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FINAL WORK PLAN AND HEALTH AND SAFETY PLAN INDOOR GUN RANGE BUILDING 61
GREEN DEMOLITION AND SOIL REMEDIATION NS GREAT LAKES IL
7/1/2002
TOLTEST, INC,

**FINAL WORK PLAN
AND
HEALTH & SAFETY PLAN**

**INDOOR GUN RANGE
BUILDING 61
GREEN DEMOLITION
AND SOIL REMEDIATION
NAVAL AIR STATION GLENVIEW
GLENVIEW, ILLINOIS**

**CONTRACT NO. N689500-00-D-0200
EJOC DELIVERY ORDER NO. 45
TOLTEST PROJECT NO. 42117.01**

Submitted to:

**Department of the Navy
Naval Training Center (NTC) – Environmental Department
Building 1-A, 201 Decatur Avenue
Great Lakes, Illinois 60088-5600**

Submitted by:

**TOLTEST, INC.
1000 South Northpoint Boulevard
Waukegan, Illinois 60085
(847) 689-0697**

July 2002

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PART I – DEMOLITION WORK PLAN

1.0 Introduction

This Work Plan (WP) has been prepared by TolTest, Inc. (TolTest) pursuant to the Department of the Navy, Naval Facilities Engineering Command under Contract No. N689500-00-D-0200, Delivery Order (DO) No. 45 Statement of Work dated February 19, 2002. This WP is specific to the green demolition and soil remediation at Building 61 at the Naval Air Station (NAS), Glenview, Illinois. The soil remediation is being conducted to address lead-impacted soils at the site and is being conducted as a State-led Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) cleanup. The site is not on the National Priorities List (NPL).

Building 61 is a one-story irregular design concrete block structure constructed in 1943 for use as a small arms practice facility. The building has a concrete block foundation, concrete floor, and rolled roofing on a flat roof. The layout of the building is shown on Figure 1 in Appendix A.

The tasks for this project are as follows:

- Conduct internal demolition as necessary to provide access to abatement areas.
- Complete asbestos abatement and hazardous material removal tasks after the lead has been vacuumed from these areas (see Asbestos Abatement and Hazardous Materials Removal Work Plan and Health & Safety Plan).
- Provide site security barrier, as needed.
- Conduct lead dust abatement prior to demolition activities.
- Provide dust control during demolition activities.
- Demolish Building 61, including the footers.
- Recycle or reuse at least 40% of the building contents and building structural material.
- Cap or demolish utilities, as required, in coordination with Base Utilities/NAS Public Works, affected parties, and affected public utilities.
- Excavate lead-impacted soil in areas west and east of the site building.
- Backfill excavations in compacted lifts and grade the site.
- Provide for the restoration of the site including topsoil and hydroseed.
- Prepare a soil remediation report.
- Prepare a Delivery Order Completion Report (DOCR), including photographs of the demolition and utility decommissioning activities.

1.1 Asbestos Abatement and Hazardous Material Removal

Asbestos-containing material (ACM) quantities were estimated based on excerpts from an undated survey. TolTest will conduct an asbestos inspection to confirm that the materials identified in the previous undated asbestos survey are correct in quantity and location for materials that will need to be removed in accordance with the National Emissions Standard for Hazardous Air Pollutants (NESHAP) regulations prior to building demolition. TolTest will utilize its laboratory for sample analysis.

TolTest will perform asbestos confirmation sampling, as needed, prior to abatement activities. Confirmation sampling will be performed by Mike Graf of TolTest or an equivalent TolTest employee who meets the licensing requirements necessary to perform such work. Confirmation samples will be analyzed by TolTest's laboratory in Toledo, Ohio. Confirmation sampling may be performed in the following areas:

- Suspect ACM that are encountered during site work that were previously unknown, previously inaccessible, or otherwise not sampled and verified.
- The sub-floor and overlying mastic beneath the ACM floor tile in the pistol range south restroom, pistol range central office and hallway, southwest restroom, south entrance, southeast coffee mess, and in the administrative area under the green carpet may be sampled and point counted to determine if the asbestos content is below 1%. If so, the sub-floor and attached mastic may be disposed as demolition debris.

TolTest will abate and dispose of the ACM prior to the demolition of Building 61. A Work Plan and Health & Safety Plan that outlines the abatement procedures to be utilized to perform the ACM abatement has been prepared and submitted in a separate document and is incorporated into this WP by reference. TolTest will submit air clearance results for the abatement to the NTC Environmental Department to confirm that the environment inside the building is below the Illinois Environmental Protection Agency (IEPA) action level for asbestos fibers of 0.01 fibers per cubic centimeter (f/cc). Roofing materials that may be asbestos-containing but are non-friable and will remain non-friable during abatement and demolition activities will not be removed as asbestos waste under the NESHAP guidelines (40 CFR Part 61). NESHAP states that a Category I non-friable material does not have to be removed prior to demolition activities. NESHAP does recommend wetting the material during the demolition and TolTest will do so.

The following activities will also be conducted prior to commencement of exterior demolition:

- Remove and dispose of approximately 2,000 square feet of asbestos-containing floor tile.
- Remove and dispose of 10 identified pipefitting insulations.
- Remove and dispose of approximately 50 linear feet of pipe insulation.
- Remove and recycle 60 pounds of light ballast that contain polychlorinated biphenyls (PCBs), and 240 fluorescent light tubes (quantities are estimated and will be verified).
- Remove and recycle mercury switches and thermostats that may be found in the building.
- Remove and recycle meters in or outside the building.
- Recover freon from heating, ventilation, and air conditioning (HVAC) systems.

Based upon the *Initial Wipe Sampling Survey* conducted by EnSafe, Inc. and documented in a June 22, 2001 Technical Memorandum (Appendix B), lead dust is present in all twelve of the building's rooms. In addition to the lead wipe sample analysis, total lead analysis was performed. Based on the total lead analytical results, the debris contaminated with lead dust would not be considered characteristically hazardous by multiplying the total lead results by a factor of 10. As general guidance, if total lead results multiplied by 10 exceed the concentration at which the EPA has determined to be hazardous (5mg/L), the waste can reasonable be expected to be characteristically hazardous. The highest total lead result indicated in the EnSafe Technical Memorandum was detected at a concentration of 43.4786 parts per million (ppm), which is below the ten times rule action level of 50 ppm.

TolTest will perform required removal and disposal of the lead dust prior to building demolition as detailed in Section 3.4 of this Demolition Plan. TolTest is aware that lead-based paint (LBP) may be present in the building. The Occupational Safety and Health Administration (OSHA) Lead Standard in 29 CFR 1926.62 requires that an exposure assessment be performed if materials confirmed to contain LBP are to be altered or disturbed by such activities as abrasive blasting, welding, cutting, or torch burning. If painted steel beams, pipes, or like structures are encountered, TolTest will collect samples of the paint to determine if the paint is in fact LBP so that proper precautions can be taken during demolition. At this time, TolTest does not anticipate that interior demolition activities will require cutting of structures that may contain LBP.

1.2 Recycling and Reuse

The Department of the Navy's February 19, 2002 Statement of Work for this DO requires that TolTest find mechanisms to recycle or reuse 40% by weight of the building structure and contents

during the decommissioning and demolition of Building 61. TolTest will recycle the following materials from Building 61 to the extent possible:

- Scrap Metal
- Mercury-containing light bulbs, switches, thermostats, and gages
- PCB-containing ballast
- Concrete
- Asphalt
- Lead shot and dust

Some materials and equipment may be suitable for reuse or sold to others for reuse. Examples of materials and equipment that can be reused or sold for reuse are as follows:

- Furniture, countertops
- Doors
- Air conditioning units
- Pumps and other miscellaneous equipment

TolTest will provide the Navy Technical Representative (NTR) with documentation of the weights of material being recycled or reused as well as material that is disposed as construction debris, special waste, and hazardous waste.

Each load of recyclable materials or waste will be weighed on a certified truck scale at the respective disposal or recycling facility. The weight of each load will be documented and submitted to the NTR. In addition to weighing each load, TolTest will provide the NTR with the weight ticket of each load from the respective destination facility. The weight tickets documenting the weight of material transported off site will be included in the DOCR that will be submitted to the NTR after field activities have been completed.

1.3 Scope of Work

TolTest will complete the tasks associated with this DO in accordance with the specifications included in the February 19, 2002 Statement of Work and the applicable regulations found in 29, 40, and 49 Code of Federal Regulations (CFR). Details for the asbestos abatement and hazardous material removals can be found in the Work Plan and Health & Safety Plan prepared in a separate document for these activities for this DO. The demolition activities for Building 61 will include, but

are not limited to, the following tasks:

- Install and maintain safety fencing around the perimeter of the demolition area, as needed.
- Decontaminate lead dust from the building interior.
- Remove approximately 741 cubic yards (cy) of lead-impacted soils from the ground outside the building.
- Demolish interior structures inside Building 61 such as conduit, piping, office walls, and doors.
- Demolish Building 61 including the foundation and utilities and utility ducts.
- Perform air monitoring for respirable dust and lead during the building demolition activities.
- Recycle or reuse a minimum of 40% percent of the building contents, equipment, and demolition debris and provide the NTR with the proper documentation.
- Excavate and uncover the underground utility lines that service Building 61.
- Perform a utility closure of the utilities currently servicing Building 61.
- Place and compact fill material in the excavations created during the demolition of the buildings and utilities.
- Perform compaction tests of the compacted fill material and provide the NTR with the compaction test results.
- Provide for the restoration of the site including topsoil and hydroseed.
- Submit a Soil Remediation Report detailing activities associated with the lead-impacted soil excavation and disposal and confirmation sampling.
- Submit a Delivery Order Closure Report (DOCR) to the NTR detailing the activities for the demolition of Building 61. The DOCR will include documentation of quantities of materials that were recovered for reuse or recycling and photographic documentation of demolition activities.

2.0 Equipment, Personnel, and Subcontractors

This section details the equipment, personnel, and subcontractors to be utilized to complete the tasks for this project. TolTest personnel will be utilized for the demolition of Building 61 and site restoration.

Personnel assigned to this project may change to efficiently complete the tasks defined in this WP. Should any personnel changes occur, the replacement person will have an equivalent background to that of the individual being replaced. TolTest will coordinate the use of all subcontractors utilized to complete this DO. The table below depicts the equipment, TolTest personnel, and subcontractors that will be utilized to complete this DO.

EQUIPMENT	TOLTEST PERSONNEL	SUBCONTRACTORS
Track Excavators (2) Track Loader Grapple Attachment (2) Bull Dozer Field Truck Dump Trailers (3) Air Compressor Hydraulic Concrete Breaker Hydraulic Tamper Drum Roller Assorted Hand Tools Generator Oxygen/acetylene Torch Soil Sampling Equipment Decontamination Supplies Asbestos Abatement Equipment (if additional unanticipated materials are encountered, see Asbestos Abatement Work Plan)	Jeff Tinney Project Manager Ken Knoblett Site Supervisor, Site Safety and Health Officer Mike Graf QA/QC Officer, Competent Person for Lead Tim Boos Operator/Laborer Mike Hubans Operator/Laborer Floyd Cushing Operator/Laborer Fransisco Viallgra Asbestos Supervisor and Asbestos Competent Person	Superior Special Services Ballast, Light Bulb, Thermostat, Meter Gages, Mercury Switch Recycling Kestrel Hawk Landfill Construction Debris Peoria Disposal Facility Lead and Lead Soil T&D Cleveland Corporation Metal Recycling Vulcan Materials Concrete Recycling Kirschoffer Trucking Debris Transportation Champion Environmental, Inc. Building Demolition Environmental Consulting Group (ECG) Asbestos Project Designer and Clearance Sampling Severn Trent Laboratory Laboratory Analysis (lead samples and waste characterization)

3.0 Demolition Sequence and Operational Approach

This section details the specific operational tasks required to accomplish this project. The following is a listing of major regulations and/or standards that will be adhered to during the execution of the project:

- 15 United States Code (U.S.C.) s/s 2601 et seq. (1976) Toxic Substances Control Act (TSCA)
- 15 U.S.C. s/s 2683 TSCA Section 403
- 29 CFR 1910.134, OSHA Respiratory Protection Program
- 29 CFR 1926.62, OSHA Safety and Health Regulations for Construction, Lead
- 29 CFR 1926.1101, OSHA Asbestos Construction Standard
- 29 CFR 1910.120, OSHA Hazardous Waste Operations and Emergency Procedures
- 40 CFR Part 61, Environmental Protection Agency (EPA) National Emissions Standards for Hazardous Air Pollutants (NESHAP)
- 40 CFR 261.2, Definition of Solid Waste
- 40 CFR 261 Subpart C, Characteristics of Hazardous Wastes
- 40 CFR 262.11, Hazardous Waste Determination
- 40 CFR 262.20, General Manifest Requirements
- 40 CFR 264, Standards for Treatment, Storage, and Disposal Facilities (T/S/Ds)
- 40 CFR 265, Interim Status Standards for T/S/Ds
- 40 CFR 267, Interim Status Standards for Owners and Operators of a New Hazardous Waste Land Disposal Facility
- 40 CFR 268, Land Disposal Restrictions
- 40 CFR 271, Requirements for Authorization of a State Hazardous Waste Program
- 40 CFR 272, Standards Applicable to Transporters of Hazardous Waste
- 40 CFR 745, Lead; Identification of Dangerous Levels of Lead
- 40 CFR 763 Subpart E, EPA Asbestos Hazard Emergency Response Act (AHERA)
- 40 CFR 763 Subpart E Appendix C, EPA Model Accreditation Plan (MAP)
- 49 CFR Part 130, Oil Spill Prevention and Response Plans
- 49 CFR Part 171, General Information, Regulations, and Definitions for Hazardous Materials
- 49 CFR Part 172, Hazardous Materials Table
- 49 CFR Part 173, General Requirements for Shipments
- 49 CFR Part 177, Carriage by Highway
- 49 CFR Part 61, United States Department of Transportation (USDOT)
- U.S. Army Corps of Engineers Safety Manual EM385-1-1
- United Facilities Guide Specifications (UFGS) Section F2000, Selective Demolition

- UFGS Section 01525, Safety Requirements
- UFGS Section 01572, Waste Management
- UFGS Section 01575, Temporary Environmental Controls
- UFGS Section 02220, Site Demolition
- UFGS Section 02315, Excavation and Fill
- UFGS Section 02530, Sanitary Sewerage
- UFGS Section 13280, Asbestos Abatement
- UFGS Section 13281, Engineering Control of Asbestos Containing Materials
- UFGS Section 13282, Removal and Disposal of Material Containing Lead
- UFGS Section 13286, Handling of Lighting Ballasts and Lamps Containing PCBs and Mercury
- 77 IAC 855, Asbestos Abatement for Public and Private Schools in Illinois
- 225 ILCS 207, Illinois Commercial and Public Buildings Asbestos Abatement Act

A general description of the tasks and operational approach for the demolition of Building 61 are presented in the following sections. A detailed sequence of project activities is presented in Appendix A along with the site maps. The asbestos abatement sequence and hazardous material removal for this DO can be found in the Work Plan and Health & Safety Plan for asbestos abatement and hazardous material removal prepared and submitted in a separate document.

3.1 Permitting and Notification

TolTest submitted a time line for the demolition activities for this DO to the NTR on April 2, 2002, and a revised time line on July 23, 2002. The time line details the sequence of events for this DO and will be updated and re-submitted to the NTR should the schedule change. TolTest will also notify the NTR a minimum of three days prior to initiating fieldwork for the demolition activities.

TolTest has verified with Mr. Brian Conrath of the Illinois Environmental Protection Agency (IEPA) in a conversation on July 12, 2002, that the lead dust abatement activities in the building are not subject to RCRA Subtitle C requirements. Further, this facility did not have Interim Status under RCRA and small arms firing ranges are not considered solid waste management units (SWMUs) (Federal Register 30809, July 27, 1990). Correspondence documenting TolTest's conversations with Mr. Conrath are included in Appendix C.

TolTest will submit a copy of the 10-Day Demolition Notification to the IEPA with the 10-Day Asbestos Abatement Notification. A copy of the 10-Day Asbestos Abatement and Demolition Notification will be provided to the NTR prior to the start of the asbestos abatement work. Since

Building 61 is owned by the Department of the Navy, Cook County and the Village of Glenview do not require a demolition permit for the site work that will occur.

TolTest will obtain a permit to use a fire hydrant in the vicinity of Building 61 to mist the demolition debris to reduce the levels of respirable dust while Building 61 is being demolished. TolTest will utilize a backflow prevention device in accordance with the hydrant permit specification.

A pre-construction meeting will be conducted by TolTest prior to the start of the demolition activities. The meeting will be coordinated by TolTest and the NTR will be notified one week prior to the date the meeting is scheduled. The NTR may invite other interested NTC personnel to attend the pre-construction meeting. During the pre-construction meeting, TolTest will explain the demolition sequence and operational approach and answer questions regarding these items.

Minutes from the pre-construction meeting and telephone conversations will be recorded and submitted to the NTR within seven days. The NTR will be given an opportunity to review the minutes and make comments. If the NTR makes any comments, TolTest will revise the minutes and submit a final copy of the minutes to the NTR within seven days of receiving the comments.

At the end of each day worked, TolTest will submit to the NTR a Daily Quality Control Report that outlines the daily activities and demolition progress. The report will include, but is not limited to the following information:

- Names of employees and hours worked
- Daily tasks completed
- Weight tickets of material removed from the site
- Air monitoring analytical results
- Health and Safety Meeting minutes
- Re-Work items
- Problems or complications
- Maps and locations of underground utilities

3.2 Utility Shut Off

Based upon a search conducted by the NTC Environmental Department, there apparently are no utility maps available for the site from the Navy. TolTest will contact the Joint Utility Locating Information for Excavators (JULIE) at (800) 892-0123 and appropriate Glenview utilities to have

a utility locate performed so that underground utilities at the site can be identified. Utilities may include Fire Department lines, telephone lines, sewer lines, water lines, steam lines, electrical service, and computer and cable lines. Underground utilities will be identified in the demolition area and marked with spray paint or flags. Removal of electrical equipment, meters, etc. inside the building will require that the affected utilities are properly isolated prior to the start of this work. TolTest will not perform any exterior building demolition activities until all of the utilities servicing Building 61 have been shut off.

3.3 Site Set-up

TolTest will place "DO NOT ENTER", "WARNING, LEAD WORK", and "DANGER, ASBESTOS" signs on the existing perimeter of the fence and maintain the fence throughout the duration of the asbestos and lead dust abatement, interior demolition, and building demolition activities. Erosion control fencing will also be installed where needed.

After asbestos abatement activities have been completed, TolTest will remove the asbestos signage and the lead signage will be maintained until the lead impacted soil has been removed and confirmation samples indicate that the clean up objective has been met.

During, lead dust abatement and interior demolition activities, TolTest will utilize critical barriers at doors and z-flap barriers will be used at work personnel entry/egress points to the building. In addition, critical barriers will be installed at exhaust ducts.

TolTest will construct a three chambered decontamination unit inside the building. The first chamber, called the "dirty room", will be used for the purpose of removing personal protective suits and equipment. The second chamber will consist of a temporary shower equipped with hot and cold water. The third chamber, called the "clean room", will be where the employees will dry themselves and dress back into normal work cloths. Wooden framing boards and plastic sheeting will be used to construct the decontamination unit.

Prior to the start of each workday, TolTest will conduct daily safety meetings covering topics relevant to the completion of each day's tasks. The daily safety meeting minutes will be included in the Daily Quality Control Report that will be submitted to the NTR by the end of each day worked.

TolTest will utilize roll off boxes provided by Republic Waste to stage and store excavated soil that is not identified in the EnSafe, Inc. Technical Memorandum as lead-impacted soil. TolTest will

collect a waste characterization sample of the staged soil and submit the sample to the Severn Trent Laboratory for TCLP lead analysis. TolTest will evaluate the waste characterization samples and dispose of the soils appropriately. Disposal of the soils will be based upon the waste characterization sample results.

