—
SMAC-25	✓	—
Hearing Test	✓	—
Drug Screen (10-Panel)	—	✓
Drug Screen (DOT-MDA)	—	✓
Range of Motion Test - B200, Cybex or ISTU	✓	—

Any Exam Deficiency

SECTION 3 OCCUPATIONAL REVIEW

1. Physically capable of wearing respiratory device:
✓ Approved ___ Disapproved ___ Not Applicable
If disapproved, please comment: _____

2. Physically fit to perform job functions: ✓ Yes ___ No
If no, please comment: _____

3. Any detected medical conditions which would place ___ Yes ✓ No
the employee at risk of impairment on the job.
If yes, please comment: _____

Any physical recommended limitations upon employee's assigned work:

Examining Physician's Signature: [signature] Date: 6/27/01

HEALTH STATUS MEDICAL REPORT

Employer Copy

TYPE OF EXAMINATION: Periodic Examination

EMPLOYEE:	Gricevich, Maxim	COMPANY:	TT/Maxim Tech
SSN:	[redacted]	POSITION:	Not Indicated
DATE OF EXAM:	08/15/2000	LOCATION:	TT/Maxim_Tech-St. Louis
EXPIRATION DATE:	08/15/2002	SITE:	St. Louis

The following recommendations are based on a review of one or all of the following: a base history questionnaire, supporting diagnostic tests, physical examination, and the essential functions of the position applied for or occupied by the individual named above.

	Yes	No	Undecided
Has the employee any detected medical conditions that would increase his/her risk of material health impairment from occupational exposure in accordance with 29 CFR §1910.120?	☐	☑	☐
Does the employee have any limitations in the use of respirators in accordance with 29 CFR §1910.134?	☐	☑	☐

STATUS

1. ☑ **QUALIFIED** The examination indicates no significant medical condition. Employee can be assigned any work consistent with skills and training.

2. ☐ **QUALIFIED - WITH LIMITATIONS** The examination indicates that a medical condition currently exists that limits work assignments on the following basis:

3. ☐ **NOT QUALIFIED**

4. ☐ **DEFERRED** The examination indicated that additional information is necessary. The employee has been given the following instructions.

COMMENTS: ***Biennial Review***

I have reviewed the medical data of the above named employee, and informed the employee of the results of the medical examination and any medical conditions that require follow-up examination or treatment.

Name of Physician: Peter P. Greaney, MD / Peter H. Wald, MD Date: 01/07/02

Signature: Peter Greaney MD

WorkCare
333 S. Anita Drive, Suite 630, Orange, CA 92868
(714) 978-7488 • (800) 455-6155 • FAX (714) 456-2154

MAXIM TECHNOLOGIES, INC.
TRANSMITTAL LETTER

Date 9/20/01

NAME OF EMPLOYEE: Gregory C. Oswald BIRTHDATE: 11/6/64

HOME ADDRESS: [redacted]

SECTION 1 FACILITY ADMINISTRATOR AUTHORIZING PHYSICAL (INITIALS)____

CHARGE TO DEPT # 4427 DEPT FASC____

PURPOSE OF PHYSICAL: PEP ___ ANNUAL ___ TERMINATION ___

TYPE OF PHYSICAL: CLASS 1 ___ CLASS 3 ___
ASBESTOS ___ DOT ___ OTHER____

DRUG SCREEN: ___ 10-PANEL ___ DOT ___ NONE

Is job description attached? ___ Yes ___ No

SECTION 2 (PHYSICIAN TO COMPLETE THE NEXT TWO SECTIONS)

Services Performed:	Yes	No
Basic History/Std. Physical Exam	—	—
DOT Physical Exam	—	—
Pulmonary Func. Study	—	—
Chest X-Ray	—	—
Back X-Ray	—	—
Routine Urinalysis	—	—
CBC	—	—
SMAC-25	—	—
Hearing Test	—	—
Drug Screen (10-Panel)	—	—
Drug Screen (DOT-NIDA)	—	—
Range of Motion Test - B200, Cybex or ISTU	—	—

SECTION 3 OCCUPATIONAL REVIEW

1. Physically capable of wearing respiratory device:
X Approved ___ Disapproved ___ Not Applicable
If disapproved, please comment: ____

2. Physically fit to perform job functions: X Yes ___ No
If no, please comment: ____

3. Any detected medical condition which would place the employee at risk of impairment on the job. ___ Yes X No
If yes, please comment: ____

Any physical recommended limitations upon employee's assigned work:

Examining Physician's Signature: [signature] Date: 10/8/01

MAXIM TECHNOLOGIES, INC.
TRANSMITTAL LETTER

Date: ____

NAME OF EMPLOYEE: ____ SSN/DOB: ____
HOME ADDRESS: [redacted]

SECTION 1: FACILITY ADMINISTRATOR AUTHORIZING PHYSICAL CHECKLIST

CHARGE TO DEPT # ____ DEPT NAME: ____
PURPOSE OF PHYSICAL: ____ PRE ____ ANNUAL ____ TERMINATION ____
TYPE OF PHYSICAL: CLASS 1 ____ CLASS 2 ____
ASBESTOS ____ DOT ____ OTHER ____

DRUG SCREEN: ____ 10 PANEL ____ DOT ____ NONE

Is job description attached? ____ Yes ____ No

SECTION 2: CHECKLIST TO COMPLETE THE NEXT PHYSICAL

Medical Professional	Yes	No
Basic History/Pl. Medical Exam	✓	
OSHA Physical Exam		
Pulmonary Function Test	✓	
Chest X-Ray	✓	
Back X-Ray		
Routine Urinalysis		
CBC	✓	
SMAC-25	✓	
Hearing Test	✓	
Drug Screen (10-Panel)		
Drug Screen (DOT NIDA 5)		
Range of Motion Test - [illegible]	✓	

SECTION 3: OCCUPATIONAL REVIEW

1. Physically capable of wearing respiratory device.
✓ Approved ____ Unapproved ____ Not Applicable
If unapproved, please comment: ____

2. Physically fit to perform job functions: ✓ Yes ____ No
If no, please comment: ____

3. Any special medical condition which would place ____ Yes ✓ No
the employee at risk of impairment on the job.
If yes, please explain: ____

Any physical restrictions regarding your employee's assigned work:

Examining Physician's Signature: ____ Date: ____

MAXIM TECHNOLOGIES, INC.
TRANSMITTAL LETTER

Date: [illegible]

NAME OF EMPLOYEE: [illegible] BIRTHDATE: [illegible]

HOME ADDRESS: [redacted]

SECTION I: FACILITY ADMINISTRATOR AUTHORIZING PHYSICAL (DETAILS)

CHARGE TO DEPT. # ____ DEPT. NAME ____

PURPOSE OF PHYSICAL: PRE ____ ANNUAL ____ TERMINATION ____

TYPE OF PHYSICAL: CLASS I ____ CLASS II ____

ASBESTOS ____ DOT ____ OTHER ____

LAB(S) SPECIAL: ____ ARSENIC ____ DNT ____ NONE

Is job description attached? ____ Yes ____ No

SECTION II: PHYSICIAN TO COMPLETE THE NEXT TWO SECTIONS

Services Performed:	Yes	No
Basic Baseline Physical Exam		
DOT Physical Exam		
Pulmonary Func. Test		
Chest X-Ray		
Back X-Ray		
Routine Urinalysis		
CBC		
SMAC-23		
Hearing Test		
Drug Screen [illegible]		
Drug Screen [illegible]		
Heavy Metals [illegible]		

SECTION III: EXAMINATION RESULTS

1. Physically capable of wearing respiratory device:
   ____ Approved ____ Disapproved ____ Not Applicable
   If disapproved, please comment ____

2. Physically fit to perform job functions: ____ Yes ____ No
   If no, please explain: ____

3. Any present medical condition which would place the employee in jeopardy [illegible]: ____ Yes ____ No
   If yes, please comment: ____

Any medical restrictions [illegible] employee's assigned work [illegible]

Examining Physician's Signature: [illegible] Date: [illegible]

HEALTH STATUS MEDICAL REPORT

Employer Copy

TYPE OF EXAMINATION: Periodic Examination

EMPLOYEE:	Mc Lean, Michael	COMPANY:	TT/Maxim Tech
SSN:	[redacted]	POSITION:	Environmental Scientist
DATE OF EXAM:	02/12/2002	LOCATION:	TT/Maxim_Tech-St. Louis
EXPIRATION DATE:	02/12/2003	SITE:	St. Louis

The following recommendations are based on a review of one or all of the following: a base history questionnaire, supporting diagnostic tests, physical examination, and the essential functions of the position applied for or occupied by the individual named above.