Soil excavated will be staged in the roll off boxes until laboratory analysis of the stockpiled soil is evaluated. Soil that is known to contain lead in exceedance of the cleanup criteria discussed in this report (per the EnSafe, Inc. soils investigation) will be placed into roll off boxes. Straw bails and silt fence will be placed around the perimeter of each storm sewer grate or catch basin located within the demolition area. TolTest will maintain the straw bails throughout the demolition activities. A site map (Figure 2) depicting the anticipated limits of demolition can be found in Appendix A.

TolTest anticipates that a small quantity of soil will be excavated during the foundation removal process. The soil in contact with the concrete foundation that is known to be impacted with lead will be placed in a roll off box for disposal as hazardous waste. Soil that is removed from the foundation removal process that is not in direct contact with the known lead impacted soil area will be placed in a roll off box and a waste characterization sample will be submitted to the Severn Trent Laboratory for TCLP lead analysis. The sample analytical results will be used to characterize the soil for disposal purposes. TolTest does not anticipate staging more than two roll off boxes onsite at one time.

3.4 Lead Decontamination

Lead dust has been found throughout the building based upon the EnSafe, Inc. Technical Memorandum dated June 12, 2001. TolTest obtained composite and grab samples from the following locations and submitted the samples to the Severn Trent Laboratory for TCLP lead analysis:

- Composite sample of the acoustic and ceiling tile found throughout the building
- Composite sample of the drywall ceiling and fiberglass
- Composite sample of the carpet found throughout the building
- Composite sample of the wooden diagonal beams in the Range and Former Range
- Grab sample of the transite ceiling in the Men's Head
- Grab sample of the air filters associated with the ventilation system

The purpose of collecting and analyzing the samples was to determine whether these waste streams would be managed as hazardous or non-hazardous waste. Each of the above referenced sample analytical results indicated that the TCLP lead concentration was below the hazardous waste action level of 5 mg/L. Although the waste is not characterized as being characteristically hazardous, it is being managed as special waste and will be transported and disposed accordingly. The analytical report for the samples TolTest collected is included in Appendix D.

TolTest has verified with Mr. Brian Conrath of the Illinois Environmental Protection Agency (IEPA) in a conversation on July 12, 2002, that the lead dust abatement activities in the building are not subject to RCRA Subtitle C requirements. RCRA Subtitle C requirements generally apply to releases from SWMUs at facilities with a RCRA permit or operating under Interim Status. This site did not have Interim Status and the EPA has recognized that small arms firing ranges do not constitute a SWMU.

TolTest will perform required removal and disposal of the lead dust prior to asbestos removal, equipment removal, and building demolition. It is estimated that 85,000 square feet of the building's interior surfaces will be vacuumed and washed including the walls, floors, ceilings, light fixtures, light bulbs, exposed structural supports, window sills, ductwork, doors, and other surfaces capable of collecting dust. Building materials that would be made difficult to manage if wetted with the detergent wash (i.e., would become water-logged or would break apart) will be vacuumed and, if possible, wet wiped to remove dust. Bulk lead dust will be deposited into 55-gallon drums. TolTest will collect one waste characterization sample from the drum of lead dust and submit the sample to the Severn Trent Laboratory for TCLP lead analysis. The drum sample analytical result will be used to characterize the drum accordingly.

It is proposed to remove bulk dust by applying a detergent wash with Heavy Metal Cleaning Solution-101 (HMCS-101) and water rinse (with the exception of certain materials as described above).

HMCS-101 is a solution designed to clean lead and other heavy metals (except mercury) from concrete, other masonry products, metals, tubing and piping. It is an environmentally safe, non-flammable, non-toxic, non-corrosive, water-soluble and biodegradable. It should be noted that HMCS-101 is a detergent solution and does not chemically fix or immobilize the lead.

Each application of HMCS-101 achieves an average reduction of 85% removal of contamination with a dwell time of 30 minutes. It will clean to 1/8-inch depth on solid surface concrete and up to 1 inch on a porous surface with a one-hour dwell time. HMCS-101 is specifically formulated to clean lead residues from concrete, metal and plastic surfaces. Before using the product, all debris will be removed from the surface to be cleaned. Once this is accomplished, the following steps will be taken. Application instructions are as follows:

- Apply HMCS-101 by spraying, painting, etc., so that the chemical comes in contact with all surfaces to be cleaned. To clean pipe and tubing, spray product on all surfaces to be cleaned.
- If possible, the surface should then be brushed to agitate the product to enhance cleaning. This may not be possible with pipe and tubing. Using high pressure when applying product is helpful.
- Allow the material to be in contact with the surface to be cleaned for approximately 15 minutes. For highly contaminated surfaces or where there is heavy sludge in pipe or tubing, allow a set time of 20 to 25 minutes. For subsurface cleaning allow one hour set time.
- HMCS-101 can be removed with a high-pressure water system. If in an area where this is not possible, simply clean by applying water and wiping with absorbent cloths.

During the lead decontamination activities, TolTest will perform an exposure assessment for each different task associated with lead decontamination activities. The exposure assessment will be conducted in accordance with Section 3.7 of this Work Plan.

The decontamination activities will start by removing the light fixtures inside Building 61. After the light fixtures are disconnected from the ceiling, TolTest will remove the mercury-containing light bulbs from each light fixture. The light bulbs and light fixtures will be decontaminated by wiping the bulbs and fixtures with a solution of HMCS-101 and water. After the bulbs are decontaminated, TolTest will place the bulbs in wooden crates for recycling at the Superior Special Services (Superior) facility in Port Washington, Wisconsin. TolTest will handle and store the mercury-containing light bulbs in accordance with 29 CFR 1910.120 and 1926.1101. The light fixtures will be placed in a roll off box for recycling at a local scrap metal facility.

TolTest will remove the ballasts from the light fixtures and place them in 55-gallon Department of Transportation (DOT)-approved drums after the ballasts are decontaminated. The drums will be

labeled as hazardous waste containing PCBs and transported to Superior for recycling. Specific details outlining the procedure for storage and disposal of the light bulbs and ballast can be found in Section 6.0, Waste Management Plan.

After the light bulbs and light fixtures have been removed, TolTest will remove the ceiling board and fiberglass located in the former firing range. As previously mentioned, this waste stream was sampled and the analytical results indicated that the ceiling board and fiberglass is not characteristically hazardous. TolTest has received approval to dispose of the ceiling board and fiberglass as special waste at the Kestrel Hawk landfill in Racine, Wisconsin.

Once the ceiling board is removed, TolTest will remove the acoustic ceiling tile from the offices and range walls and the carpet found throughout the building. These waste streams were also identified as not being characteristically hazardous. These waste streams will also be disposed of as special waste at the Kestrel Hawk landfill.

Prior to applying the HMCS-101 and rinsing the surfaces, TolTest will demolish the bullet stop from the range area. The bullet trap debris will be decontaminated with the HMCS-101 and placed in a roll off box. Once the bullet stop debris has been removed and decontaminated, TolTest will collect wipe samples of the debris. If the wipe sample analytical report indicates a concentration of less than 40 ug/100 cm, TolTest will dispose of the debris as special waste. If the wipe sample analytical report indicates that the concentration of lead is above 40 ug/100 cm, TolTest will collect a composite sample of the debris and submit a concrete chip sample for TCLP lead analysis to the Severn Trent Laboratory.

Once the bullet stop is removed from the range, TolTest will remove the sand and spent ammunition from the sand traps located in the range and former range. A small excavator will be utilized to remove the sand from the sand traps. The sand will be sifted to remove the lead shot from the sand. The lead shot will be placed in a 55-gallon drum for recycling at the Superior Special Services facility in Port Washington, Wisconsin and the sand will be placed in a roll off box until laboratory analysis is obtained to characterize the sand. TolTest will collect a sample of the sand and submit the sample to the Severn Trent Laboratory for TCLP lead analysis. TolTest anticipates that the sand sample analytical results will indicate that the sand will exceed the hazardous waste action level of 5 mg/L.

Once the sand from the two sand traps are removed, TolTest will utilize the sand traps to accumulate

the rinse water from the decontamination activities. As previously stated, the HMCS-101 will be applied to the surfaces and where necessary, a brush will be used to help remove gross contamination. Once the HMCS-101 has been applied for the appropriate amount of time, a high pressure washer will be used to rinse the HMCS-101 and dust from the surfaces. The wash water will be pushed into the sand traps with squeegees. Periodically, TolTest will pump the wash water from the sand traps into a plastic holding tank that will be located outside the building. After the decontamination activities are completed in the building, TolTest will decontaminate concrete walls and floors that make up the sand traps in the same manner as the previously mentioned.

An estimated 20,000 gallons of wash water will be used to rinse the interior surfaces. TolTest will collect and dispose of the wash water in accordance with applicable State or Federal Regulations at the American Waste Processing (AWP) disposal facility in Maywood, Illinois. TolTest will collect water samples from the storage tank that the water is stored in and submit the samples to the Severn Trent Laboratory for TCLP lead analysis. TolTest will evaluate the sample results and provide American Waste Processing with the analytical results and a profile signed by the NTR. American Waste Processing will characterize the waste as either hazardous or non-hazardous in accordance with the applicable RCRA regulations.

After completion of the dust cleaning activities, approximately 50 confirmation wipe sample locations will be field specified by the NTR. The wipe samples will be taken at representative locations of different homogeneous areas (similar structures/settings) including but not necessarily limited to floors, walls, ceilings, windowsills, suspended light fixtures, duct work, piping, shelving, countertops, etc. Each wipe sample will be obtained from a 100 square centimeter (cm²) area defined by a template laid upon the surface to be sampled. A laboratory prepared sampling kit will be used to collect a sample from the template area. A wipe material, supplied by the laboratory and with the appropriate wetting media, will be swabbed across the template area to pick up any residual dust or debris. The wipe will then be placed into the laboratory-supplied contained and preserved as appropriate. The template will be decontaminated with an Alconox soap solution and rinsed with deionized water before use at the next sampling location. Details of the sample location, sample number, and other pertinent sample information will be recorded in the sampler's field logbook. The clearance certification action level will be 40 micrograms/100 cm². This action level is the most conservative action level defined by the Department of Housing and Urban Development (40 CFR 745) and UFGS-13282N, Lead in Construction (paragraph 3.5.1.1). Areas that fail to meet this action level will be re-cleaned.

Lead decontamination activities will be conducted under the supervision of TolTest's competent person for lead. Mr. Mike Graf is a certified and licensed Lead Supervisor and meets the OSHA Lead Standard qualifications for a competent person for work involving lead. A copy of Mr. Graf's Lead Supervisor's license can be found in Appendix E.

3.5 Asbestos Abatement and Hazardous Material Removal

Asbestos abatement and hazardous material removal activities will be conducted prior to demolition activities, except the limited interior demolition necessary to gain access to ACM areas. A detailed discussion of the confirmation sampling, asbestos abatement, and hazardous material removal activities is presented in the Work Plan and Health & Safety Plan document for these activities prepared and submitted in a separate document. The ACM will be HEPA vacuumed and washed prior to its removal to abate possible lead dust.

3.6 Interior Demolition

After the asbestos has been abated and the clearance results indicate the area is below the IEPA action level for asbestos fibers, TolTest will submit the clearance results to the NTR for review and approval. Once the NTR has approved the clearance results, TolTest will begin interior demolition activities.

An existing fence that is constructed around the building will be utilized to deter unauthorized access to the site. TolTest will place "DO NOT ENTER" and "WARNING, LEAD WORK" signs on the perimeter of the fence and maintain the fence throughout the duration of the interior demolition activities.

After the ceiling tile and ceiling tile support structures have been removed, TolTest will demolish the interior walls utilizing hammers and reciprocating saws in accordance with 29 CFR 1910.242 and 1926.300. The debris generated from the interior wall demolition will be placed in a roll off box for disposal as construction debris at the Kestrel Hawk Landfill. Any steel electrical conduit or piping found in the wall will be demolished, removed, and placed in a roll off box for recycling at Cleveland Corporation. Metal with LBP will be managed in accordance with 40 CFR 261.4. Scrap metal containing LBP offered for recycling is excluded from being considered a solid waste and the requirements for disposal of solid wastes. Interior demolition debris placed in roll off boxes will be covered with tarps to reduce the potential of any potential lead dust from being released into the atmosphere.

The tarps that are utilized to cover the roll off boxes will be secured to the boxes with elastic cords and nylon rope. If weather conditions indicate that a severe rain event is likely, TolTest will place poles under the tarp which will allow the rain water to run off the tarp. This will reduce the potential of the tarp from accumulating rain water which could cause the tarp to sag and be removed from the roll off box.

Thermostats, electrical switches, and gages found to contain mercury will be carefully removed and placed into 55-gallon DOT-approved steel drums for recycling at Superior. Although the mercury waste will be recycled, it is considered to be hazardous waste in accordance with 40 CFR and will be transported to Superior in accordance with 49 CFR. TolTest will coordinate the transportation and recycling of the waste with Superior.

Conduit and piping will be cut and removed from the building. As a precaution, TolTest will wet wipe the conduit and piping with a solution of HMCS-101. After the conduit and piping are decontaminated, TolTest will place the metal debris in a roll off box for recycling at a local scrap metal facility.

Metal items that will be cut utilizing an oxygen/acetylene torch will be demolished in accordance with the following regulations after any painted surfaces have been tested for lead and appropriate precautions taken as needed:

- 29 CFR 1910.101 - Compressed Gas General requirements
- 29 CFR 1910.110 - Storage and Handling of Liquefied Petroleum Gases
- 29 CFR 1910.252 - Welding, Cutting, and Brazing General Requirements
- 29 CFR 1926.153 - Liquefied Petroleum Gas Fire Protection and Prevention
- 29 CFR 1926.350 - Gas Welding and Cutting

During the demolition activities involving the oxygen/acetylene torch, TolTest will have a fire extinguisher adjacent to the area where the task is being performed.

Several exterior metal doors will be removed from their hinges and recovered for reuse after they have been decontaminated from potential lead dust. If the doors cannot be reused or sold for reuse, they will be placed in the Cleveland Corporation roll off box for recycling. TolTest assumed that the paint on the doors contained LBP and has notified Cleveland Corporation that the exterior metal doors may contain LBP. Cleveland Corporation will accept these doors for recycling in accordance

with 40 CFR Parts 261.4 and 262.11. 40 CFR 261.4 lists exemptions from solid waste regulations. Scrap metal containing LBP offered for recycling is excluded from being considered a solid waste and the requirements for disposal of solid wastes.

The OSHA Lead Standard in 29 CFR 1926.62 requires that a lead abatement be performed if materials confirmed to contain LBP are to be demolished utilizing destructive techniques. TolTest will remove the metal doors and door frames without disturbing the LBP on the metal structures. TolTest does not intend to perform destructive demolition on the metal doors or door frames, therefore, abatement of these metal doors and door frames is not required in accordance with the OSHA Lead Standards.

3.7 Exposure Assessment for Lead

During the lead decontamination, exterior building demolition, during lead-impacted soils excavation activities, TolTest will perform an exposure assessment in accordance with 29 CFR 1926.62 to evaluate the presence of lead in the air. Personal and environmental lead air samples will be collected and submitted to Severn Trent Laboratory for analysis following the National Institute for Occupational Safety and Health (NIOSH) 7082 method for lead in air. Personnel working at the site will receive the appropriate training needed to work in potential lead hazard situations. TolTest's competent person for lead will evaluate work conditions and testing results.

Lead air sampling will be conducted with low and high volume flow sampling pumps attached to a cellulose membrane filter air sample cassette. Lead air samples will be collected on a 37-millimeter (mm) diameter filter cassette with 0.8-micron pore size mixed cellulose ester filter support pad. Personal samples are collected in the workers breathing zone with a volumetric flow rate of approximately 1.0 to 4.0 liters per minute. Workers performing different tasks will be sampled separately. Each work task will be sampled until one representative 8-hour shift sample for each task is established to create an exposure assessment. 8-hour Time Weighted Average (TWA) for lead will be calculated and evaluated by TolTest's competent person and the TolTest Certified Safety Professional (CSP). Environmental samples will be collected outside of the lead control area utilizing a volumetric flow rate of approximately 12.0 to 15.0 liters per minute. The high volume pumps will be placed downwind of the work activities to monitor for fugitive dusts that may be created during the demolition and excavation activities. After an exposure assessment has been created and approved, personal sampling may be performed intermittently during the course of this project.

TolTest has identified the following tasks that will require an exposure assessment to be performed in accordance with the above reference methodology:

- Lead dust abatement.
- Exterior door removal assumed to contain LBP.
- Exterior metal siding removal.
- Lead-impacted soils removal.
- Building demolition.
- Concrete floor demolition.
- Destructive demolition (abrasive blasting, welding, cutting, torch burning) of painted metal.

Level C personal protective equipment (PPE) will be worn during site work that may involve lead dust or LBP unless an exposure assessment indicates that PPE can be downgraded to Level D. During gross removal lead dust decontamination activities (dust vacuuming and during application of HMCS-101 and subsequent rinsing), Level C PPE will be worn by personnel performing these functions.

Site work is generally restricted to the hours of 0900 to 1600 (7 hours) Monday through Friday. However, the permissible exposure limit (PEL) and Action Levels will assume an 8-hour work day to be conservative.

The lead PEL and action level are as follows:

1. The OSHA permissible exposure limit (PEL) for worker exposure to airborne lead is 50 micrograms of lead per cubic meter of air ($\mu\text{g}/\text{m}^3$) averaged over an 8-hour time-weighted average (TWA).
2. The action level for worker exposure to airborne lead is $30 \mu\text{g}/\text{m}^3$ averaged over an 8-hour work day.

Personal air sampling will be conducted for the first full shift at the beginning of the project. After one set of sampling results has been obtained for each task involved with this project, an exposure assessment will be created. The exposure assessment will describe what methods are used during the demolition activities and the analytical results associated with each task. This assessment will be used to evaluate respirator requirements, if any, and the amount of future air sampling required for this project.

At this time, TolTest does not anticipate that interior demolition activities will require cutting of structures that may contain LBP. The OSHA Lead Standard in 29 CFR 1926.62 requires that an exposure assessment be performed if materials confirmed to contain LBP are to be altered or disturbed by such activities as abrasive blasting, welding, cutting, or torch burning. If painted steel beams, pipes, or like structures are encountered, TolTest will collect samples of the paint to determine if the paint is in fact LBP so that proper precautions can be taken during demolition.

3.8 Pavement and Building Demolition

TolTest will completely demolish the building, including foundations, and footers. Perimeter sidewalks, pavement surfaces, pads, knee walls, and curbs will also be demolished within the demolition limits shown on Figure 2 in Appendix A. To the extent possible, TolTest will minimize the length of time that demolition materials remain on site. Materials that are stockpiled overnight will be placed in roll off boxes and covered with a tarp.

During the demolition of Building 61, it is possible that that low levels of lead dust may be detected in the ambient atmosphere. To comply with the OSHA Lead Standards in 29 CFR 1926.62, TolTest will perform the demolition work under the supervision of a competent person that is trained to perform work involving lead. Mr. Mike Graf is a certified and licensed Lead Supervisor and meets the OSHA Lead Standard qualifications for a competent person for work involving lead. A copy of Mr. Graf's Lead Supervisor's license can be found in Appendix B.

TolTest and Champion Environmental personnel directly involved in building demolition activities have been trained in Lead Awareness, which meet the OSHA Lead Standard requirements. A copy of the TolTest and Champion Environmental personnel training certifications can be found in Appendix E.

TolTest will begin the demolition of Building 61 by utilizing an excavator to demolish the north wall. Demolition activities will proceed generally from north to south. The demolition sequence for the remainder of the building will be performed in the same manner as the demolition of the south wall and roof. The demolition of Building 61 will be completed in accordance with 29 CFR 1926.850.