	Yes	No	Undecided
Has the employee any detected medical conditions that would increase his/her risk of material health impairment from occupational exposure in accordance with 29 CFR §1910.120?	☐	☑	☐
Does the employee have any limitations in the use of respirators in accordance with 29 CFR §1910.134?	☐	☑	☐

STATUS

1. ☑ **QUALIFIED** The examination indicates no significant medical condition. Employee can be assigned any work consistent with skills and training.

2. ☐ **QUALIFIED - WITH LIMITATIONS** The examination indicates that a medical condition currently exists that limits work assignments on the following basis:

3. ☐ **NOT QUALIFIED**

4. ☐ **DEFERRED** The examination indicated that additional information is necessary. The employee has been given the following instructions.

COMMENTS:

I have reviewed the medical data of the above named employee, and informed the employee of the results of the medical examination and any medical conditions that require follow-up examination or treatment.

Name of Physician: Peter P. Greaney, MD / Peter H. Wald, MD Date: 02/14/02

Signature: P Greaney MD

WorkCare
333 S. Anita Drive, Suite 630, Orange, CA 92868
(714) 978-7488 • (800) 455-6155 • FAX (714) 456-2154

MAXIM TECHNOLOGIES, INC.

St. Louis Branch Office
1908 Innerbelt Business Center Drive
St. Louis, MO 63114

PHYSICIAN'S FITNESS STATEMENT

Medical Monitoring Program

Name	Date of Exam	Social Security No.	Age
Nancy Dickens	8/2/01	[redacted]	51

Employer	Exam Type:
Maxim Technologies, Inc.	☒ Annual ☐ Pre-Employment

I. PULMONARY FUNCTION

A. FEV1 120% 75% or Better Required	B. FVC 121% 80% or Better Required	C. Qualified to Wear Respirator ☒ Yes ☐ No

II. FIT FOR DUTY

☒ Fit for duty, including qualified for respirator

☐ Meets minimum criteria of examination protocol and should be able to continue work at hazardous waste sites; recommend following limitations: _____

☐ Limited Duty: ☐ P[illegible]anent ☐ Temporary Duration_____ ☐ Does not [illegible] for employment at this time.

Physician C Byfield DO Date 8/2/01

Address _____

Signature _____

)RMS103/n

HEALTH STATUS MEDICAL REPORT

Employer Copy

TYPE OF EXAMINATION: Periodic Examination

EMPLOYEE:	Lachajczyk, Thomas	**COMPANY:**	TT/Maxim Tech
SSN:	[redacted]	**POSITION:**	Not Indicated
DATE OF EXAM:	04/12/2000	**LOCATION:**	TT/Maxim_Tech-St. Louis
EXPIRATION DATE:	04/12/2002	**SITE:**	St. Louis

The following recommendations are based on a review of one or all of the following: a base history questionnaire, supporting diagnostic tests, physical examination, and the essential functions of the position applied for or occupied by the individual named above.

	Yes	No	Undecided
Has the employee any detected medical conditions that would increase his/her risk of material health impairment from occupational exposure in accordance with 29 CFR §1910.120?	☐	☑	☐
Does the employee have any limitations in the use of respirators in accordance with 29 CFR §1910.134?	☐	☑	☐

STATUS

1. ☑ **QUALIFIED** The examination indicates no significant medical condition. Employee can be assigned any work consistent with skills and training.

2. ☐ **QUALIFIED - WITH LIMITATIONS** The examination indicates that a medical condition currently exists that limits work assignments on the following basis:

3. ☐ **NOT QUALIFIED**

4. ☐ **DEFERRED** The examination indicated that additional information is necessary. The employee has been given the following instructions.

COMMENTS: ***Biennial Review***

I have reviewed the medical data of the above named employee, and informed the employee of the results of the medical examination and any medical conditions that require follow-up examination or treatment.