Prior to and during the building demolition, TolTest will place air monitors downwind of the demolition site and monitor for dust and lead levels. High volume pumps equipped with pre-weighed dust and lead cassettes will be utilized to evaluate the concentration of dust and lead in the

air. The samples collected prior to the beginning of demolition activities will provide background concentrations of respirable dust and lead. The OSHA PEL for respirable dust is 5 milligrams per cubic meter (mg/m^3) and the OSHA PEL for lead is $50 \text{ ug}/\text{m}^3$, however, detection of dust or lead levels above background downwind and outside of the actual demolition work area will trigger corrective action. The cassettes will be submitted to Severn Trent Laboratory and analyzed by the NIOSH Method 0600 for dust and NIOSH Method 7082 for lead. Air monitoring results will be posted at the work site within two days of submitting the cassettes to the laboratory.

TolTest will obtain a permit to use a fire hydrant adjacent to the site from the appropriate authority. A backflow preventor will be attached to the hydrant and a hose will be utilized to supply water to the site. TolTest will require that two water trucks are on site to provide adequate dust control. The water trucks will be utilized to spray water on the building and demolition debris. Air monitoring results will continue to be performed until the results indicate that this engineering control is successful in managing the dust levels and lead levels.

If at any time during the building demolition the air monitoring results indicate that the respirable dust or lead levels exceed the OSHA PEL in the work area or exceed background outside of the work area proper, TolTest will implement engineering controls to manage the dust and lead levels. The most common engineering control for reducing the levels of dust and lead is spraying the demolition debris with water while the demolition activities are being performed.

Once the building has been demolished, TolTest will segregate the demolition debris into stockpiles of recyclable material utilizing a loader. Concrete debris will be staged adjacent to the former building and representative wipe samples will be obtained and analyzed for TCLP lead. If the concrete does not exhibit a hazard characteristic with respect to lead, TolTest will coordinate the transportation of the concrete debris to Vulcan Materials for recycling. Tarps will be placed over the concrete debris stockpile to reduce the potential of rain water from washing lead dust or oily waste from the stockpile. Any scrap metal found in the demolition debris will be segregated and placed in the Cleveland Corporation roll off box for recycling. Materials that are not being recycled will be segregated and placed in roll off boxes for disposal as construction debris at the Kestrel Hawk Landfill.

TolTest will place tarps over the roll off boxes at the end of each day to reduce the potential of rain water from washing lead dust or oily waste from the roll off box. When the roll off box is offered for transportation, TolTest will require that the roll off boxes be covered to reduce the potential for

lead dust being released into the atmosphere. Trucks hauling concrete debris for recycling will also be required to cover the bed of the truck prior to transporting the concrete debris to the recycling facility.

Materials identified for disposal as construction debris will be free of oily waste. If materials intended to be disposed of as construction debris are suspected to be impacted by petroleum hydrocarbons, TolTest will segregate the materials and use tarps to cover them. TolTest will submit a sample of these materials to characterize the waste stream. Based on the evaluation of the analytical results for this sample, TolTest will dispose of the waste stream in accordance with 40 CFR Parts 261 and 262.

TolTest will demolish the concrete floor and building footers. An excavator equipped with a hydraulic breaker will be utilized to demolish the concrete floor. As the concrete is demolished, TolTest will stockpile the concrete debris utilizing a loader.

During the demolition of the concrete floor, a second excavator will be utilized to remove large sections of the concrete foundation by simply prying the sections from the ground. Once a large section of the foundation has been removed from the ground, TolTest will demolish the concrete sections utilizing the excavator equipped with the hydraulic breaker.

The concrete that is contact with the soil identified in the EnSafe Technical Memorandum as being impacted with lead, will be segregated from the concrete that is not in contact with known hazardous waste. Once the concrete is removed from the ground, TolTest will scrape the soil from the concrete and place the soil in a roll off box. TolTest will collect a chip sample of this potentially lead impacted concrete and submit the chip sample to the Severn Trent Laboratory for TCLP analysis. If the chip sample analytical result indicates that the concentration of lead is below 5 mg/L, the concrete will be recycled at the Vulcan Materials facility in Lake Bluff, Illinois. If the chip sample analytical result exceeds 5 mg/L, TolTest will decontaminate the concrete with a solution of HMCS-101 and water. After the concrete has been decontaminated, TolTest will again collect a chip sample and submit the sample to the Severn Trent Laboratory for TCLP lead analysis.

If the sample analytical result indicates that the concentration of lead in the concrete is above 5 mg/L, TolTest will place the concrete in roll off boxes for disposal as hazardous waste at the Peoria Disposal Company.

The excavator equipped with the hydraulic breaker will demolish the footings in sections approximately five feet in length. Once the footings are demolished to five-foot sections, the excavator equipped with the bucket will remove the concrete debris and place it in the concrete debris stockpile. Foundation gravel will also be removed. The concrete debris stockpile will be covered with tarps at the end of each day to reduce the potential of rain water from contacting the concrete debris and potentially washing lead dust or oily waste from the stockpile.

Should groundwater be encountered in quantities sufficient to warrant control by dewatering, TolTest will assess the groundwater situation and prepare and submit a plan to the NTR for review and approval. The plan will include the proposed method to control groundwater during excavation activities, the equipment that will be used, and a discussion of permits needed for discharge, if any. It is not anticipated at this time that the groundwater at the site is impacted by regulated substances.

TolTest will transport the concrete debris to Vulcan Materials in Lake Bluff, Illinois in 22 cubic yard (CY) dump trucks. TolTest will load the trucks utilizing the loader until the stockpiled concrete is completely removed from the site. The NTR or designated representative will be given an opportunity to witness the trucks being weighed in and out of the Vulcan Materials facility for weight verification. Vulcan Materials will submit weight tickets to TolTest documenting the weight of the concrete debris transported to their recycling facility. TolTest will submit the weight tickets to the NTR at the end of each day that concrete debris was transported from the site to the Vulcan Materials facility. A copy of the weight tickets documenting the material recycled will be provided in the DOCR that will be submitted to the NTR after field activities have been completed. Photographic documentation of the demolition activities will also be provided.

3.9 Underground Utility Closure

After the building has been demolished, TolTest will excavate, uncover, and demolish the underground utilities servicing Building 61. Based upon information from the Navy, no known utility maps exist for the facility, therefore, the utilities will need to be located through a JULIE locate request. TolTest will address other utilities that may be encountered as work progresses and evaluate each situation as it is encountered to determine appropriate safety measures and methods of closure. TolTest is responsible for physical demolition and capping of utilities and no new construction re-routing. Connections to storm sewers will be capped. Sanitary and, if present, steam connections will be capped at the main (manhole) and where possible, removed from the building to the manhole. The intent is to not have any inactive utility line remaining after demolition outside the building footprint. Utilities such as alarm systems, cable TV, telephone, natural gas, and water

will be removed to the satisfaction of the CO. Utilities that run to power poles or other buildings will be decommissioned and removed to the power pole or building, as applicable. If a utility excavation is located within a lead-impacted soil remediation area, the excavated soil will be segregated and placed into the appropriate roll off box.

TolTest will excavate and uncover the utilities with an excavator. Once the utilities are uncovered at least ten feet beyond the former building foundation, excavation activities will continue until the proper slope is achieved to allow TolTest personnel to enter the excavation in accordance with 29 CFR 1926.652, Excavation Requirements.

Once the TolTest excavation competent person has approved the excavation, the excavation will be entered to gain access to the utility and/or utility ducts. Prior to demolishing the utility, TolTest will perform air monitoring to evaluate the atmosphere for the concentration of oxygen and the percent lower explosive limit (LEL). TolTest will not utilize an oxygen/acetylene torch in the excavation until the concentration of oxygen is between 19.5 and 23.5 percent and the percent LEL is less than 10 percent. Once the atmosphere is evaluated to be within the aforementioned ranges, TolTest will demolish metal piping utilizing an oxygen/acetylene torch in accordance with a Burn and Hot Works Permit. After the piping has been cut, TolTest will remove the piping from the utility ducts and place the scrap metal debris in the Cleveland Corporation roll off box for recycling.

Concrete utilities and utility ducts will be demolished with a hydraulic breaker. The excavator equipped with a bucket will be utilized to remove the concrete debris from the excavation. Concrete debris will be stockpiled adjacent to the excavation for recycling at the Vulcan Materials facility.

If telephone or gas lines are present at the site, TolTest will coordinate the removal of those utilities with Ameritech and North Shore Gas, respectively. The presence of these utilities will be established through the JULIE locate. Unless it is not feasible or if otherwise directed, these utilities will be cut at the main/lateral junction or if the telephone line runs to a pole, it will be cut at that point.

Utility decommissioning activities will be documented with photographs.

3.10 Lead-Impacted Soils Removal

TolTest proposes to meet the Tier 1 Soil Remediation Objectives for Residential Properties, Title 35 Illinois Administrative Code, Part 742, Tiered Approach to Corrective Action Objectives (TACO) for lead-impacted soils at 400 mg/kg. A preliminary remediation goal of 400 mg/kg has been set for

lead based on *Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities*, OSWER Directive #9355.4-12. The soil remediation area is shown on Figures 3A and 3B in Appendix A. The areas designated for remediation are based upon the EnSafe, Inc. Technical Memorandum dated June 12, 2001.

TolTest will collect eleven composite samples from the area defined as being lead-impacted by the EnSafe, Inc. Technical Memorandum dated June 12, 2001, to characterize the soil for treatment/disposal. Based upon EnSafe, Inc.'s sample results, there appears to be approximately nine clusters of elevated lead sample results. These nine clusters will form the basis for obtaining lead characterization samples. Because the sampling will be biased toward the highest known lead concentrations, the determination as to whether soils are hazardous with respect to lead will be a conservative determination. Figure 3A shows the waste characterization sampling points. Each aliquot will be split. For the first half, all aliquots will be homogenized together and a single composite sample will be submitted for analysis for all waste characterization parameters except Toxicity Characteristic Leaching Procedure (TCLP) lead and volatile organic compounds. For the second half, aliquots from within each area will be homogenized and submitted as composite TCLP lead samples representative of each individual area. For the TCLP volatile organic compound analysis, a representative grab sample of the soil in the removal area will be collected and submitted for analysis. Any sample submitted for volatile organic compound analysis must be a grab sample. This analytical data will be used to create a waste profile sheet that will be submitted to the disposal facility for approval prior to commencing the excavation activities.

An excavator will be utilized to excavate soil and load it into 20 cy dump trucks or roll off boxes. Soils must be covered with a tarp during temporary storage at the site and during transport to the disposal/treatment facility. There are two general areas of remediation near Building 61 as defined by the EnSafe Technical Memorandum dated June 12, 2001. The larger area is on the east side of Building 61 and a smaller area is near the southwest corner of the building. Soil will be removed to a depth of approximately two feet below ground surface (bgs) with a total of approximately 10,000 square feet of excavation area. The total estimated volume of the lead-impacted soil to be excavated based on the EnSafe Technical Memorandum dated June 12, 2001, is 741 cubic yards (in-place). TolTest will take care to appropriately segregate hazardous vs. nonhazardous soils based upon the waste characterization sampling results described above. A lead exposure assessment for site workers will be conducted during excavation activities.

If the excavations are to remain open for an extended period of time or if precipitation is forecasted,

procedures to divert surface runoff will be implemented. The excavation will be lined with an anchored, impermeable material such as 10 mil or thicker plastic sheeting. This will protect water from entering the excavation, and potential surface water runoff will be diverted. If the controls fail to keep rainwater out of the excavation or if groundwater is encountered and subsequently becomes contaminated, the water will be pumped to a holding tank, tested, and the disposition determined appropriately after the analytical results are received. The results will be documented in the Soil Remediation Report if this situation is encountered.

Upon approval for disposal of the impacted soil, manifests will be prepared and the material will be transported by a licensed, permitted, trained and equipped transporter to the Peoria Disposal Facility, a permitted waste disposal facility. TolTest will coordinate with the NTR to have the designated Navy Environmental Department contact review and sign the manifests.

3.10.1 Confirmation Sampling

When all of the lead-impacted soil identified in the EnSafe Technical Memorandum has been excavated, confirmation samples will be collected in a grid pattern (see Figure 3B). The smaller excavation area at the southwest corner of the building has a sample separation of approximately 13 to 15 feet. The larger excavation area east of the building generally has a sample separation of approximately 25 feet. In some areas, the grid lines will be less than 25 feet due to the configuration of the excavation. A grab soil sample will be collected at each sample point on the grid with a stainless steel spoon and will be placed into separate 8-ounce clear sample jars with Teflon-lined lids. Samples from the bottom of an excavation will be collected from the bottom extent of the excavation to approximately 6 inches below the bottom extent of the excavation. Samples from the perimeter of an excavation will be collected from approximately 12 to 18 inches below original grade. The sample jars will be stored in an insulated cooler with ice. Using this procedure, approximately 36 grab samples will be analyzed, plus four random duplicates. Each sample will be analyzed for total lead by SW846 Method 7421 by Severn Trent Laboratory. Each sample point will be surveyed using a hand-held global positioning system device. This will permit the sample locations to be reproducible should the need arise to perform additional excavation and/or sampling. The confirmation sampling grid is shown on Figure 3B in Appendix A.

The soil sampling equipment will be decontaminated between each sampling point. The equipment will be decontaminated using the following procedure:

- Gross soil removal will be conducted with a brush or paper towel

- The equipment will be washed in an Alconox/deionized water solution
- The equipment will be rinsed with nitric acid
- The equipment will be rinsed in deionized water and allowed to dry

At least one equipment decontamination blank will be obtained and analyzed for total lead.

3.10.2 Soil Remediation Report

A Soil Remediation Report will be prepared showing the excavation limits and depths, sample depths and locations, and other field documentation for meeting clean-up levels. Soil lead sample results will be presented in tabular form.

3.11 Site Restoration

After the building has been demolished, lead-impacted soils have been removed and verification that clean-up levels have been obtained, and after the utility lines have been removed and capped, TolTest will compact and proof roll the sub-grade. The proof roll will be conducted utilizing a 20 cubic yard dump truck filled with at least 20 tons of gravel. The dump truck will drive over the sub-grade and the third party testing company will witness the proof roll. If the third party company's representative determines that the proof roll passes, TolTest will begin to place backfill material.

Once the third party testing has been completed and TolTest receives a passing result, engineered fill will be placed in the trenches and excavations in 12-inch lifts and compacted with a drum roller. Each 12-inch lift will be compacted until the trenches' and excavation's grade is within 4 to 6 inches of the existing grade of the surrounding surface. If difficulty is encountered in achieving the compaction requirements with 12-inch lifts, smaller lifts will be utilized. The top 4 to 6 inches will be covered with topsoil. In accordance with the Navy Specifications, materials imported from off-site must not be impacted by chemicals of concern above the most stringent criteria specified for Tier 1, Class I Residential values per 35 IAC 742, Tiered Approach to Corrective Action Objectives. This requirement shall be certified by the supplier and/or confirmed with chemical analysis, as appropriate, for each borrow source. If chemical analysis is required, a composite sample of the backfill material will be analyzed for target compound list volatile organic compounds, semivolatile organic compounds, pesticides, and PCBs, and target analyte list metals.

Where granular fill is required to properly restore the site, the engineered fill will meet American Society for Testing Methods (ASTM) D 2487 classification of GW, GP, GM, SW, SP, or SM with a maximum ASTM D 4318 liquid limit of 35, a maximum ASTM D 4318 plasticity index of 12, and

a maximum of 25 percent by weight passing the ASTM D 1140 No. 200 sieve. Common fill will be a clayey soil. All fill material types will be free of deleterious and objectionable materials (i.e., debris, roots, scrap metal, vegetation, and soft particles) and will not be frozen when placed.

TolTest will collect one sample of each fill material type that will be used for this project prior to importing the fill material on site to ensure the material meets the material specifications of this DO. Information documenting the physical characteristics of the proposed material and how it correlates to the material specifications of the DO can be found in Appendix F:

TolTest will test the density of each lift every 500 square feet of placement in accordance with ASTM D 2922 and 3017 after the fill material has been placed and compacted. Specification 02315, Excavation and Fill, submitted to TolTest in the Navy's February 19, 2002 Statement of Work indicates requirements for the backfill. TolTest will compact the material to a minimum of 85 percent of ASTM D 698 maximum density. TolTest will provide documentation of the compaction tests to the NTR for every lift tested.

If the compaction test results indicate that the fill material does not meet the compaction result desired, TolTest will continue to compact the fill material until the appropriate compaction is achieved and documented with a successful compaction test.

As previously indicated, the top 4 to 6 inches of the backfilled areas will be covered with topsoil. The topsoil will be hydroseeded at 5 pounds (seed) per 1,000 square feet and fertilized at 25 pounds per 1,000 square feet. Hay bales and filter fabric will be used to prevent soils and sediment from entering nearby storm water grates.

As indicated in the contract for this DO, TolTest will be responsible to fill and recompact settlement areas for a period of 6 months and to repair seeded areas, as necessary. In addition, storm grates that may have been disturbed by the demolition activities will be reset.

4.0 Scheduling

A detailed schedule has been submitted to the U.S. Navy that outlines the sequence for the abatement, hazardous material removal, and demolition activities. The abatement portion of this project is expected to take approximately 10 days. The demolition activities are expected to take approximately 10 days. The lead-impacted soil excavation is anticipated to require 3 days to complete. Work activities will be conducted during normal working hours, Monday through Friday, between the hours of 0900 and 1600, unless special arrangements are made with the NTR.

Abatement activities are tentatively scheduled to commence at Building 61 in August, 2002. Demolition activities (exclusive of selective interior demolition and setup activities) are scheduled to commence in September, 2002. The work will be conducted in such a manner to minimize interference with the normal functions of the surrounding area. If the schedule changes during any phase of this DO, TolTest will immediately revise the time line and submit the revised schedule to the NTR.

5.0 Environmental Protection

TolTest will provide and maintain environmental protection through the completion of this project. A pre-construction meeting will be held prior to the commencement of project activities to discuss the proposed environmental protection. The meeting will develop a mutual understanding relative to required reports and measures to be taken should there be an incident that requires a response.

Environmental protection will be provided to correct conditions that develop during construction, or that are required to control pollution that develops during normal construction practices. TolTest's operations will comply with all applicable Federal, State and local regulations pertaining to water, air, solid waste, hazardous waste and substances, oily substances and noise pollution.

TolTest will at all times be aware of and adhere to all Environmental Protection Policies in force at the NAS Glenview and Naval Training Center, Great Lakes, Illinois. Information will be obtained by referencing OPNAVINST 5090.1B and the NTC Hazardous Waste Management Plan. TolTest will maintain compliance at all times with 40 CFR 263, 264, and 265 as well as IL Title 35, Subtitle G, Sections 700-871.

Any hazardous waste created, used, or brought on Government property by TolTest will be TolTest's responsibility. Hazardous waste will be stored and transported in approved containers in accordance with 49 CFR 178. Wastes will be properly labeled with the proper shipping description, accumulation start date and generator information. Containers will be removed from the project site and stored and treated/disposed of in accordance with 40 CFR 263, 264, and 265 and IL Title 35 Sections 700 through 750.

Special measures will be taken to prevent hazardous substances from entering the ground, drainage areas, or local bodies of water. Environmental requirements for the prevention of any spills is contained in EPA Regulations on Oil Pollution Prevention, Title 40 CFR 112. For oil and hazardous substance spills that may be large enough to violate Federal, State, or local regulations, the Environmental Operations Manager will be notified immediately.

TolTest will preserve the integrity of the natural resources of the project area. This includes insuring that the surrounding area is not environmentally damaged in any way and preventing the release of hazardous substances into the surrounding air, land, or water. Absorbent pads will be available at all times to clean and wipe up any small spills.

TolTest is aware that LBP could potentially be present in or on the structures that will be demolished. To minimize the potential of worker exposure, TolTest will spray water on the demolition debris during demolition activities. TolTest will also perform air monitoring to evaluate the presence of lead dust in the air. Air monitors will be placed down wind of the demolition activities and TolTest will collect samples throughout the demolition activities.

During this project, TolTest will store debris generated as a result of demolition activities on site. TolTest will store the debris in a location approved by the NTR and comply with 40 CFR 262.34, 265.171, 265.172, and 265.173 regulations for Satellite Accumulation Points. This regulation requires TolTest to properly label and mark containers, use containers in good condition, use containers that are compatible with the material being stored within the container, and manage the containers in a manner to prevent a rupture or leak.

TolTest will label and mark any drums that are used to store waste in accordance with 49 CFR, Part 172. The containers that will be used to store waste will be DOT-approved containers. TolTest will store the waste in such a manner as to reduce the potential for the integrity of the container's shell from becoming compromised. TolTest does not anticipate that incompatible waste streams will be generated.

6.0 Waste Management Plan

TolTest and its subcontractors will adhere to the following applicable regulations during this DO:

- 40 CFR 261.2 Definition of Solid Waste
- 40 CFR 261 Subpart C Characteristics of Hazardous Wastes
- 40 CFR 262.11 Hazardous Waste Determination
- 40 CFR 262.20 General Manifest Requirements
- 49 CFR Part 130 Oil Spill Prevention and Response Plans
- 49 CFR Part 171 General Information, Regulations, and Definitions for Hazardous Materials
- 49 CFR Part 172 Hazardous Materials Table
- 49 CFR Part 173 General Requirements for Shipments
- 49 CFR Part 177 Carriage by Highway
- 35 IAC Subtitle B Air Pollution, Parts 228 and 243
- 35 IAC Subtitle C Water Pollution, Part 302
- 35 IAC Subtitle G Waste Disposal, Parts 742-750 and 807-810

TolTest is required to recycle or salvage for reuse at least 40% of the building contents and demolition debris generated during this DO. The remaining demolition debris will be disposed of as construction debris, special waste, or hazardous waste, as applicable. TolTest has identified the following materials that can be recycled or reused:

- Concrete debris
- Asphalt debris
- Lead shot and dust
- Metal debris
- Mercury waste
- PCB-containing ballast
- Furniture, countertops
- Doors
- Air conditioning units
- Pumps and other miscellaneous equipment

The majority of the recycled demolition debris is anticipated to be concrete. Vulcan Materials in Lake Bluff, Illinois will accept and recycle concrete debris. Metal debris will be recycled at the Cleveland Corporation in Zion, Illinois. Mercury and PCB waste will be recycled or reused at the Superior facility in Port Washington, Wisconsin. Construction debris will be disposed of at the Kestrel Hawk Landfill in Racine, Wisconsin.

TolTest will attempt to recycle or reuse as much of the demolition debris as possible. Demolition debris could consist of, but is not limited to, the following materials:

- Lumber
- Non-impacted soil
- Non-ACM ceiling tile
- Drywall
- Toilet and sink fixtures

The lead-impacted soil that is excavated will be characterized prior to transportation to the disposal facility. Once the waste profile has been approved by the Navy, TolTest will provide a copy of the profile to the NTC Hazardous Waste Operations Manager. The Peoria Disposal Facility will characterize the waste as special waste or hazardous waste, as appropriate, and send TolTest a copy of the acceptance letter allowing TolTest to manifest the waste into their facility. The waste will be manifested on Illinois uniform hazardous materials manifests under the appropriate shipping name.

TolTest will notify the NTR three days prior to transporting the waste to the Peoria Disposal Facility. The NTR will make arrangements for an NTC Environmental Department representative to sign the waste manifests.

Mercury- and PCB-containing waste will be recycled or reused at Superior's facility in Port Washington, Wisconsin. TolTest has an existing profile that has been approved by the NTC Environmental Department and accepted by Superior. TolTest will utilize the approved profile to gain acceptance of the mercury and PCB waste into Superior's facility. The NTR will be notified three days prior to transporting the waste to Superior. The NTR will make arrangements for an NTC Environmental Department representative to review and sign the waste manifest prior to transporting the waste to Superior.

The mercury and PCB waste will be manifested on an Illinois Uniform Hazardous Materials

Manifest under the following shipping names:

- Waste Mercury contained in manufactured articles, 9, UN2909, PGIII.
- Waste Polychlorinated Biphenyls, Solid, 9, UN2315, PGIII.

It is anticipated that LBP debris will be generated during this DO. TolTest will collect a sample of the waste and submit the sample to the Severn Trent Laboratory for analysis by EPA Method 1311/6010B. Once the sample results are evaluated, the waste will be characterized as either hazardous or non-hazardous by 40 CFR Parts 261 and 262.

If the debris containing waste is characterized as hazardous waste, the shipping name will be: Hazardous Waste, Solid, n.o.s. (Lead), 9, NA3077, PGIII.

If the debris containing waste is characterized as non-hazardous waste, the shipping name will be: Non-hazardous solid containing lead.

Once the waste is characterized, TolTest will submit a copy of the waste profile to the NTR. Once the Navy approves the profile, TolTest will submit the approved profile to a disposal facility. If the waste is characterized as non-hazardous, TolTest will dispose of the waste at the Kestrel Hawk Landfill. If the waste is characterized as hazardous, TolTest will dispose of the waste at the Peoria Disposal Facility.

During this project, TolTest will submit weight tickets of the debris removed from the site to the NTR. Weight tickets will document the weight of the materials recycled and the weight of the materials disposed of as construction debris, non-hazardous waste, or hazardous waste. Disposal facility certifications can be found in Appendix G. The Peoria Disposal Facility characterization requirements for the lead-impacted soil are listed in Appendix G.

Impacted groundwater is not expected to be encountered during demolition activities. However, because dewatering may be required during excavation activities associated with demolition of the Building 61 basement, building footers, or utilities, groundwater that is encountered that is suspected of being impacted will be sampled and characterized. Based upon the analytical results and the estimated volume of water that will need to be pumped, TolTest will submit a plan to the NTR which describes the proposed dewatering method and the method that will be used to treat or store for future disposal the impacted groundwater removed by pumping.

PART II – SITE HEALTH AND SAFETY PLAN

1.0 Introduction

ToITest is responsible for the safety, health, and emergency response provisions for each DO under this contract. These provisions are provided through the development and implementation of ToITest's Corporate Health and Safety Plan and this Site Health and Safety Plan (HASP). All personnel on site; visitors, contractors, and subcontractors included, will be informed of this plan and any potential health and safety hazards of the operation.

2.0 Applicability

This plan will be followed during all site activities starting with site mobilization through and including site demobilization. This plan incorporates the requirements of the following regulations and/or appropriate guidance:

- Federal Acquisition Regulation (FAR) clause 52.236-13, Accident Prevention
- OSHA Construction Industry Standards, 29 CFR 1926
- OSHA General Industry Standards, 29 CFR 1910 (including but not limited to 29 CFR, 1910.120, Hazardous Waste Site Activities)
- OPNAVINST 5090.1B and the NTC Hazardous Waste Management Plan
- United States Army Corps of Engineers (USACE) Health and Safety Manual EM385-1-1
- Other applicable Federal, State, and local safety and health requirements

The implementation of the Demolition Work Plan includes the necessary tasks that will be performed to demolish Building 61 and excavate lead-impacted soil.

3.0 Site Safety and Health

This section addresses the responsibilities for safety and health oversight, personnel protective equipment, site specific control measures and operating procedures.

3.1 Key Personnel

The Site Safety and Health Officer (SSHO) for this DO has the overall responsibility for ensuring that the provisions of this HASP are implemented in the field. The SSHO will be present during the period that heavy equipment is operating and will observe and document the activities. The SSHO is responsible for conducting daily tailgate safety meetings and site inspections to ensure the effectiveness of this plan. As field conditions change, decisions will be made regarding additional protective measures. Personnel assigned to this project are experienced and meet the supervisory training requirements specified by OSHA in 29 CFR 1910.120 as well as first aid and CPR training. In the event the SSHO becomes injured or impaired, other TolTest field personnel can render first aid and CPR.

3.2 Personal Protective Equipment

Personal protective equipment (PPE) is to be used by employees for each of the site tasks and operations being performed. The type of PPE will depend upon the level of potential exposure to hazards. EPA Level C PPE will be used initially for this project due to the potential for airborne lead. Downgrading PPE to EPA Level D will take place based upon the results of personal air monitoring results for lead and with concurrence from the TolTest Manager, Corporate Health and Safety. Prior to initiating each new work activity, personnel will be required to wear EPA Level C PPE until air monitoring and the TolTest Manager, Corporate Health and Safety indicate that downgrading to EPA Level D PPE is appropriate. TolTest personnel will be equipped at a minimum with the PPE listed below:

- Working Uniform
- Tyvek suit (may be used pending site conditions)
- Boots/shoe, steel toe
- Hard hat
- Safety Glasses
- Hearing protection if noise level exceeds 85 dB
- Latex Gloves inside Work Gloves

Level C PPE may include:

- Level D PPE, minus safety glasses (eye protection supplemented along with breathing protection, see next entry)
- Full Face, Negative Pressure Respirator equipped with P-100 filters

If personnel are expected to enter an excavation or trench deemed safe for entry by TolTest's excavation competent person, TolTest personnel will wear the appropriate PPE. The appropriate PPE will be based on the potential exposure to impacted soil. Prior to entering an excavation or trench, TolTest will perform air monitoring to evaluate the atmosphere for the presence of volatile organic compounds, concentration of oxygen, and percent LEL. TolTest will perform the air monitoring utilizing a photoionization detector (PID) and LEL meter. Based on the air monitoring results, TolTest will make a decision regarding the appropriate PPE required for safe entry into an excavation or trench.

3.3 Site Control Measures

Control procedures will be implemented to prevent unauthorized access to the work area. An 8-foot privacy fence will be installed around the work area as needed. The SSHO will ensure that all personnel entering the site have the necessary training and medical approval documentation. Personnel entering the site will be given a thorough briefing on the site hazards and safe work procedures prior to proceeding. This safety meeting will be conducted on a daily basis and will be documented. The topics of discussion will include potential physical and chemical hazards involved in excavation and sewer line decommissioning activities. The Corporate Health & Safety Manual will be used as a reference to discuss in detail the pertinent topics that are applicable for each days work activities.

All visitors will be expected to comply with applicable regulatory OSHA requirements as well as the requirements of this HASP. Visitors, with the exception of the NTR, will also be expected to provide their own PPE. In the event that a visitor does not adhere to the provisions of the HASP, they will be requested to leave the work area. All non-conformance incidents will be recorded in the site log. The SSHO will document a written record of all personnel entering and exiting the site.

3.4 Site Standard Operating Safety Procedures

The following safety rules will be adhered to during all site activities:

- At least one copy of this plan will be available at the project site, in a location readily available to all personnel, including visitors.
- Personnel will practice contamination avoidance.
- No food or beverages will be present or consumed in the work area.
- No tobacco products will be used on the project site.
- No alcohol or drugs will be present or consumed on site, or in any vehicle or worksite equipment. No personnel will be permitted to work while under the influence of alcohol or drugs while on site or operating a vehicle or worksite equipment.
- Emergency equipment will be located in a company vehicle in a readily accessible location. Emergency equipment will consist of fire extinguishers, first aid kit, and mobile telephone.
- Visual contact will be maintained between crew members at all times, and crew members must observe each other for signs of exposure to chemical, biological, or physical agents. Indications of adverse effects include, but are not limited to:
 - Changes in complexion and skin coloration;
 - Changes in coordination;
 - Changes in demeanor;
 - Excessive salivation and pupillary response; and
 - Changes in speech pattern.
- All personnel will inform their partners or team members of non-visible effects of overexposure to chemical, biological, or physical agents. Symptoms of overexposure may include:
 - Headaches;
 - Dizziness;
 - Nausea;
 - Blurred vision;
 - Cramps; and
 - Irritation of the eyes, skin, or respiratory tract.

3.5 Site-Specific Respiratory Protection

During this project, respiratory protection will be required on a limited basis. The presence of lead dust, asbestos, and LBP on metal structures that are to be demolished by means that could potentially cause lead dust to become airborne or measured elevated levels of respirable dust will initially result in the required use of respirators. Lead dust, LBP and respirable dust particulates suspended in the

atmosphere are relatively easy to manage.

For the activities that a respirator will be required, TolTest will submit a copy of medical documentation for the personnel expected to wear respirators to the NTR. A copy of TolTest personnel's current respirator fit test will also be submitted to the NTR. The respirator fit test will be conducted in accordance with 29 CFR 1910.134. TolTest personnel will wear full-face negative air purifying respirators. P-100 respirator filters approved for use by NIOSH for the above mentioned respirators will be utilized by personnel expected to wear a respirator. If the use of respirators is required, TolTest will submit a copy of the manufacturer's catalog cut sheets for the respirator and respirator cartridge.

TolTest personnel will be required to perform fit checks of their respirator prior to engaging in any activity in which the use of the respirator is required. The following procedures for respirator fit checks will be adhered to in accordance with 29 CFR 1910.134:

- Perform positive and negative pressure checks
- Perform manufacturer's recommended user seal checks

Positive fit checks are performed by sealing the exhalation valve and exhaling gently. The check is considered to be successful if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal.

Negative pressure fit checks are performed by sealing off the air inlet of the respirator cartridge by placing the palm of the hands over the respirator cartridge. Once the inlet is sealed, the personnel will gently inhale so that the facepiece slightly collapses and then hold their breath for ten seconds. The fit check will be considered successful if the seal remains in the slightly collapsed condition with no inward leakage of air detected.

TolTest personnel will be responsible for the maintenance and upkeep of their respirator. The cleaning and maintenance following procedures will be adhered in accordance with 29 CFR 1910.134:

- Remove respirator cartridges after each day's use
- Rinse the respirator and respirator components in warm water
- Wash the respirator and respirator components with warm water and a cleaning solution with

a disinfecting agent that is approved by the manufacturer

- Rinse the respirator and respirator components in warm water
- Hand dry the respirator and respirator components
- Replace all respirator components including the cartridges
- Place the respirator in a plastic bag and store in a safe area

3.6 Material Safety Data Sheets (MSDS)

A list of typical material safety data sheets for the following items can be found in Appendix H:

- Mercury-containing light bulbs
- Mercury-containing thermostats, switches, gages
- PCB-containing ballast
- Lead
- Asbestos
- Freon
- HMCS-101 (lead decontamination product)
- Nitric acid and Alconox (soil sampling equipment decontamination)

4.0 Incident Prevention

This section includes activity hazard analyses, which describe the work activity, probable hazards related to the work, and proactive or precautionary measures that will be taken for safeguarding against and minimizing or eliminating each particular hazard. In addition, daily safety inspections, incident reporting, excavation safety and liquid/soil handling safety are discussed in the following paragraphs.

4.1 Daily Safety Inspections

All machinery and equipment will be inspected daily by the Site Supervisor/SSHO to ensure a safe operating condition. Inspections will be in accordance with the manufacturer's recommendations and will be documented. Records of inspections will be maintained at the site, will be made available upon request, and will become part of the project file.

In addition to daily inspections, the SSHO will conduct a daily safety meeting. The SSHO will discuss safety topics relevant to the hazards involved in that day's work. All employees and visitors will review and sign the safety log, which documents the topics of discussion. The safety log will be submitted to the NTR with the Contractor Quality Control Reports.

4.2 Incident Reporting

All incident reporting and record keeping requirements will be followed. TolTest's forms will be completed for all incidents including personal injury reports, safety incident reports, equipment damage reports, and vehicle incident reports. All reports will be submitted to the Navy representative within 24 hours of any incident. Copies of these forms are included in Appendix I.

4.3 Excavation Safety

All excavating work will be conducted in strict conformance with, at a minimum, 29 CFR 1926.650 through 29 CFR 1926.652, including requirements for continuously sloping excavations, if required. Excavation and trenching procedures are outlined in Appendix J.

It is not anticipated that shoring or bracing of the excavations will be required, however, shoring and sheeting of the excavation will be used, if necessary, to prevent injury to persons, damage to structures, injurious caving, and erosion. If used, the shoring, sheeting and bracing will be carefully removed as the excavation is backfilled.

Excavation work will not commence until TolTest has contacted the JULIE service and Glenview utilities a minimum of 72 hours prior to excavation activities. TolTest will visually survey the area to ensure that clearances to overhead utility lines will be sufficient for the movement of vehicles and operation of demolition equipment. The requirements stated in OSHA 29 CFR 1926 General Construction Industry Standard and the National Electric Safety Code will be followed by TolTest.

During periods when the work site is unoccupied (i.e., overnight, weekends, and other similar off periods) barricades and orange construction fencing will be placed around the excavations in such a manner to alert personnel to the danger and prevent them from entering the work area.

4.4 Activity Hazard Analysis

Listed below is a description of each task/operation associated with this work. The protective measures to be implemented during completion of those operations are identified in the activity hazard analyses located in Appendix K. Activity Hazard Analyses have been developed for:

- (a) Site Preparation/Layout
- (b) Light Tube and Ballast Removal
- (c) Lead Decontamination
- (d) Demolition Utilizing Hand Tools
- (e) Demolition Utilizing Heavy Equipment
- (f) Demolition Utilizing an Oxygen/Acetylene Torch
- (g) Soil Excavation
- (h) Subsurface Soil Sampling
- (i) Backfill and Site Restoration
- (j) Debris Load Out
- (k) Equipment Decontamination

Activity Hazard Analyses have also been developed for asbestos abatement and hazardous material removal. These Activity Hazard Analyses are presented in the Work Plan and Health & Safety Plan for these activities prepared and submitted in a separate document.

5.0 Emergency Response

TolTest will implement emergency response and contingency procedures, in accordance with OSHA standards 29 CFR 1910.120(L). This section addresses work zones and excavation procedures, decontamination, emergency medical treatment and first aid, emergency response procedures, spill and discharge control.

5.1 Decontamination

All site personnel should minimize contact with contaminants in order to minimize the need for extensive decontamination. The SSHO is responsible for monitoring decontamination procedures and determining their effectiveness.

5.2 Emergency Medical Treatment and First Aid

There are no anticipated hazards expected on site which require specific medical attention or protocols. All TolTest employees participate in TolTest's medical screening and surveillance programs. If an injury/illness or exposure occurs, employees must seek medical attention immediately. TolTest field personnel are trained in first aid and CPR and can administer immediate assistance.

5.2.1 Cold Stress

Cold and/or wet environmental conditions can place workers at risk of cold-related illness. Hypothermia can occur whenever temperatures are below 45°F. The principal cause of hypothermia in these conditions usually involves the loss of insulating properties of clothing due to moisture; heat loss due to increased air movement, and evaporation of moisture on the skin.

Frostbite, the other illness associated with cold exposure, is the freezing of body tissue which ranges from superficial freezing of surface skin layers to deep freezing of underlying tissue. Frostbite will only occur when the ambient temperatures are below 32°F. The risk of frostbite increases as the temperature drops and the wind speed increases.

Most cold-related worker fatalities have resulted from failure to escape low air temperatures, or from immersion in low temperature water. The single most important aspect of life-threatening hypothermia is a drop in the deep core body temperature.

Site workers should be protected from exposure to cold so that the core body temperature does not

fall below 98.6°F. Lower body temperatures will very likely result in reduced mental alertness, reduction in rational decision making, or loss of consciousness with the threat of fatal consequences. To prevent such occurrence, the following measures will be implemented:

- Site workers should wear warm clothing, such as gloves, heavy socks, etc., when the air temperature is below 45°F. Protective clothing, such as Tyvek or other disposable overall, may be used to shield employees from the wind.
- When the air temperature is below 32°F, clothing for warmth should include:
 - Insulated suits, such as whole body thermal underwear
 - Wool socks or polypropylene socks to keep moisture off the feet
 - Insulated gloves
 - Insulated boots
 - Insulated head cover such as hard hat, winter liner, or knit cap
 - Insulated jacket, with wind and water resistant outer layer
- At air temperatures below 32°F, the following work practices must be implemented:
 - If a site worker's underclothing becomes wet, the worker must change into dry clothing immediately. If the clothing becomes wet from sweating (and the employee is uncomfortable), the employee may finish the task at hand prior to changing into dry clothing.
 - Site workers will be provided with a warm (65°F or above) break area.
 - The intake of caffeinated beverages should be limited, due to their circulatory and diuretic effects.
 - The buddy system will be practiced at all times on site. Any site worker observed with severe shivering will be directed to go to the heated break area.
 - Site workers should dress in layers, with thinner lighter clothing worn next to the body.