Name of Physician: Peter B. Greaney, MD / Peter H. Wald, MD Date: 01/07/02

Signature: Peter Greaney MD

WorkCare
333 S. Anita Drive, Suite 630, Orange, CA 92868
(714) 978-7488 • (800) 455-6155 • FAX (714) 456-2154

APPENDIX F
RELEASE CONTINGENCY PLAN

RELEASE CONTINGENCY PLAN
REMEDIAL INVESTIGATION
AT THE NIAGARA FALLS
STORAGE SITE
NIAGARA COUNTY, NEW YORK

Contract DACW-49-97-D-0001
Delivery Order 0012

Prepared For:

U.S. Army Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, New York 14207-3199

April 2002
9905006

MAXIM TECHNOLOGIES, INC.
1908 Innerbelt Business Center Drive
St. Louis, Missouri 63114-5700
(314) 426-0880

RELEASE CONTINGENCY PLAN
REMEDIAL INVESTIGATION
AT THE NIAGARA FALLS
STORAGE SITE
NIAGARA COUNTY, NEW YORK

Contract DACW-49-97-D-0001
Delivery Order 0012

Prepared For:

U.S. Army Corps of Engineers
Buffalo District
1776 Niagara Street
Buffalo, New York 14207-3199

Prepared By:

Maxim Technologies, Inc.
1908 Innerbelt Business Center Drive
St. Louis, Missouri 63114-5700

May 2002

9905006

1.0 INTRODUCTION

During the trenching activities at the Niagara Fall Storage Site (NFSS), activities which could potentially result in a release of hazardous materials into the environment include the excavation of UST's and buried containers and the possible spill of materials that brought onto the site such TNT test kit reagents, gasoline and oil for equipment operations and chemicals for preservation of samples.

This plan addresses guidance and protocols for spill prevention and cleanup.

2.0 QUANTITIES OF HAZARDOUS MATERIALS STORED ONSITE

Hazardous materials that will be present on site will include gasoline, acetone, diesel fuel (#2) and TNT Reagent test kit components. Diesel fuel will be transported to the excavating equipment in 50-gallon truck-mounted portable tank designed for the intended use. Gasoline will be stored in 2.5 or five-gallon gasoline can and will be stored in a flammable storage cabinet when these containers are not in use. Acetone for field use in the extraction of soil during the Espray TNT Field screening activities, will be placed in a one pint plastic squeeze bottle. The secondary container will be labeled with the appropriate hazard warnings. The original containers of acetone will be stored in the on-site flammable storage cabinet.

The amount of any of these materials stored on site will not exceed the reportable quantities for any of these materials. MSDS sheet for all chemicals used on site will be available in the Maxim Office Trailer.

3.0 SPILL RESPONSE PROTOCOLS

Spills During Fueling Operations

The trenching crew will take the following immediate actions in case of a spill of gasoline or diesel fuel during fueling of on-site equipment:

1. Attend to any persons who may have been injured or contaminated. If personnel are injured and require medical attention and decontamination procedures would cause further injury to the person then the procedure should not be performed. Call 911 and mobilize emergency response personnel to the site. Emergency response personnel should be informed that the victim has not been decontaminated. Based on the amounts of these materials that will be present on site, the use of outside emergency response personnel should not be required. In the unlikely event that there is a potential for the spill to extend beyond the immediate area exceeding the capabilities of the on-site personnel, the Site Manager will inform the local fire department and hazardous materials response team. Otherwise the spill kits available on-site will be used to cleanup the spill.

2. Trenching crew will notify the SSHO.

3. Evacuate all nonessential personnel from the spill area.

4. If the material spilled is gasoline, diesel fuel or acetone, an attempt should be made to remove all sources of heat or ignition. All internal combustion engines shall be shutdown. All electrical equipment in use shall be immediately shut down. However, this does NOT mean unplugging machinery. Unplugging equipment may cause sparks.

5. Avoid breathing vapors of the spilled material. Non-essential personnel should evacuate the spill area in an upwind direction.

6. Don appropriate personnel protective equipment.

7. If the full contents of a truck tank or container have not spilled, an attempt to control the source must be made. Perhaps the simplest procedure is to position the tank or container so that the leak is above the liquid level. Alternatively, a drum patch or plug can be applied to the leak. The leaking chemical can also be controlled using absorbent spill berms positioned around the drum or container.

8. If the material is still spilling or leaking, an attempt should be made to stop additional spillage. Then, the area should be contained to prevent spread of the contamination. Cleanup should then be conducted according to the proper techniques described in the MSDS using the spill kits that will be present at each trenching location. All waste generated by the spill response shall be placed in a UN-AIA 55 gallon open-head drum and stored at the IDW storage location pending disposal.

Spills Cause by Penetration of Buried Drum or UST

The trenching crew will take the following actions in case of a release of material from a buried drum or UST.

1. Attend to any persons who may have been injured or contaminated. If personnel are injured and require medical attention and decontamination procedures would cause further injury to the person then the procedure should not be performed. Call 911 and mobilize emergency response personnel to the site. Emergency response personnel should be informed that the victim has not been decontaminated.

2. The trenching crew will notify the SSHO and the Site Manager. SSHO and the Site Manager will mobilize to the spill site to direct spill response activities. Site Manager will notify the USACE Site Supervisor (Dennis Rimer) of the situation.

3. **IF THE SPILL IS TOO LARGE, THE SSHO AND THE SITE MANAGER WHICH CALL IN APPROPRIATE RESPONSE PERSONNEL. EMERGENCY CONTACT NUMBERS ARE PRESENTED IN SECTION 15 OF THE SSHP.**

4. Evacuate all nonessential personnel from the spill area.

5. Attempt to determine the nature of the spilled material. If the material spilled is suspected to be flammable, an attempt should be made to remove all sources of heat or ignition. All internal combustion engines shall be shutdown. All electrical equipment in use shall be immediately shut down. However, this does NOT mean unplugging machinery. Unplugging equipment may cause sparks.

6. Avoid breathing vapors of the spilled material. Non-essential personnel should evacuate the spill area in an upwind direction. In an effort to clear the contaminated area for responders, wind direction, plant and surrounding populations, and the properties of the spilled material (Toxity, flammability, etc) must be considered in establishing the initial controlled zone. The exclusion zone should be barricaded off (or at least taped off with barricade tape) to prevent uncontrolled access. The zone can be expanded or contracted as needed, as more information is learned about the spill.

7. Don appropriate personnel protective equipment.

8. If the full contents of the drum or UST have not spilled, an attempt to control the source must be made. A drum may be positioned so that the leak is above the liquid level. Alternatively, a drum patch or plug can be applied to the leak. Soil may be used in an attempt to contain the release. The trench should not be entered unless required shoring or benching is in

place. The leaking chemical can also be controlled using absorbent spill berms positioned around the drum or UST

9. If the material is still spilling or leaking, an attempt should be made to stop additional spillage. Then, the area should be contained to prevent spread of the contamination. Cleanup should then be conducted according to the proper techniques described in the MSDS using the spill kits that will be present at each trenching location.

10. All waste generated by the spill response shall be placed in a UN-AIA 55 gallon open-head drum and stored at the IDW storage location pending disposal.

11. Spill response activities will be documented on SPILL RESPONSE REPORT FORM presented as Exhibit 1

EXHIBIT 1

SPILL RESPONSE REPORT FORM

Date of Spill _____ Amount Spilled _____

Material(s) Spilled _____

Location of Spill _____

_____

Description of what happened _____

_____

_____

Description of Related Injuries _____

_____

Response actions taken _____

_____

Notifications Made _____

_____

Corrective Actions _____

_____

_____ _____

Completed By Date

_____ _____

Reviewed By Date

APPENDIX G
Response to USACE Comments

RESPONSE TO COMMENTS

Project Name: FUSRAP NFSS
Document: Trenching Plan and Field SAP Addendum and SSHP/RPP Addendum **Date:** 13 May, 2002