Frostbite

To administer first aid for frostbite, take the exposed employee indoors and rewarm the areas as quickly as possible in warm water that is between 102° and 105°F, for about 20 minutes or until the frozen tissue regains the original color. Provide warm drinks, but no coffee, tea, or alcohol. Keep the affected (frozen) tissue in warm water or covered with warm clothing for 30 minutes, even though the tissue may be very painful as it thaws. If present, do not allow blisters to be broken. Use sterile, soft dry material to cover the injured area, keep the patient warm and get medical attention.

- Do not rub the frostbitten part, as additional damage could occur.
- Do not use heat lamps or hot water bottles to warm the frostbitten areas.
- Do not place the exposed part near a hot stove.

Hypothermia

Hypothermia is defined as a lowering of the core body temperature. General hypothermia, the more life-threatening cold injury, affects the entire body system. Once the body temperature is lowered to 95°F, thermal control is lost, and the body is no longer in thermal balance. A coma may occur when the core temperature drops below 95°F. Death can occur within two hours of the first signs and symptoms. The general symptoms of the hypothermia are usually exhibited in five stages:

- Shivering;
- Apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body;
- Unconsciousness, glassy stare, slow pulse, and respiratory rate;
- Freezing of the extremities; and
- Death.

Extremely low temperatures are not necessary to induce hypothermia, it can occur in temperatures as high as 65°F, depending on the wind chill factor. Wind increases the body's heat loss by dispersing layers of warm air trapped between layers of clothing and skin. This heat loss increases as the wind speed increases.

5.2.2 Heat Stress

Physical hazards may involve heat-related symptoms such as heat stress, heat cramps, heat exhaustion, or heat stroke.

Heat stress is the aggregate of environmental and physical work factors that make up the total heat load imposed on the body. The environmental factors of heat stress include air temperature, humidity, and radiant heat exchange, wind and water vapor pressure (related to humidity). Physical work contributes to the total heat stress by producing metabolic heat in the body, proportional to the intensity of the work. Heavy physical labor can greatly increase the likelihood of heat fatigue, heat exhaustion, and heat stroke, the latter being a life threatening condition. Heat stress monitoring and observation of personnel will commence when the ambient temperature is 80° F or above (70° F, if chemical protective clothing is worn).

All employees will be informed of the possibility and symptoms of heat stress. If an employee experiences extreme fatigue, cramps, dizziness, headache, nausea, profuse sweating, or pale, clammy skin, the employee and the SSHO/Site Supervisor will take control measures. If the symptoms do not subside after a reasonable rest period, the SSHO/Site Supervisor will seek medical assistance.

To prevent heat stress, the following control measures will be implemented:

- Site workers will be encouraged to drink plenty of water throughout the day.
- On-site drinking water will be kept cool to encourage personnel to drink frequently.
- A work regimen that will provide adequate rest periods for cooling down will be established, as required.
- All personnel will be advised of the dangers and symptoms of heat stroke, heat exhaustion, and heat cramps.
- Employees will be instructed to observe and monitor themselves and coworkers for signs of heat stress and to take additional breaks as necessary.
- All breaks will take place in cool, shaded rest areas.

Heat Cramps

Heat cramps are caused by heavy sweating and inadequate electrolyte replacement. Symptoms include muscle spasms and pain in the hands, feet, or abdomen.

Heat Exhaustion

Heat exhaustion occurs from increased stress on various body organs. Signs and symptoms include:

- Pale, cool, moist skin
- Heavy sweating
- Dizziness, nausea
- Fainting

Heat Stroke

Heat stroke is the most serious form of heat stress and should always be treated as a medical emergency. The body's temperature regulation system fails and the body temperature rapidly rises to critical levels. Immediate action must be taken to cool the body before serious injury or death occurs. Signs and symptoms of heat stroke include:

- Red, hot, usually dry skin
- Lack of or reduced respiration
- Nausea
- Dizziness and confusion
- Strong, rapid pulse and confusion
- Coma

5.3 Emergency Alerting and Response Procedures

The following information will be used for on-site emergencies which require immediate actions to prevent additional problems or harm to responders, the public, property, or the environment.

The on-site emergency phone number is (847) 688-3333 or 911. A mobile telephone will be located inside the TolTest support truck. In the event of any injuries or accidents, the TolTest Corporate Health and Safety Manager, Mr. Rich Barcum, CSP, CHMM, will be notified within four hours of the occurrence. Mr. Barcum can be reached at (419) 241-7175.

Jeff Tinney, the Project Manager can be contacted at the TolTest Waukegan office at (847) 689-0697, or by cell phone at (847) 812-8200. The cell phone number of the SSHO, Ken Knoblett, is (847) 489-1210.

Emergency Telephone Numbers

- | | |
|--|-----------------------|
| • Naval Training Center Environmental Office | (847) 688-5999 x157 |
| • Navy Trouble Desk | (847) 688-4820 |
| • Glenview Police | (847) 729-5000 or 911 |
| • Glenview Fire | (847) 724-2141 or 911 |
| • Redev Office | (847) 998-9500 |
| • Glenbrook Hospital | (847) 360-2467 |
| • CHEMTREC Emergency Response | (800) 424-9300 |
| • Environmental Hotline | (847) 688-4197 |
| • TolTest Corporate Office (Toledo, OH) | (419) 241-7175 |
| • TolTest Waukegan Office | (847) 689-0697 |

Directions to the nearest hospital can be found in Appendix L.

5.4 Spill and Discharge Control

This section provides contingency measures for potential spills and discharges from the handling and transportation of any hazardous substances imported to the site by TolTest or their subcontractors. If a spill or discharge occurs, the following actions, at a minimum, will be taken:

1. Notify the Department of the Navy representative immediately.
2. Take immediate measures to control and contain the spill within the site boundaries. This will include, at a minimum, the following actions:
 - Keep unnecessary people away, isolate hazardous areas, and deny entry.
 - Do not allow anyone to touch spilled material.
 - Stay upwind; keep out of low areas where fluids and/or vapors may accumulate.
 - Keep combustibles away from the spilled material
 - Use water spray or foam to reduce vapor or dust generation, as needed
 - Take samples for analysis to determine that clean up is adequate
 - Take other corrective measures, as needed
3. If the spill or discharge exceeds the reportable quantity for the substance involved, notify the State regulatory authorities, as appropriate.

A written report will be submitted to the Department of the Navy within seven days of a verbal report. The SSHO will conduct spill prevention briefings daily during safety meetings for all personnel who are involved with handling, receipt, storage, and/or cleanup of oil/fuel.

Storage

All tanks, containers, and pumping equipment used for the storage or handling of flammable and combustible liquids will be labeled or placarded in accordance with the US DOT. Oils or fuels temporarily stored will be kept in tightly sealed containers (with the exception of proper venting), in fire-resistant areas and at safe distances from ignition sources. All transfer vessels will be emptied at the end of the workday.

Pumping Flammable and Combustible Liquids

Flammable liquid pumping systems will be electrically bonded and grounded. Flammable liquid will be drawn from, or transferred into vessels, containers, or tanks through a closed piping system, from safety cans, by means of a device drawing through the top, or from a container, or portable

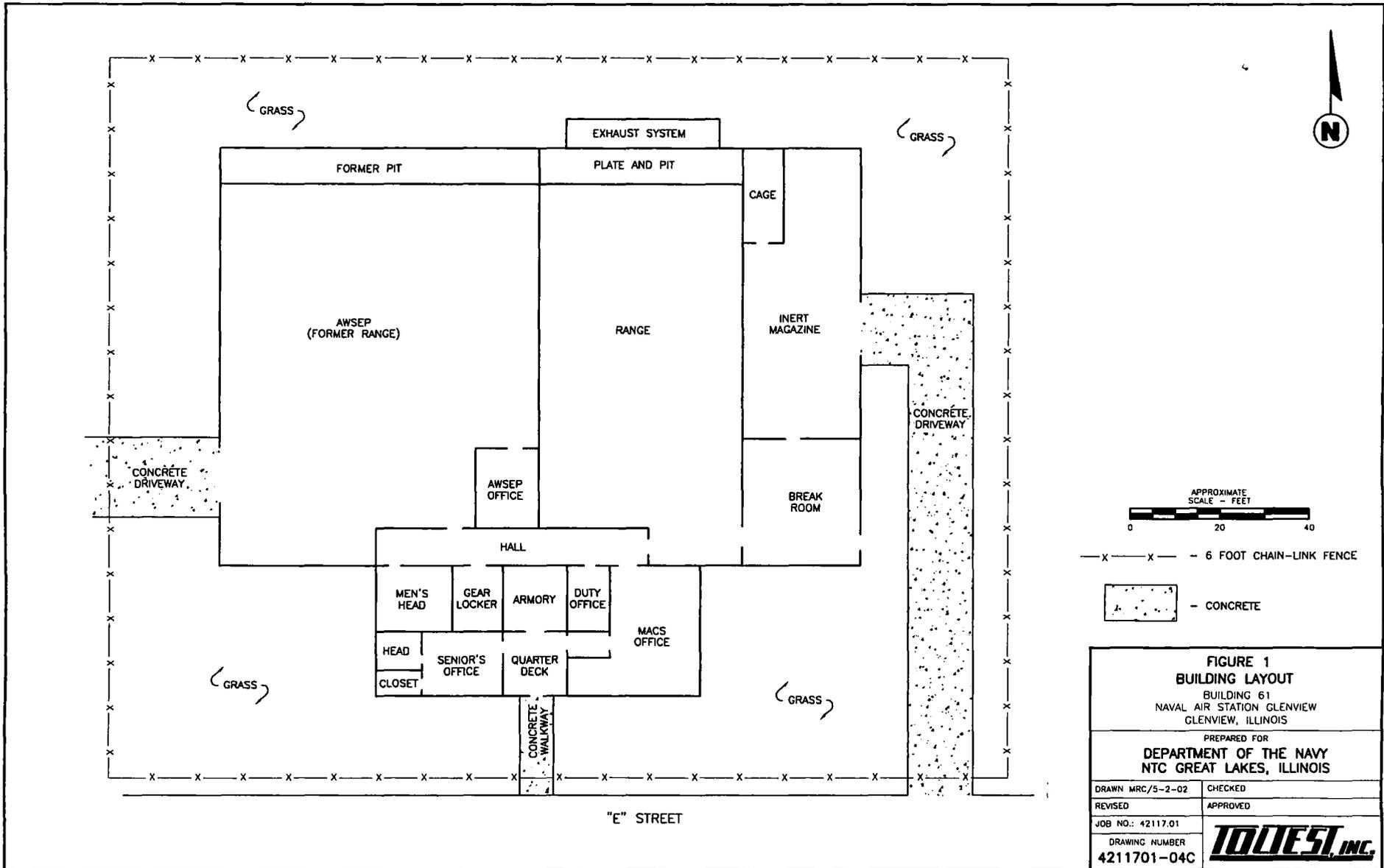
tanks, by gravity or pump, through an approved self-closing valve. Transferring flammable liquid by means of air pressure on the container or portable tank is prohibited.

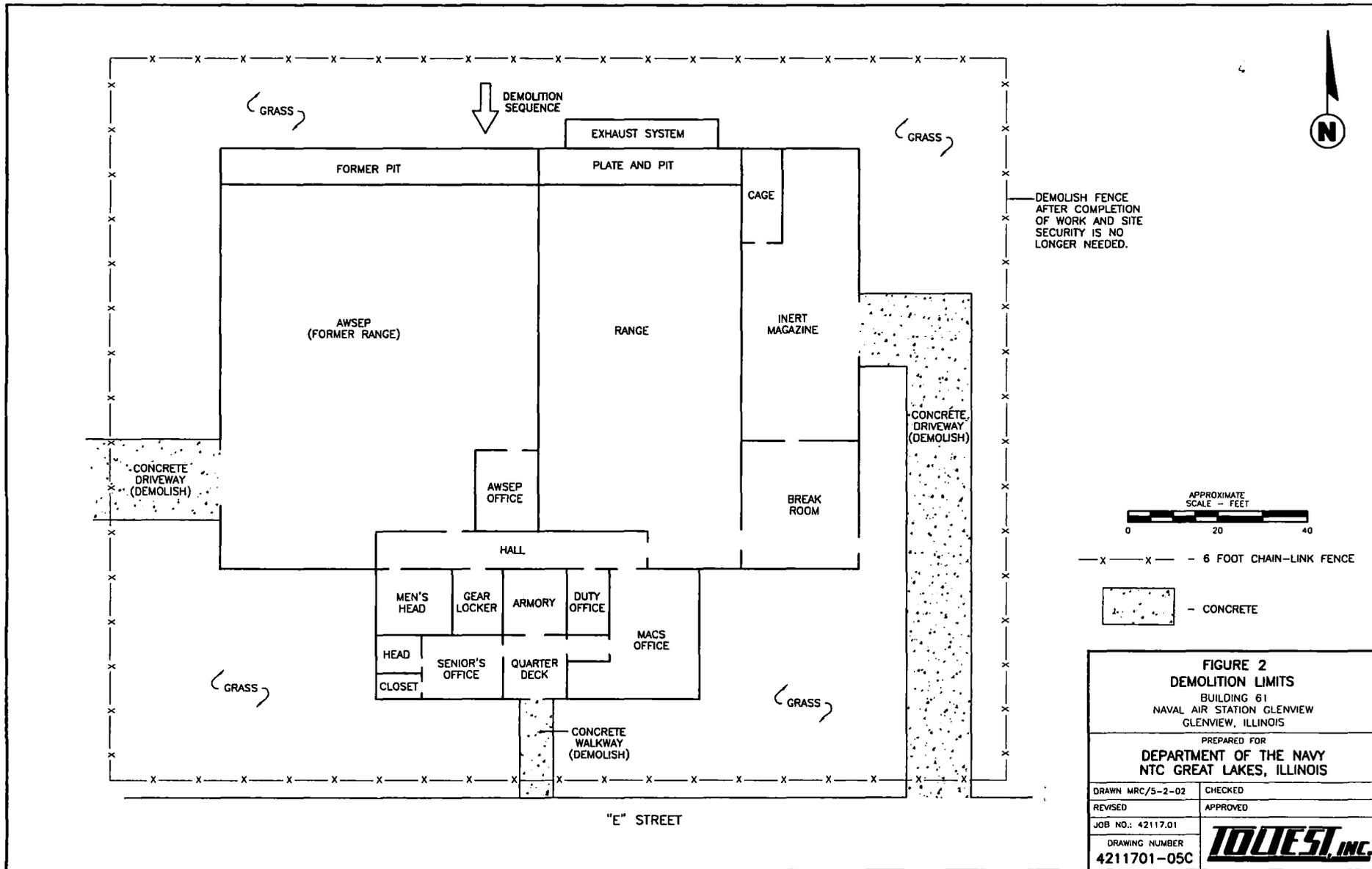
Equipment Inspection

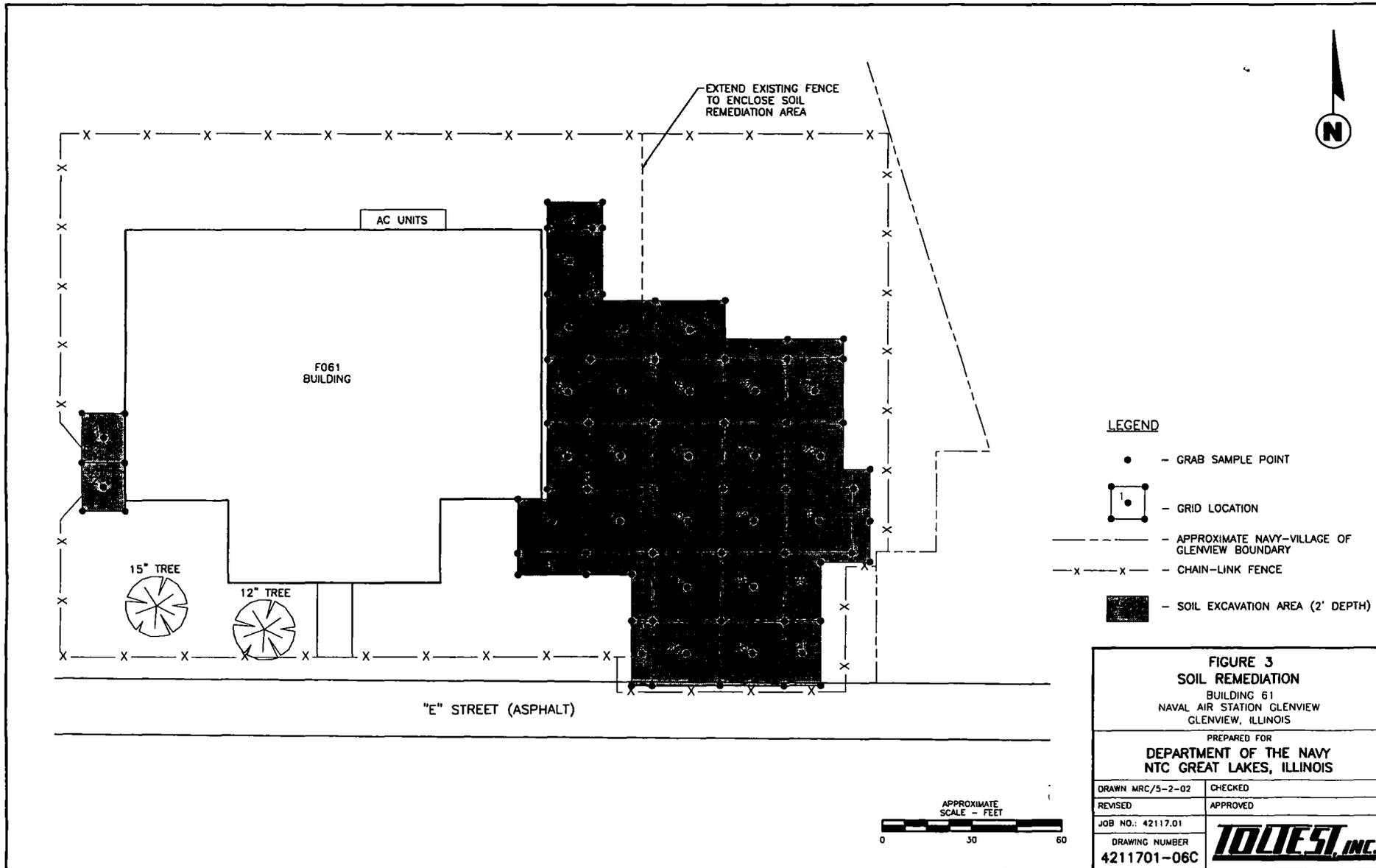
Equipment inspection is part of the daily routine during field activities. The Site Supervisor is to ensure that no oil/fuel spill has accumulated in any area by conducting daily visual inspection of the equipment. Equipment and safety issues will be documented in the daily report.