COMMENT NUMBER	PAGE OR SHEET	COMMENT	RESPONSE
The following comments on the Trenching Plan and Field SAP Addendum were from: Chris Hallam, USACE, Buffalo, Project HP			
1	5.0	Clarify that the amount of IDW water produced will be minimized where practicable. This should include only removing water from trenches that directly interferes with investigation activities.	The following text will be inserted into Section 5: *"The amount of IDW water produced will be minimized where practicable. Only water from trenches that directly interferes with investigation activities will be removed."*
2	6.0	Trenching locations should be surface scanned for rad COCs prior to excavation. Any tarps or other equipment shall be surveyed for release per the SSHP/RPP. Where chemical/radiological contamination is present or highly suspected, spoils piles should be managed to clearly delineate the contaminated layers, if practicable.	The following text has been inserted into Section 3: *"Prior to excavating soil at a trench, a limited gamma survey of the trench area and immediate vicinity will be performed. Areas which have gamma radiation at levels of approximately two times background, or greater, will be flagged."* The following text has been inserted into Section 6: *"Each bucket of excavated soil will be surveyed for gamma radiation. At each trench location, soils which exhibit gamma radiation levels that are more than twice the local background level will be segregated and the site manager and site superintendent will be notified. If it is demonstrated by the TNT field testing, or field screening with a PID, visual observation that a portion of the soil excavated from a given trench is chemically contaminated to a degree significantly greater than remainder of the soil excavated from the trench, the significantly chemically contaminated soil will also be segregated and the site manager and site superintendent will notified. "* The following text has been inserted into Section 7: *"All equipment used at each trench location will be deconned and released in accordance with the RRP."*
3	7.0	Please clarify what the Contractor intends to do with soil that is known or highly suspected to be rad/chem contaminated. Will this still be backfilled? Recommend minimizing the mixing of obviously contaminated materials with "clean" backfill. Restored areas should receive a brief GWS where radiological contaminants are known to be present in order to identify areas where future traffic should be minimized to prevent migration of materials. Tie this into your SSHP/RPP, if applicable.	Handling or disposal of known or highly suspected rad/chem soil beyond that required to accomplish the trenching is beyond the current scope of work and any description of what might be necessary would at this time be highly speculative. Soil that is suspected of being significantly contaminated will be handled as described above.
Addendum to SSHP/RPP Comments by Chris Hallam, USACE, Buffalo, Project HP			
4	3.2	Also recognize that all personnel have stop work authority.	The following text will be inserted in the text in Section 3.2: *"All workers on-site have the authority to stop work if a potentially dangerous or unsafe condition exists."*
5	3.2	Radiation is a physical hazard. Please add it to paragraph 2.	Radiological Hazards were not placed in the Physical Hazards section and discussed separately based on ER 385-1-92 Appendix C, Section G-2, Hazard Risk Analysis.

RESPONSE TO COMMENTS

Project Name: FUSRAP NFSS
Document: Trenching Plan and Field SAP Addendum and SSHP/RPP Addendum **Date:** 13 May, 2002

COMMENT NUMBER	PAGE OR SHEET	COMMENT	RESPONSE
6	3.3.1, 3.4.1	These two sections (3.3.1 – 3.3.5 and 3.4.1 – 3.4.5) cover the same topics yet say different things. Please fix this mess since it is almost impossible to review. A few notes on this: please move radiation hazards into the Physical Hazard section where it belongs; Remove the ALARA catch phrase from section 3.3.5 or else learn how to use it properly; In 3.4.1.8, only remove the water from the trench when necessary so that generation of IDW water is minimized.	Text will be amended as follows. ***3.4.1.5 Thermal Stress*** *- Many factors contribute to prevention of thermal stress induced illnesses. These include: acclimatization; consumption of copious amounts of fluids and appropriate work/rest periods in temperature controlled environments.* ***3.4.1.5.1 Heat Stress/Stroke*** *- If ambient temperatures exceed 70^0F, site training will include training in heat stress control measures, recognition of heat and cold stress induced illness symptoms and first aid for heat and cold stress.* *Specific mitigation measures for prevention of heat related illness include: frequent breaks in a cool area, pacing your work, maintenance of hydration. Mitigation controls, monitoring protocols and action levels to prevent injury to site workers from heat stress are presented in SOP 14 presented in Appendix B of the original SSHP.* ***3.4.1.5.2 Cold Stress/Hypothermia*** *- If ambient temperatures exist which increase the risk of cold stress or hypothermia, site training will include instruction in cold stress control measures, recognition of cold stress induced illness symptoms and in first aid for cold stress.* *Specific mitigation measures for prevention of cold stress related illness include: frequent breaks in a warm, dry area; wearing of layered clothing with wind breaking properties to protect against the effects of wind chill; avoidance of wet clothing and maintenance of hydration. Mitigation controls, monitoring protocols and action levels to prevent injury to site workers from cold stress/hypothermia are presented in SOP 14 presented in Appendix B of the original SSHP.* For those elements which are identified as not being present or applicable in Sections 3.3.1-3.3.5, a negative statement as required by ER 385-1-92 9,b(1) is presented in Sections 3.4.1-3.4.5. Radiological Hazards were discussed separately based on ER 385-1-92 Appendix C, Section C-2, Hazard Risk Analysis which lists Radiological Hazards separately from Physical Hazards. This format has been used for previous SSHP submittals on this project and meets the requirements of ER 385-1-92. **Text in Section 3.3.5 will be changed as follows:** *"The historic use of the facility is described in Section 2 of the original SSHP. The majority of radioactive materials have been previously consolidated into the waste containment structure; however, recent RI activities have identified localized areas of elevated soil contamination throughout the site. Radionuclide concentrations outside of the WCS are low, with the highest activity radionuclide being U-238 at 13.8 pCi/g (average).*

RESPONSE TO COMMENTS

Project Name: FUSRAP NFSS
Document: Trenching Plan and Field SAP Addendum and SSHP/RPP Addendum **Date:** 13 May, 2002

COMMENT NUMBER	PAGE OR SHEET	COMMENT	RESPONSE
			Text in Section 3.4.1.7 Pinch/Puncture/Shear will be amended as follows: All on-site workers are required to wear steel-toed boots during all on-site activities. Care should be exercised when exiting vehicles used during this task. Personnel involved in these activities will be made aware of all pinch/shear points which are present on the excavating and sampling equipment used during this task. **Text is Section 3.4.5 will be amended as follows** : *"All sampling activities will be monitored by a Health Physicist (HP) Technician to ensure that radiological hazards, should they be encountered, do not pose a threat to on-site personnel. Radiation exposures to workers and the public will be kept below regulatory limits and As Low As Reasonably Achievable (ALARA). Because of the low specific activity, as well as historical dose monitoring results during RI activities (<10 mrem/worker), radiological hazards for any individuals are not anticipated to exceed 100 mrem total effective dose equivalent during this investigation."* Text has been added Section In 3.4.1.8 as follows: *"The amount of IDW water produced will be minimized where practicable. Only water from trenches that directly interferes with investigation activities will be removed."*
7	Section 3	3.3.5 and 3.4.5 do not accurately describe current site conditions with regard to radiological hazards present for trenching. All you say is that someone else sort of cleaned it up. This reviewer recognizes that hazards are assessed and controls are placed in the RPP addendum, however, it is appropriate to have an accurate description here.	See response to comment # 6.
8	3.4.1.8, RPP Addendum	Please describe how restricted areas, buffer zones, exclusion zones, etc. will be posted or otherwise controlled around the trenching operation prevent/minimize personnel exposure to HTRW (and for safety).	The following text has been added to Section 3.4.1.8 and the RPP: *"Access to the work area during trenching operations will be visually controlled while a trench is open. If a trench is left open overnight, the work area (restricted area) will be designated by surrounding the area with caution tape or construction fence to prevent access."*
9	5.5	Will there be any new workers for the project? If so, 4 hrs will not be sufficient for initial training.	**Text in Section 5.5 has been amended as follows:** *All Maxim and subcontractor personnel will be required to have completed instruction in radiation safety or annual updates as appropriate. This training will meet the requirements specified in 385-1-1 Section 06.E.3b and 10 CFR 19.12. This training will be obtained prior to the personnel being involved with on-site sampling activities. This training must include the following elements: health effects of ionizing radiation; exposure limits (including those for pregnant workers); use of dosimetry and instruments; effects of radiation on the embryo/fetus; employee rights and responsibilities; site contaminants and probability of exposure; required monitoring; and exposure control methodologies.*
10	7.0	There are always airborne concentrations of radionuclides present. State your action level(s) and tie it to the appropriate part of your	Per RPP Table 2, The Derived Air Concentration is 3E-11 uCi/ml. Table 2 also states that we will "Notify Project Manager, H&S Manager, USACE HP, Project CHP, and conduct bioassay if > 12 DAC/week is encountered."