APPENDIX A

Site Maps, Demolition Sequence, and Time Line







LEGEND

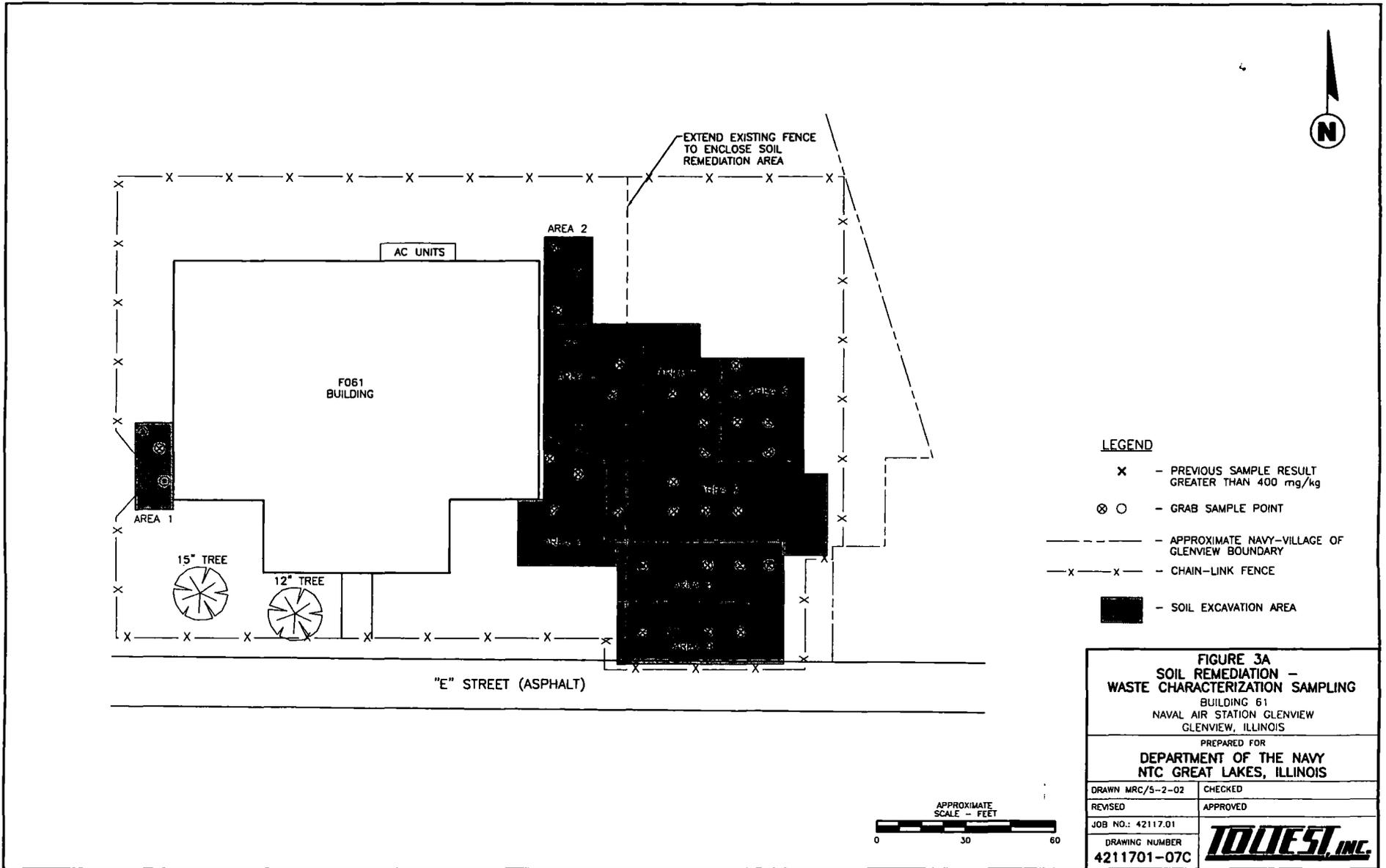
- - GRAB SAMPLE POINT
- - GRID LOCATION
- - - - - APPROXIMATE NAVY-VILLAGE OF GLENVIEW BOUNDARY
- x-x-x- CHAIN-LINK FENCE
- - SOIL EXCAVATION AREA (2' DEPTH)

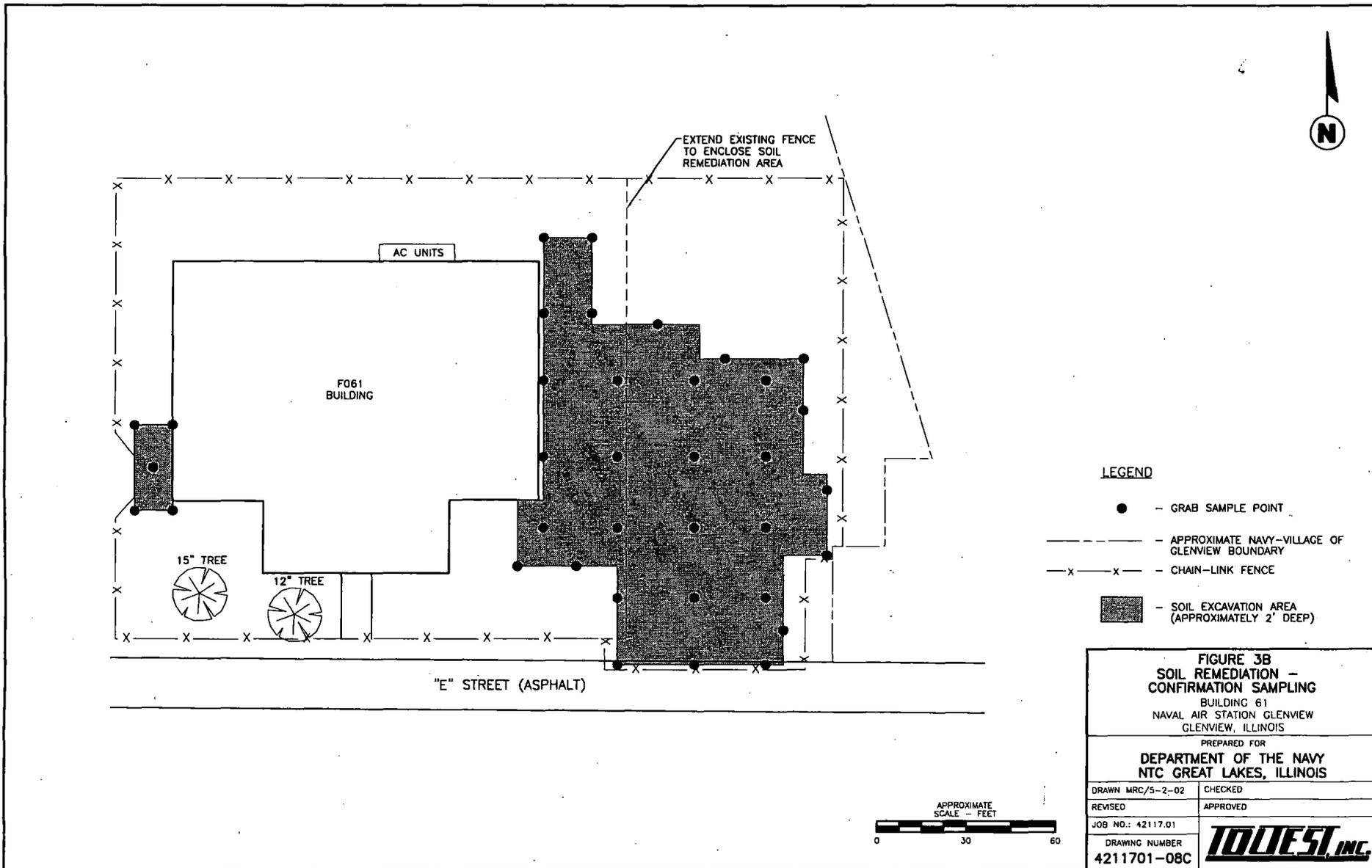
FIGURE 3
SOIL REMEDIATION
 BUILDING 61
 NAVAL AIR STATION GLENVIEW
 GLENVIEW, ILLINOIS

PREPARED FOR
DEPARTMENT OF THE NAVY
NTC GREAT LAKES, ILLINOIS

DRAWN MRC/5-2-02	CHECKED
REVISED	APPROVED
JOB NO.: 42117.01	
DRAWING NUMBER 4211701-06C	TOUEST, INC.





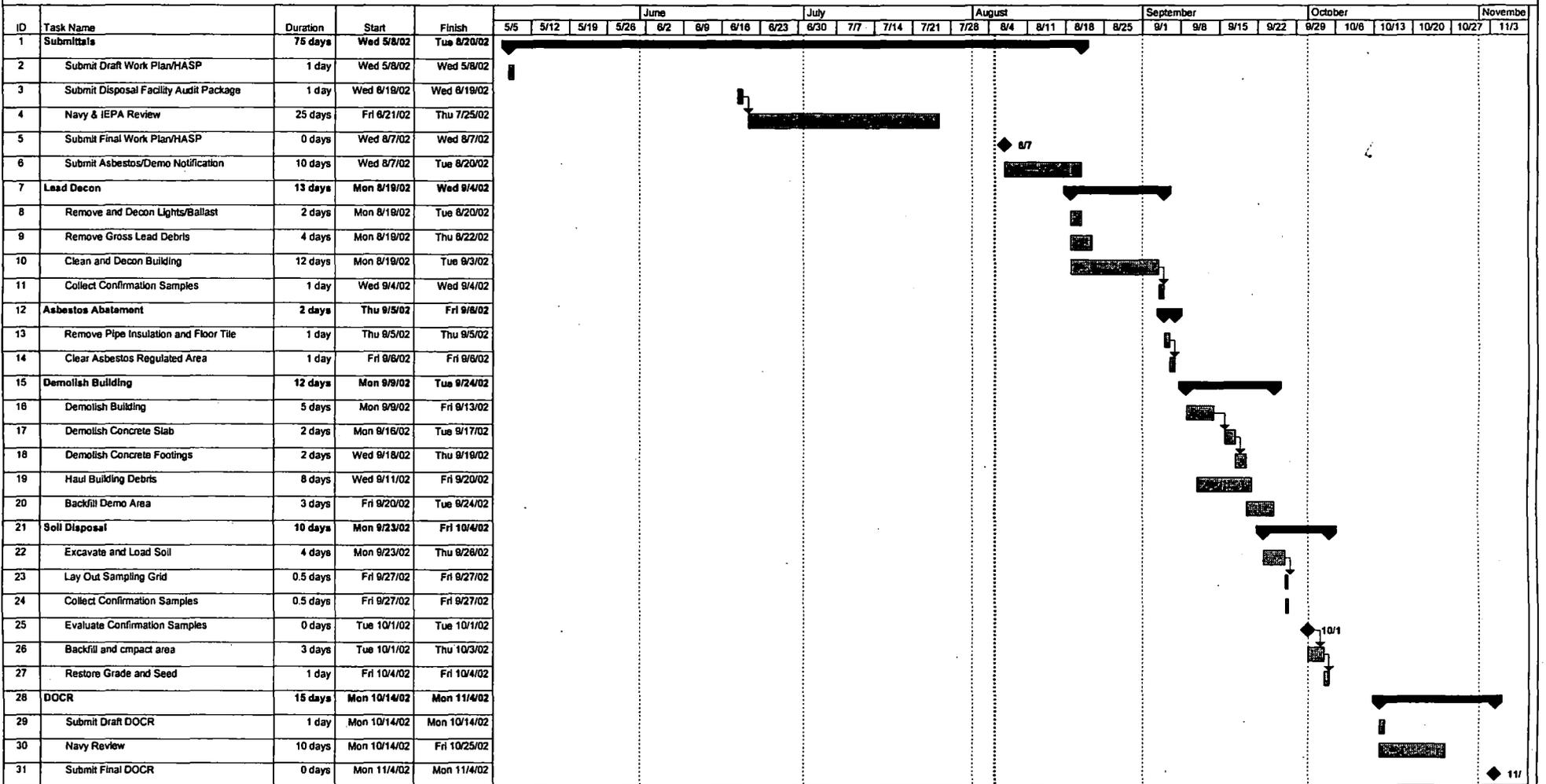


Demolition Sequence
Building 61
NAS Glenview

Stage	Tasks
Pre-demo	<ul style="list-style-type: none"> • Obtain permits for demolition and street closure. • Submit 10-day notification for ACM abatement. • Perform lead decontamination, obtain confirmation samples. • Perform selective interior demolition as needed to gain access to ACM. • Perform ACM abatement work and hazardous material removal. • Remove bullet trap, shot, and sand; obtain confirmation samples on concrete surface. • Install security/privacy fence where needed. • Install erosion control fence where needed. • Locate utilities, arrange isolations and disconnects. • Establish dust and fire suppression water sources. Have in place two 1.5-inch fire hoses each of sufficient length and water pressure to be able to cover the entire footprint of the structure. • Characterize/profile lead-impacted soil. • Mobilization – Mobilize equipment and set up staging areas.
1 – Building Demolition	<ul style="list-style-type: none"> • Perform additional lead decontamination, as needed. • Working north to south, demolish one story building. • Like materials to be segregated and loaded for recycling or disposal, as appropriate.
2 – Asphalt, pads, curbs, knee walls, and sidewalks	<ul style="list-style-type: none"> • All asphaltic paving material identified in the contract will be stripped to base material. • Asphalt material to be taken offsite to asphalt recycler. • Demolish concrete pads, curbs, and sidewalks as specified in the contract. • Concrete material will be taken offsite to concrete recycler.
3 – Concrete demolition	<ul style="list-style-type: none"> • Vacuum loose paint chips. • As the structures are demolished, slab on grade, footers, grade beams, etc. will be exposed. • The concrete will be fractured with a steel drop ball and removed with an excavator. A hydraulic concrete breaker attachment may also be used to accomplish this task. • Segregate concrete for recycling.

**Demolition Sequence
Building 61
NAS Glenview**

Stage	Tasks
4 – Utility Decommissioning	<ul style="list-style-type: none"> • Excavate and uncover utilities and utility ducts. • Remove utilities, segregate material for recycling or disposal, as appropriate. • Demolish concrete utility ducts, segregate concrete for recycling. • Cap and plug utilities as appropriate.
5 – Recycling and Disposal	<ul style="list-style-type: none"> • After the demolition debris has been separated by material type, the materials will be sized for loading into transport vehicles. • Materials that can be recycled will be transported to the appropriate facilities. • Construction and demolition debris which cannot be recycled or has no economic value will be taken to an appropriate disposal/treatment facility.
6 – Lead-Contaminated Soil Excavation	<ul style="list-style-type: none"> • Excavate soil, segregate hazardous and non-hazardous, if applicable. • Transport to disposal facility. • Obtain confirmation samples utilizing grid pattern.
7 – Site Restoration	<ul style="list-style-type: none"> • Specified backfill will be placed into the excavations and compacted with drum roller. • Reset storm grates as needed. • Topsoil and seed (hydroseed) will be placed on the excavations as appropriate.
8 – Demobilization	<ul style="list-style-type: none"> • Fencing will be removed and the site will be cleaned up. • Equipment will be demobilized.



APPENDIX B

**EnSafe Technical Memorandum dated June 12, 2001 and
EnSafe Technical Memorandum dated June 22, 2001**

TECHNICAL MEMORANDUM
NAS Glenview - Site F061
Glenview, Illinois

To: Alan Shoultz, SOUTHDIV
Charlene Falco, IEPA
Brian Conrath, IEPA
Gary Schafer, USEPA

From: Mike Banker, EnSafe Inc.

Subject: Naval Air Station Glenview, Site F061 Delineation Sampling

Date: June 12, 2001

As part of the U.S. Comprehensive Long-term Environmental Action Navy (CLEAN) program, the following technical memorandum has been prepared for the Naval Air Station (NAS) Glenview, Glenview, Illinois. This memorandum serves as an addendum to the *Sampling and Analysis Work Plan for Site F061* (EnSafe, 2001), reporting the analytical results from additional delineation sampling for lead at Site F061. Analytical results are discussed in the following text.

Based on previous investigative sampling, as described in the *Sampling and Analysis Work Plan for Site F061*, the vertical extent of contamination was determined to be less than two feet below the ground surface. However, additional sampling was needed to determine the horizontal extent of lead contamination at all proposed removal action locations. The previously proposed removal action locations and additional delineation sample locations are shown on Figure 1.

Analytical results from the delineation sampling were compared to the cleanup objective (400 mg/kg), the surface background level (175.7 milligrams per kilogram [mg/kg]), and subsurface background level (24.5 mg/kg). The cleanup objective is based on the United States Environmental Protection Agency (USEPA) Office of Solid Waste and Emergency Response (OSWER) action level for lead (1994).

DELINEATION SAMPLING

As previously discussed, the horizontal extent of lead contamination had not been fully defined. Therefore, additional investigative sampling was performed to establish the horizontal extent of contamination. To define the horizontal extent of contamination, additional soil samples were collected from 70 locations during March, April, and May 2001, as shown on Figure 1. Sampling results are discussed below.

Area 1

Additional delineation samples were collected at eight locations in Area 1. Five locations were sampled on March 21, 2001. All samples were found to be less than the cleanup objective; however, sample F61S1HA0101 (location 1) was detected at 391 mg/kg, which is only slightly below the cleanup objective and significantly greater than the surface background concentration. Therefore, three additional samples were collected around this location on April 25, 2001. All were well below the cleanup objective.

Area 2

Additional delineation samples were collected at 13 locations in Area 2. Seven locations were sampled on March 21, 2001. Three samples F61S2HA0501, F61S2HA0601, and F61S2HA0701 (locations 5, 6, &7) exceeded the cleanup objective with concentrations of 1,220 mg/kg, 1,420 mg/kg, and 858 mg/kg, respectively. Four additional locations were sampled around these locations on April 25, 2001. All samples were below the cleanup objective, however, sample F61S2H1001 (location 10) was detected close to the cleanup objective at 337 mg/kg. Therefore, two additional locations were sampled to the south of this location in Area 2. These results indicated concentrations below the cleanup objective as well.

Area 4

For Area 4, five locations were sampled and all were detected well below the cleanup objective. Therefore, no additional sampling was performed.

Eastern Grid

Additional delineation samples were also collected at 44 locations to the east of F061. These sample locations included the addition of four columns to the east and four rows to the south of the original grid locations at F061. Samples were collected at 16 locations on March 21, 2001. Of these sixteen locations, nine samples exceeded the cleanup objective with concentrations ranging from 403 to 7,640 mg/kg (locations G4, G5, G6, H6, H7, E8, E9, F9, & G9). Another round of additional sampling was conducted on April 25, 2001, which added an additional 13 locations to the east of F061. Of these, four samples exceeded the cleanup objective with concentrations ranging from 544 to 3,660 mg/kg (locations D10, F10, G10, and H10), and one sample was detected slightly less than the cleanup objective at 333 mg/kg (location I8).

An additional round of delineation samples were collected on May 15, 2001. Thirteen additional locations were sampled to the east and two locations to the southeast of F061 (across the road). Of these, three locations exceeded the cleanup objective with concentrations ranging from 411 to 1590 mg/kg (locations D11, F11, & G11). Lead contamination appears to end at the asphalt road, as sample locations F11 and H11 collected across the road, were well below the cleanup objectives. The road serves as a physical barrier for southern migration of lead contamination. All analytical results are summarized in the table below.

Sample ID	Location	Sample Interval	Result (mg/kg)
Area 1			
F61S1HA101	1	0 - 12"	391
F61S1HA102	1	12 - 18"	75.8
F61S1HA201	2	0 - 12"	112
F61S1HA202	2	12 - 18"	36.3
F61S1HA301	3	0 - 12"	74.9
F61S1HA302	3	12 - 18"	40.3
F61S1HA401	4	0 - 12"	108
F61S1HA402	4	12 - 18"	148
F61S1HA501	5	0 - 12"	83.1
F61S1HA502	5	12 - 18"	32.4
F61S1HA601	6	0 - 12"	69.8
F61S1HA701	7	0 - 12"	110
F61S1HA801	8	0 - 12"	269
Area 2			
F61S2HA101	1	0 - 12"	48.5
F61S2HA102	1	12 - 18"	23
F61S2HA201	2	0 - 12"	102
F61S2HA202	2	12 - 18"	21.4
F61S2HA301	3	0 - 12"	334
F61S2HA302	3	12 - 18"	30.4
F61S2HA401	4	0 - 12"	179
F61S2HA402	4	12 - 18"	341
F61S2HA501	5	0 - 12"	1220
F61S2HA502	5	12 - 18"	198
F61S2HA601	6	0 - 12"	1420
F61S2HA602	6	12 - 18"	58.1
F61S2HA701	7	0 - 12"	858
F61S2HA702	7	12 - 18"	29.7
F61S2HA801	8	0 - 12"	76.1
F61S2HA901	9	0 - 12"	262
F61S2H1001	10	0 - 12"	337
F61S2H1101	11	0 - 12"	107
F61S2H1201	12	0 - 12"	201
F61S2H1301	13	0 - 12"	335
Area 4			
F61S4HA101	1	0 - 12"	168
F61S4HA102	1	12 - 18"	117
F61S4HA201	2	0 - 12"	75.5

Lead Delineation Sampling Results
 Cleanup Objective = 400mg/kg

Sample ID	Location	Sample Interval	Result (mg/kg)
F61S4HA202	2	12 - 18"	41.8
F61S4HA301	3	0 - 12"	128
F61S4HA302	3	12 - 18"	24.9
F61S4HA401	4	0 - 12"	53.3
F61S4HA402	4	12 - 18"	21.3
F61S4HA501	5	0 - 12"	74.5
F61S4HA502	5	12 - 18"	25.8
Eastern Grid			
061SD10001	D10	0 - 12"	587
061SD11001	D11	0 - 12"	411
061SE80101	E8	0 - 12"	538
061SE80102	E8	12 - 18"	420
061SE90101	E9	0 - 12"	1800
061SE90102	E9	12 - 18"	196
061SE10001	E10	0 - 12"	363
061SE11001	E11	0 - 12"	143
061SF80101	F8	0 - 12"	87.5
061SF80102	F8	12 - 18"	70.4
061SF90101	F9	0 - 12"	7640
061SF90102	F9	12 - 18"	25.2
061SF10001	F10	0 - 12"	1570
061SF11001	F11	0 - 12"	1480
061SF12001	F12	0 - 12"	51
061SG01A01	G1	0 - 12"	46.8
061SG03001	G3	0 - 12"	92.1
061SG40101	G4	0 - 12"	447
061SG40102	G4	12 - 18"	146
061SG50101	G5	0 - 12"	620

Lead Delineation Sampling Results
 Cleanup Objective = 400mg/kg

Sample ID	Location	Sample Interval	Result (mg/kg)
061SG50102	G5	12 - 18"	35.6
061SG60101	G6	0 - 12"	477
061SG60102	G6	12 - 18"	167
061SG70101	G7	0 - 12"	148
061SG70102	G7	12 - 18"	38.3
061SG80101	G8	0 - 12"	120
061SG80102	G8	12 - 18"	55.5
061SG90101	G9	0 - 12"	403
061SG90102	G9	12 - 18"	126
061SG10001	G10	0 - 12"	3660
061SG10002	G10	12 - 18"	6830
061SG11001	G11	0 - 12"	1590
061SH03001	H3	0 - 12"	84.1
061SH40101	H4	0 - 12"	192
061SH40102	H4	12 - 18"	22.5
061SH50101	H5	0 - 12"	268
061SH50102	H5	12 - 18"	21.7
061SH60101	H6	0 - 12"	1580
061SH60102	H6	12 - 18"	25.5
061SH70101	H7	0 - 12"	1130
061SH70102	H7	12 - 18"	20.9
061SH80101	H8	0 - 12"	237
061SH80102	H8	12 - 18"	270
061SH90101	H9	0 - 12"	36.9
061SH90102	H9	12 - 18"	65.8
061SH10001	H10	0 - 12"	544
061SH11001	H11	0 - 12"	133
061SH12001	H12	0 - 12"	71.5

Lead Delineation Sampling Results
Cleanup Objective = 400mg/kg

Sample ID	Location	Sample Interval	Result (mg/kg)
061SI05001	I5	0 - 12"	53.1
061SI06001	I6	0 - 12"	216
061SI07001	I7	0 - 12"	174
061SI08001	I8	0 - 12"	333
061SI09001	I9	0 - 12"	51.1
061SI10001	I10	0 - 12"	25.3
061SI11001	I11	0 - 12"	85
061SJ05001	J5	0 - 12"	36.1
061SJ06001	J6	0 - 12"	36.5
061SJ07001	J7	0 - 12"	32.2
061SJ08001	J8	0 - 12"	81.9
061SJ09001	J9	0 - 12"	149
061SJ10001	J10	0 - 12"	17.5

Notes:

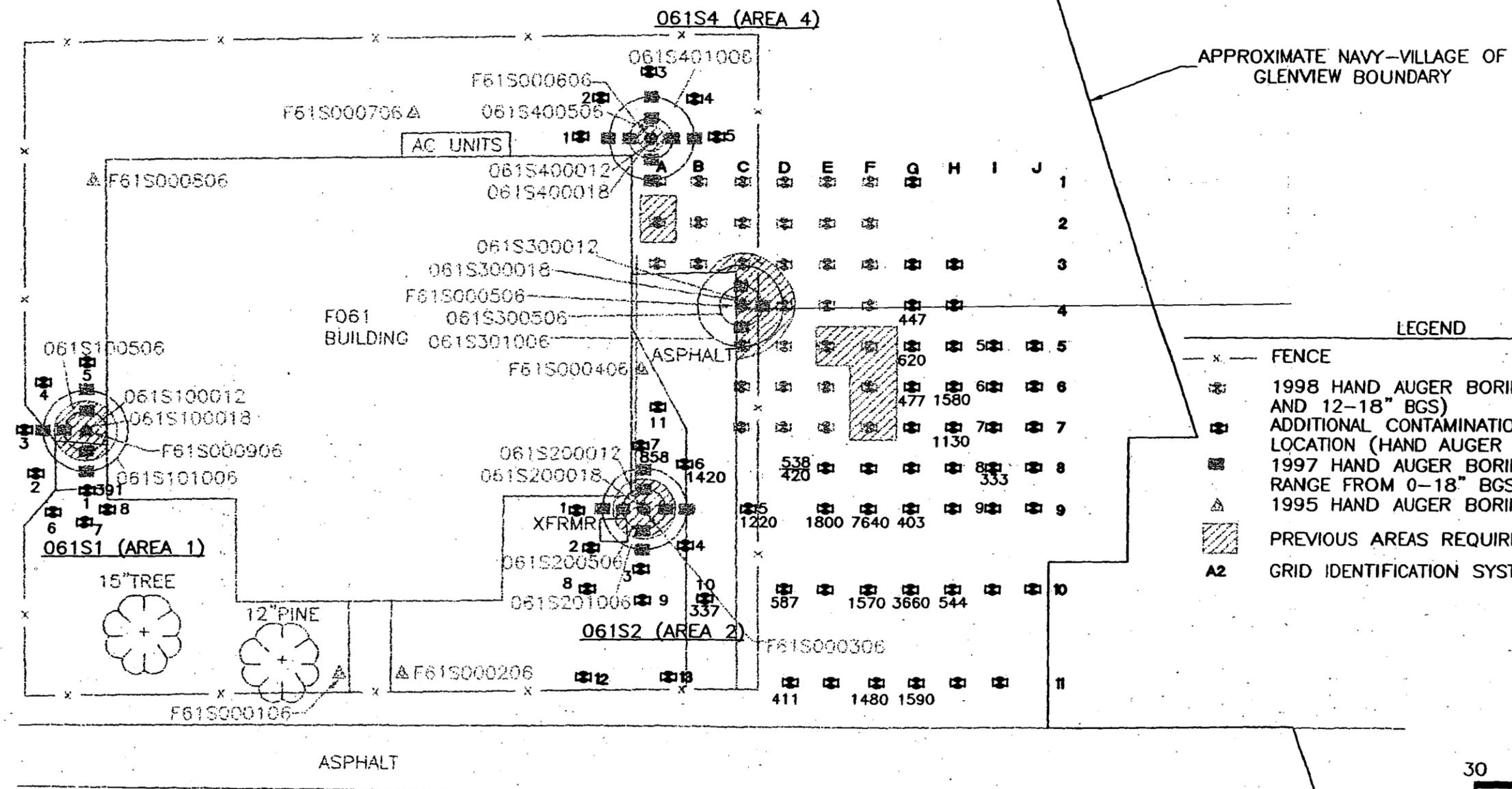
Concentrations exceeding lead mRBC of 400 mg/kg are in bold.
mg/kg = milligrams per kilogram

RECOMMENDATIONS

The areas proposed for removal have been revised based on the results of the additional delineation sampling. These areas are shown on Figure 2.

REFERENCES

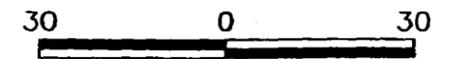
EnSafe Inc. (2001). *Sampling and Analysis Work Plan for Site F061, Naval Air Station - Glenview, Illinois, Site F061*, submitted to the Department of the Navy, Naval Training Center (NTC) - Environmental Department, Great Lakes, Illinois.



APPROXIMATE NAVY-VILLAGE OF GLENVIEW BOUNDARY

LEGEND

- x — FENCE
- ☒ 1998 HAND AUGER BORINGS (0-6" BGS AND 12-18" BGS)
- ☒ ADDITIONAL CONTAMINATION EXTENT SAMPLE LOCATION (HAND AUGER BORINGS)(2001)
- ☒ 1997 HAND AUGER BORINGS (DEPTHS RANGE FROM 0-18" BGS)
- △ 1995 HAND AUGER BORINGS (0-6" BGS)
- ▨ PREVIOUS AREAS REQUIRING REMOVAL
- A2 GRID IDENTIFICATION SYSTEM



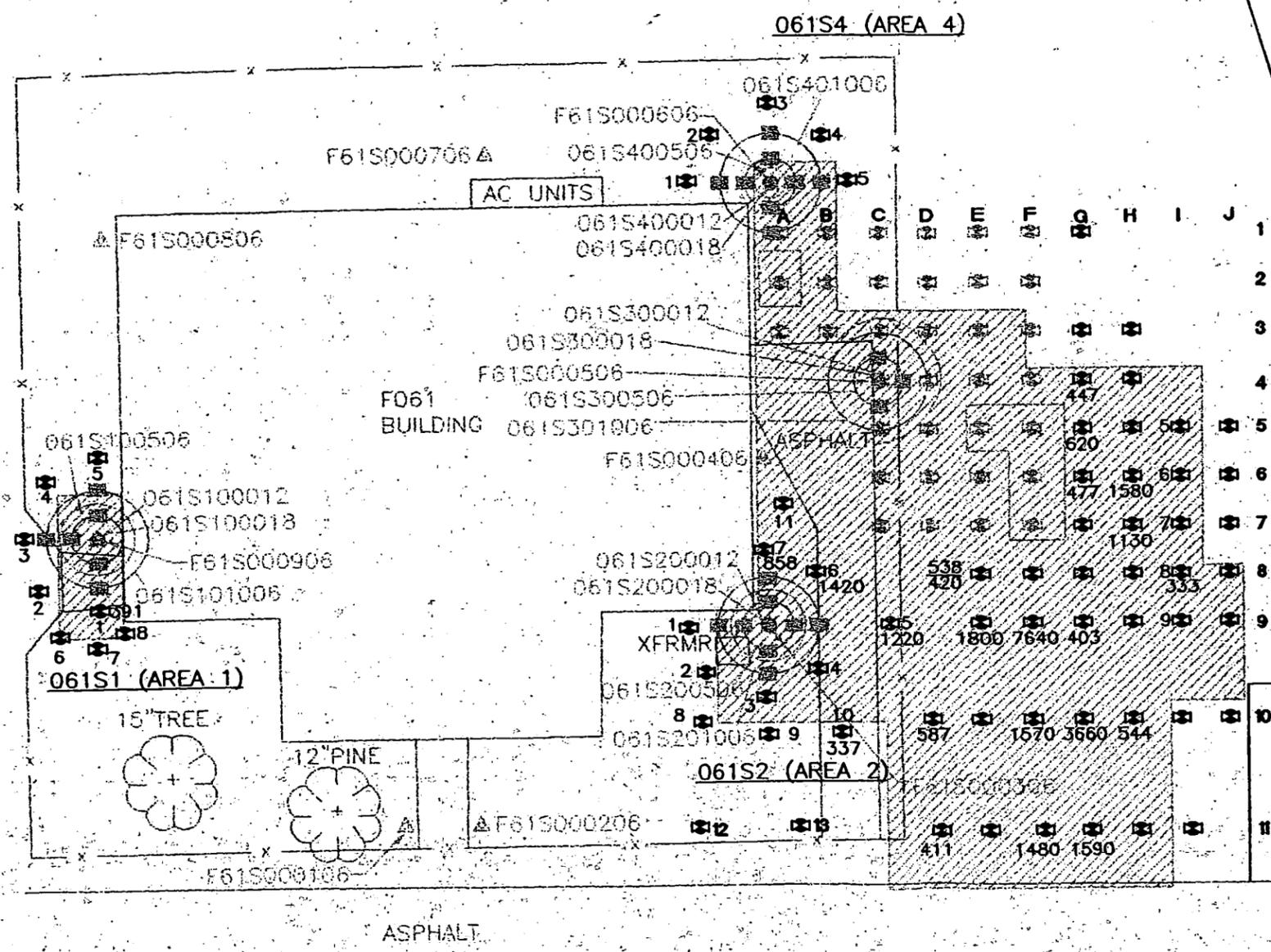
APPROXIMATE SCALE FEET



F061
TECHNICAL MEMORANDUM
NAVAL AIR STATION GLENVIEW
GLENVIEW, ILLINOIS

FIGURE 1
F061
NAVY SMALL ARMS RANGE
CONTAMINATION EXTENT
SAMPLING LOCATIONS

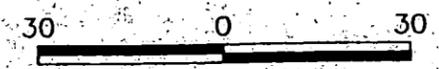
DWG DATE: 06/11/01 NAME: 0151001B002



APPROXIMATE NAVY-VILLAGE OF GLENVIEW BOUNDARY

LEGEND

- x - FENCE
- ☒ 1998 HAND AUGER BORINGS (0-6" BGS AND 12-18" BGS)
- ☒ ADDITIONAL CONTAMINATION EXTENT SAMPLE LOCATION (HAND AUGER BORINGS)(2001)
- ☒ 1997 HAND AUGER BORINGS (DEPTHS RANGE FROM 0-18" BGS)
- ▲ 1995 HAND AUGER BORINGS (0-6" BGS)
- ▨ NEW AREAS REQUIRING REMOVAL
- A2 GRID IDENTIFICATION SYSTEM



APPROXIMATE SCALE FEET

F061
TECHNICAL MEMORANDUM
NAVAL AIR STATION GLENVIEW
GLENVIEW, ILLINOIS

FIGURE 2
F061
NAVY SMALL ARMS RANGE
REMOVAL AREAS

DWG. DATE: 06/11/01 NAME: 0151001B001

TECHNICAL MEMORANDUM

Initial Wipe Sampling Survey Building 61 Naval Air Station Glenview Glenview Illinois

Date: June 22, 2001

To: ??????????

From: EnSafe, Inc.

1.0 INTRODUCTION

The purpose of this Technical Memorandum is to document the findings of an initial lead wipe survey which was recently conducted to characterize existing levels of lead inside Building 61, a former indoor small arms range (SAR). Building 61, located on property retained by the Navy on the former Naval Air Station (NAS) Glenview, is scheduled for demolition. The survey, as described in the 27 February 2001 Interior Lead Removal Plan for Building 61, is necessary to determine if clean up will be required prior to demolition of the building. The survey was conducted by EnSafe on behalf of the United States Department of the Navy, Southern Division, Naval Facilities Engineering Command under contract number N62467-89-D-0318/0130.

2.0 HISTORY

2.1 Building History

Building 61, reported to have been constructed in 1948, was converted to an indoor small arms range in 1953. Figure 1 shows the location of Building 61 on NAS Glenview. The 11,882 square foot building is constructed of concrete block exterior walls on a poured concrete pier foundation. It has a flat roof. Interior walls are either concrete block or standard wood frame and drywall construction. Figure 2 presents the layout of the building as well as relevant exterior features and doors.

The interior of the building contains firing ranges, storage facilities, office space, and sanitary facilities. From 1953 until the mid 1980's the building contained two firing ranges. When the number of Navy personnel decreased in the mid 1980s so did the need for two separate ranges. The western most range, shown on the figure as AWSEP Room 12, was dismantled and the space was used for storage (EnSafe/Allen and Hoshall 1996, Final Gray Sites Phase I Report).

2.2 Investigative History

In April 1995, personnel from the Industrial Hygiene Division, Occupational Health/Preventative Medicine Department of the Great Lakes Naval Hospital collected lead wipe samples for laboratory analysis. The Public Works Department of NAS Glenview was intending to utilize Building 61 for maintenance operations after base closure and needed to characterize the potential health hazard prior to occupancy.

The results of the thirty-six samples ranged from 8.2 $\mu\text{g}/\text{ft}^2$ to 11,834 $\mu\text{g}/\text{ft}^2$. Twenty-five of the samples exhibited concentrations of lead dust in excess of the 200 $\mu\text{g}/\text{ft}^2$, the OSHA guideline adopted for acceptable lead loading for non-lead work areas. The resulting Workplace Monitoring Report, including the individual sample results are contained in Appendix A for reference. Discussions of these results are included in Section 4 which presents the recent results for each room. The report recommended abatement of the lead dust and confirmation sampling. Navy personnel indicate the facility may have been cleaned, however, no record of the cleaning or confirmation sampling is available.

3.0 INVESTIGATIVE METHODOLOGY

EnSafe personnel mobilized to NAS Glenview in May 2001 to collect wipe samples for lead dust analysis. The purpose of this sampling was to determine if areas of the building had been cleaned and also to characterize the building interior to determine if abatement would be required prior to demolition of the building. Samples were collected from ceilings, top surfaces of suspended ceilings and suspended lighting fixtures, exposed structural supports, walls, window sills, floors and other surfaces capable of collecting dust. Specific locations were selected after inspection of the building to identify the areas most likely to have been impacted by lead dust. Sample locations were biased to areas most likely to have accumulated lead dust and areas of peeling paint. No samples were collected from heat, supply, or exhaust duct work, or from the pit and plate in accordance with the Interior Lead Removal Plan.

3.1 Building Inspection

The exterior was initially inspected to determine the dimensions of the building, access/entry ways, exhaust ventilation system, and current condition of the facility. The rooms in the interior of the building were measured, building materials, dimensions and type of air circulation duct work and general condition of the rooms were noted. This information will be used to help develop cost effective abatement strategies should this need be identified by sample results. This information will be included in Section 4 which discusses each individual room.

3.2 Sampling Methodology

All samples were collected in accordance with the Navy Environmental Health Center Technical Manual NEHC-TM6290.99-10, Indoor Firing Ranges Industrial Hygiene Technical Guide and accepted industry standard practices. Where feasible, a 1 ft² MYLAR template was fixed to the surface to be sampled. Other areas were outlined with masking tape to delineate the sample area. Sample locations where the template was not used were measured and the sampled area determined. A moist single-ply disposable baby wipe was used to swab the sample area. The baby wipe was suggested by the laboratory personnel subcontracted to perform the analysis. A fresh pair of nitrile gloves was worn while collecting each sample. Once the template was secured, the area was wiped using a side-to-side "S"-like motion. The wipe was then folded and a similar motion was used to wipe the area in a top-to-bottom orientation. In all cases, every attempt was made to recover all visible dust, debris and paint chips from the surface. The wipe was then folded to enclose the exposed areas. Collected wipe samples were packaged in individual zip lock baggies as directed by the laboratory personnel. After sample collection, the location was photographed. The details of the sampling (exact location, dimensions, and surface) were documented in the logbook. Templates were decontaminated between samples using a liquinox and distilled water wash and rinse. The decontaminated templates were allowed to air dry. The sample identification numbers are F061WS0000. The F061 refers to the project, WS stands for wipe sample, the first two digits represent the room number and the last two digits represent the sample number.