RESPONSE TO COMMENTS

Project Name: FUSRAP NFSS
Document: Trenching Plan and Field SAP Addendum and SSHP/RPP Addendum **Date:** 13 May, 2002

COMMENT NUMBER	PAGE OR SHEET	COMMENT	RESPONSE
		document (RPP, etc)	The following statement has been added to Section Seven of the SSHP: *"The Derived Air Concentration is 3E-11 uCi/ml. Table 2 of the RPP states that the Project Manager, H&S Manager, USACE HP, Project CHP, will be notified and bioassays will be instituted if > 12 DAC/week is encountered.."*
11	Table 3-1	Include radiological contaminants for all media (1,2,3 versus just 1) as they may be present in soil, IDW water, etc.	Table 3-1 will be amended as requested.
12	Table 3-2	Include the radiological hazards in your table and then refer the reader to the RPP addendum, as appropriate, so that it does not get lost.	Table 3-2 will be amended as requested.
13	RPP Addendum	If appropriate, include discussion to address the potential for encountering plutonium hazards on VP "G". Also, clarify whether you intend to modify your release limits or other aspects of the RPP (e.g. air monitoring) for operations on VP "G" where plutonium is a potential COC.	The most restrictive Pu 239/240/241 DAC is 3E-12 uCi/ml. We have modified our DAC to this value when in VP "G" (in RPP Table 2). Our surficial release limits have not been modified for VP "G" as they are the most conservative listed in Reg. Guide 1.86.
14	RPP Addendum	Trenching locations should be briefly surface scanned for rad COCs prior to excavation to provide initial identification of rad hazards in soil.	This guidance has also been placed in the SSHP (Section 3.4.5) and the RPP in the "Trenching Controls" section. *"Prior to excavating soil at a trench, a gamma survey of the trench area and immediate vicinity will be performed. Areas which have gamma radiation at levels approximately four times background, or greater, will be flagged" per the field sampling plan section 2.*
15	RPP Addendum	Please give a brief explanation of the field decon methods to be used for equipment at the trenching location(s) or else reference where it can be found in the original plan.	The following guidance has been added to the SSHP (Section 12) and RPP "Trench Closeout Controls": *"Local decontamination, if implemented, will be performed by scrubbing the contaminated surface with water soaked scrub brushes in an area with plastic sheeting, or wiping down a surface with water saturated cloth."*

Response to Comments from Tony Capella
Draft Addendum to the Site Safety and Health Plan

1. **Appendix B, Trenching and Shoring SOP, Section 4.0, Safety Concerns**

   What are the qualifications of the Competent Person? Will he be present at the trench the entire time the work is in progress or for only the time to inspect the trench for cave-in potential?

   Response: The qualifications for the competent person are detailed in the Occupational Safety and Health Administration, OSHA Technical Manual, Section V Chapter 2, Excavations: Hazard Recognition in Trenching and Shoring presented as Appendix B of the SSHPA.

2. **Site Safety and Health Plan, Table 5-1**

   Almost all personnel are expired on their 8 Hour Refresher Training.

   Response: All Maxim project personnel have completed the required HAZWOPER 8 hour refresher training since submittal of the Draft Site Safety and Health Plan. Table 5-1 has been amended to reflect this training.

3. ***Appendix E, Fitness-For-Duty Statements***

   Many personnel are expired on their physicals as of April 2002. These statements do not correlate with Table 5-1.

   Response: All Maxim project personnel with expired physicals have recently received their annual physicals. Table 5-1 has been amended.

4. **Appendix F, Release Contingency Plan**

This Plan reads like a "How-To" manual. This is not a plan, there are no specifics. What types of hazardous materials will be stored on site to require a Spill Plan?
Identify what bulk hazardous materials and their quantities will be stored on site that would require a spill/release contingency plan. Submit their MSDS's. Write a specific response plan around these materials. There may be flammables and lubricants which would require different response and clean-up activities.
It is possible that there may be an above ground portable 500 gallon gasoline storage tank for refueling construction vehicles for instance. This would require containment such as a double walled container, placarding, spill absorbent materials, etc.
Do all personnel that will be assigned to respond to a spill have the proper training such as the 24 Hour Hazardous Materials Response training? What will be done with the contaminated soils? Will the local fire department be coordinated with these conditions?
Write a Spill/Release Contingency Plan. The above statements are the types of specifics that need to be written into the plan.
Some pages of this plan appear to be copied "cut-and-paste" utilizing bits and pieces of other documents.

Response: The Release Contingency Plan has been revised. Maxim does not intend to utilize temporary bulk fuel storage facilities on-site. Copies of MSDS sheet for all chemicals onsite will be maintained at the Maxim Job Trailer. The quantities of hazardous materials present on site will not approach the reportable quantity for these chemicals and will not require personnel trained in Hazardous Materials Response to respond to release icidents.