Quality Assurance samples were collected. A field blank sample was collected at the end of sampling each day. They are identified as F061BS0514, F061BS0515 and F061BS0516. F061 refers to the project, BS stands for Blank Sample, and the last four digits are the month and date respectively. All blank sample results were below the minimum reporting limit of 20 $\mu\text{g}/\text{ft}^2$. Duplicate samples were collected at a frequency of one duplicate for each 50 samples. The duplicate samples are actually co-located samples, collected directly adjacent to the primary sample. The duplicates are identified as F061 for the project, CS for duplicate and the last four digits mirror the prime sample number. Because they are co-located duplicates the prime and the duplicate results are not as close as actual split duplicate samples.

All samples were sent via overnight delivery service to Schneider Laboratories Incorporated in Richmond, Virginia. The analytical method was EPA 3050B/7420. Including quality assurance samples a total of 100 samples were analyzed.

4.0 FINDINGS

The following subsections present the findings of each individual room of Building 61. Included is a physical description of the room, a discussion of recent and previous sample results, and a summary of the problematic areas of each room. Photos of each sample location are contained in Appendix B. The analytical data is presented in Table 1, the laboratory report is contained in Appendix C.

4.1 Room #1/Senior's Office

The Senior's Office, located in the extreme southwest corner of Building 61 includes office space with three south facing windows, a closet, and a head. The office space is 11 feet by 15 feet. All walls are painted concrete block. The ceiling is painted particle board with a suspended acoustic tile ceiling below. The floor is carpet squares over concrete. The room is served by a heat duct that enters the room through the wall common with the Men's Head. The Senior's Office head is 7 by 8 feet and has painted concrete walls and a 12-inch tile floor. The head has a single window which faces the west. A closet is located in the southwest corner.

It is 4 by 8 foot. The western wall of the closet has three shelves. Please see Figure 2 for the building layout.

A total of 10 samples were collected from the Senior's Office, head, and closet. Table 1 presents the analytical results and references the photo number that corresponds with the sample. Photos 1 through 12 document the sample locations in this room. The previous Navy investigation included two samples from these rooms: one from the window sill in the head ($624 \mu\text{g}/\text{ft}^2$) and one from the window sill ($661 \mu\text{g}/\text{ft}^2$) in the office space. EnSafe collected samples from both locations for comparison. Samples collected from the top of the suspended acoustic ceiling tile ($4,544 \mu\text{g}/\text{ft}^2$), the window sill in the head ($454 \mu\text{g}/\text{ft}^2$), the floor of the head ($482 \mu\text{g}/\text{ft}^2$), window sill in the office ($1,450 \mu\text{g}/\text{ft}^2$) and the second shelf of the closet ($482 \mu\text{g}/\text{ft}^2$) exceeded the OSHA screening value. Based on these concentrations it appears as though this room was not previously cleaned of lead dust and that limited abatement will be required.

4.2 Room #2/Quarter Deck

The Quarter Deck, located in the south central portion of Building 61, is the primary point of entry to the building. The room is 12-foot by 12-foot. All walls are painted concrete block. The ceiling has two levels: directly inside the main door is a lower section of ceiling that is painted particle board. No sample was collected from the lower ceiling because it was not peeling and the upper ceiling was more likely to have lead dust because of the location of the air ducts. The lower ceiling extends approximately 6-feet into the room. The higher portion of the ceiling extends across the rear of the room. The drop-down portion of the ceiling between the upper and lower sections was painted particle board which was peeling badly. The main door is 3-foot wide. The three other doors lead to the Senior's Office, Armory and Duty Office. Heat is provided by the 2 foot by .5-foot metal duct hung in the rear of the room. Please see Figure 2 for the building layout.

Five wipe samples were collected from the Quarter Deck. Table 1 presents the analytical results and references the photo number that corresponds with the sample. Photos 13 through 17 document the sample locations in this room. A single sample was collected from this room during the Navy sampling. It was collected from the east wall and had a lead concentration of $8 \mu\text{g}/\text{ft}^2$. EnSafe collected a sample from the east wall for comparison. It exhibited a concentration of $38 \mu\text{g}/\text{ft}^2$. Both were below the OSHA screening value. Of the samples collected from this room, only the sample collected from the peeling drop-down wall between the two ceilings ($984 \mu\text{g}/\text{ft}^2$) exhibited lead concentrations which exceed the OSHA screening value. The source of this appears to be the peeling paint.

4.3 Room #3/Armory

The Armory, formerly used to store firearms and ammunition, is located along the rear wall of the Quarter Deck. The door to this room is a heavy steel vault-like door that is rusted in the open position. The room is 11 feet wide and 13 feet deep. All walls are painted concrete block. The western wall has been covered by painted plywood. The ceiling is painted drywall. Lighting is from a single suspended fluorescent light hung from the center of the room. The room has no ventilation duct work. The floor is unpainted concrete. Please see Figure 2 for the building layout.

Four samples and a co-located duplicate sample were collected from the Armory. Table 1 presents the analytical results and references the photo number that corresponds with the samples. Photos 18 through 21 document the location of the samples collected from this room. The previous Navy sampling did not include the Armory. Samples collected from the top of the suspended fluorescent light ($9,726 \mu\text{g}/\text{ft}^2$) and from the floor ($1,063 \mu\text{g}/\text{ft}^2$) exceeded the OSHA screening value. Limited abatement will be required in the Armory.

4.4 Room #4/Duty Office

The Duty Office, located east of the Armory and accessed through the Quarter Deck and MACS Office, is 8 feet wide and 18 feet deep. The room has a half wall divider which forms a hallway through to the MACS Office to the east. The walls on the east and south are drywall. The west wall, common with the Armory, and north wall are painted concrete block. The ceiling is a suspended acoustic tile which hangs below painted particle board. The fluorescent lighting is installed in the suspended ceiling. The floor is carpet squares installed over 9-inch tile. The top of the room divider is a stained wood surface. The heating duct work is above the suspended ceiling. Vents are installed in the suspended ceiling. Please see Figure 2 for the building layout.

A total of 6 samples were collected from the Duty Office. Table 1 presents the analytical results and references the photo number that corresponds with the samples. Photos 22 through 27 document the location of the samples collected from this room. The Navy sampling effort included a single sample collected from the shelf in the room. For comparative purposes EnSafe assumes this is the top surface of the room divider. No other shelves remain in the room. Both the EnSafe sample ($180 \mu\text{g}/\text{ft}^2$) and the Navy sample ($39 \mu\text{g}/\text{ft}^2$) collected from the horizontal surface were below the OSHA screening value. The only exceedance of the OSHA value was the sample collected from the top of the suspended acoustic ceiling tile ($2,189 \mu\text{g}/\text{ft}^2$). Based on this detection limited abatement will need to be performed prior to demolition.

4.5 Room #5/MACS Office

The MACS Office, located in the extreme southeast corner of the building, is an "L" shaped room approximately 25 feet along the south wall and 24 feet along the eastern wall. Access to the room is through the Duty Office or through the central Hall which leads to the Range. The room has six windows, three centered on the south wall and three centered on the east wall. All walls are painted concrete block with the exception of the wall common to the MACS Office and the south

wall of the Duty Office which are painted drywall construction. The ceiling is painted particle board with a suspended acoustic tile below. The floor is carpet squares over 9-inch tile. The heat ducts are above the suspended ceiling with outlets through the ceiling. Please see Figure 2 for the building layout.

A total of 6 samples were collected from the MACS Office. Table 1 presents the analytical results and references the photo number that corresponds with the sample. The previous Navy sampling effort included two samples from this room: One from the east wall window sill ($1,789 \mu\text{g}/\text{ft}^2$) and one from the west wall ($22 \mu\text{g}/\text{ft}^2$). EnSafe collected a sample from the wall for comparison. The window sill on the east wall appeared to have been disturbed, EnSafe collected a sample from the window sill on the south wall for comparison. Samples collected from the top of the suspended ceiling tile ($2,778 \mu\text{g}/\text{ft}^2$), western window sill on south wall ($2,739 \mu\text{g}/\text{ft}^2$) and the carpeted floor ($525 \mu\text{g}/\text{ft}^2$) exceeded the OSHA screening value. Based on these concentrations it appears as though this room was not previously cleaned and that abatement actions will be required prior to demolition.

4.6 Room #6/Men's Head

The Men's Head, located on the western side of the building between the Senior's Office and the central Hall, is approximately 13 feet by 14 feet. All walls are painted concrete block. The ceiling is a painted panel, possibly transite. The floor is covered by 9-inch tile. The room has a single window which is located on the west wall. The room also contains two porcelain sinks and commodes. The commodes are separated by metal privacy panels. The fluorescent lights are set into the ceiling. Heat is delivered by exposed metal ducts. Please see Figure 2 for the building layout.

A total of 4 samples were collected from the Men's Head. Table 1 presents the analytical results and references the photo number that corresponds with each sample. Photos 34 through 36 document the locations of samples collected from this room. The previous sampling conducted by the Navy, included two samples from this room: One from the window well; and the other from the top of the supply duct. EnSafe collected a sample from the same window sill but did not sample the duct work exterior or interior in accordance with the removal plan. Samples collected from the peeling ceiling ($270 \mu\text{g}/\text{ft}^2$), window sill ($1,702 \mu\text{g}/\text{ft}^2$) and the floor ($364 \mu\text{g}/\text{ft}^2$) all exhibited concentrations of lead in excess of the OSHA screening value. All other samples were below the screening value. Based on these concentrations, it appears as though this room was not previously cleaned and that abatement will be required prior to demolition.

4.7 Room #7/Hall

The central Hall is located in the center of the building and connects the Range and AWSEP with the support rooms. The hall is approximately 50 feet east to west and 7 feet wide. The walls are all painted concrete block. The ceiling is painted particle board which is badly damaged by water leaking from the roof. The floor is 12 tile squares. The heating is provided by 1.5 by .5 foot metal duct work. Lighting is provided by two suspended fluorescent lights. Please see Figure 2 for the building layout.

A total of 6 samples were collected from the central Hall. Table 1 presents the analytical results and references the photo number that corresponds with each sample. Photos 37 through 42 document the locations of samples collected from the hall. Two samples were collected from the hall during the Navy's previous sampling effort: One from the top of the light ($1,949 \mu\text{g}/\text{ft}^2$) and one from the top of the heating duct ($7,816 \mu\text{g}/\text{ft}^2$). EnSafe collected a sample from the top of the fluorescent light fixture but did not sample the duct work in accordance with the removal plan. Samples collected from the top of the fluorescent light fixture ($502 \mu\text{g}/\text{ft}^2$) and the floor ($835 \mu\text{g}/\text{ft}^2$ and $1,278 \mu\text{g}/\text{ft}^2$) exhibited lead concentrations which exceeded the OSHA screening

value. All other samples were below the screening value. Based on these detections it appears as though the Hall was not previously cleaned and that limited lead abatement will be required prior to demolition.

4.8 Room #8/Gear Locker

The Gear Locker, an interior room accessed through the hallway adjacent to the AWSEP, is approximately 10 feet wide by 12 feet deep. The walls are painted concrete block. The ceiling appears to be unpainted transite panels. The floor is concrete covered by 12 inch carpet squares. A free standing (gas) furnace is near the center of the room. The location and exhaust for the former boiler is along the east wall. There is a free standing shop sink just inside the door on the west wall. A floor tile covered plywood shelf abuts the sink. Lighting is provided by fluorescent fixtures attached directly to the ceiling. Please see Figure 2 for a building layout.

A total of five samples were collected from the Gear Locker. Table 1 presents the analytical results and references the photo number that corresponds with each sample. Photos 43 through 46 document the locations of samples collected from the Gear Locker. The prior Navy sampling effort included a single sample collected from the top of the round air duct ($4,361 \mu\text{g}/\text{ft}^2$). EnSafe did not collect any samples from the duct work, in accordance with the clean up plan. Four of the five samples collected exhibited lead concentrations in excess of the OSHA screening value. Only the sample collected from the ceiling was below $200 \mu\text{g}/\text{ft}^2$. Samples collected from the shelf next to the sink ($240 \mu\text{g}/\text{ft}^2$), east wall ($220 \mu\text{g}/\text{ft}^2$), carpeted floor ($276 \mu\text{g}/\text{ft}^2$) and concrete beneath the carpet ($280 \mu\text{g}/\text{ft}^2$) all exceeded the screening value. This room will require abatement prior to demolition activities.

4.9 Room #9/Range

The Range is an internal room located between the Hall and the Break Room. The Range is 38 feet wide and 82 feet deep at its longest point. The pit and plate bullet stop is located along the north end of the room. The pit, which measures 3 feet high and 38 feet wide, appears to be full of sand and spent bullets. The 8-foot by 38 foot steel plate remains in place as are hanging anti-ricoquet sheets. The front of the pit is constructed of 6-inch square timbers terraced to the pit. The ceiling is a combination of painted wood and plastic faced insulation batts stapled into place. Water damage has destroyed some of the insulation. Four deflector/baffle panels are hung from the ceiling. They are constructed of plywood with acoustic ceiling tile attached to the bottom surface. The top surface has a steel plate approximately 3/8 inch thick. The walls are either painted concrete block or acoustic tile faced plywood attached to the block wall. The portion of the floor near and behind the firing line is 12-inch tile. From the firing line to the pit the floor is a thick sealing paint applied over sealed asphalt. Much of the sealed flooring is broken and raised, presumably from water damage. The exhaust duct work is 5-feet wide by 1.5 feet high and extends the width of the room on the north end near the pit. Numerous filter elements are located at the intake points. The supply air vent duct work is a step down from 3 foot by 6 foot near the door to the Break Room to 3 foot by 4 foot and drops to 3 foot by 2 foot at the west wall. Lighting is mainly from suspended fluorescent fixtures. Directly in front of the bullet stop area are several incandescent spot lights installed on drop-down platforms. Please see Figure 2 for the building layout.

A total of 20 wipe samples were collected from the Range. Table 1 presents the analytical results and references the photo number that corresponds with each sample. Photos 47 through 66 document the locations of samples collected from this room. The previous sampling, conducted by the Navy, included eleven samples from this room: the 5 samples collected from the walls exhibited lead concentrations ranging from 67 $\mu\text{g}/\text{ft}^2$ to 786 $\mu\text{g}/\text{ft}^2$; the three samples collected from the floor had elevated lead ranging from 514 $\mu\text{g}/\text{ft}^2$ to 3,035 $\mu\text{g}/\text{ft}^2$; a single sample

collected from the top of the light reported a lead concentration of 9,604 $\mu\text{g}/\text{ft}^2$. The other two samples collected from supply air duct work were 3,739 $\mu\text{g}/\text{ft}^2$ and 8,183 $\mu\text{g}/\text{ft}^2$. EnSafe attempted to sample from locations previously sampled to determine if a cleanup had been performed. EnSafe did not sample the duct work in accordance with the cleanup plan.

Fifteen of the 20 samples collected exceeded the OSHA screening value of 200 $\mu\text{g}/\text{ft}^2$. Samples collected from the ceilings were all below the screening value. Samples collected from the top of the up-range suspended fluorescent light fixture (396 $\mu\text{g}/\text{ft}^2$) and down-range fixture (19,538 $\mu\text{g}/\text{ft}^2$) exceeded the screening value. The single sample collected from the spot light shelf directly in front of the pit (16,005 $\mu\text{g}/\text{ft}^2$) also exceeded the OSHA value. Samples collected from the hanging deflector/baffle panels ranged from 36,414 $\mu\text{g}/\text{ft}^2$ downrange to 12,081 $\mu\text{g}/\text{ft}^2$ third from the pit. No Navy samples were collected from these panels. Three of the 5 samples collected from the walls exceeded the screening value. Wall samples ranged from 411 $\mu\text{g}/\text{ft}^2$ to 109 $\mu\text{g}/\text{ft}^2$. The samples collected from the north, pit end, of the Range were 274 $\mu\text{g}/\text{ft}^2$ and 360 $\mu\text{g}/\text{ft}^2$. Samples collected from the same walls adjacent to the firing line were below the screening value. Surprisingly, the sample collected from the south wall, behind the firing line had the highest lead concentration, 411 $\mu\text{g}/\text{ft}^2$. This wall sample was collected from beneath an heating air duct. Five samples were collected from the floor, all exceeded the screening value. The highest concentration was detected adjacent to the pit (12,081 $\mu\text{g}/\text{ft}^2$). The next highest was from directly in front of the firing line (4,073 $\mu\text{g}/\text{ft}^2$). The EnSafe concentrations were overall higher than those reported by the Navy however the relative distribution was quite similar. Based on these recent concentrations it appears as though cleaning was not previously performed on the Range. The concentrations present will require abatement prior to demolition of the building.

5.10 Room # 10/Break Room

The Break Room, located adjacent to the Range to the east, is approximately 22 feet east-to-west and 26 deep north-to-south. The ceiling is constructed of painted particle board. Lighting is provided by suspended fluorescent lighting fixtures. The walls are painted concrete block. The floor is carpet squares over concrete. The large volume supply air handling equipment, blowers, filters and associated duct work for the Range are located in this room. Fresh air is taken in from a vent in the east side of the Break Room. A single exterior passage door is located in the east wall near the southeast corner of the room. Figure 2 present a building layout.

A total of 6 samples were collected from the Break Room. Table 1 presents the analytical results and references the photo number that corresponds with each sample. Photos 67 through 72 document the locations of samples collected from the Break Room. The Navy collected four samples from this room. Two were wall samples ($49 \mu\text{g}/\text{ft}^2$ and $118 \mu\text{g}/\text{ft}^2$) and two were collected from the top of duct work ($1,878 \mu\text{g}/\text{ft}^2$ and $4,387 \mu\text{g}/\text{ft}^2$). Four of the six EnSafe samples exceeded the OSHA screening value of $200 \mu\text{g}/\text{ft}^2$. The exceedances include samples from the ceiling ($835 \mu\text{g}/\text{ft}^2$), suspended light fixture ($1,561 \mu\text{g}/\text{ft}^2$), exposed diagonal support beam ($19,930 \mu\text{g}/\text{ft}^2$), and the carpeted floor ($203 \mu\text{g}/\text{ft}^2$). The wall and concrete floor samples were below the screening value. Based on these concentrations it appears as though this room was not previously cleaned. The Break Room will require abatement prior to building demolition.

4.11 Room # 11/Inert Magazine

The Inert Magazine is located directly north of the Break Room and shares a common (west) wall with the Range. The room is approximately 54 feet long and 22 feet wide. Access is through the north wall common to the Break Room and to the outside through an overhead door in the east wall. The ceiling is unpainted particle board. Lighting is provided by suspended incandescent lights. The walls are painted concrete block. A secure storage cage is located in the northwest corner of the room. The cage is approximately 8 feet wide and 18 feet deep. A series of wooden

shelves are located in the cage area. Inside the cage, in the west wall, is an 8 by 16-inch hole that opens to the Range. The floor is unpainted concrete. Figure 2 presents the building layout.

A total of 7 samples were collected from the Inert Magazine. Table 1 presents the analytical results and references the photo number that corresponds with each sample. Photos 73 through 79 document the locations of samples collected from this room. The previous sampling conducted by the Navy included four samples from this room. Samples collected from shelves, presumable those in the cage ($2,520 \mu\text{g}/\text{ft}^2$) and from the south end of the floor ($371 \mu\text{g}/\text{ft}^2$) exceeded the OSHA screening value. All EnSafe collected samples exhibited lead concentrations above the $200 \mu\text{g}/\text{ft}^2$ value. The sample collected from the ceiling in the south end of the room reported $505 \mu\text{g}/\text{ft}^2$ lead. The sample collected from an adjacent light fixture reflector was $27,387 \mu\text{g}/\text{ft}^2$. Both wall samples, east ($203 \mu\text{g}/\text{ft}^2$) and west ($580 \mu\text{g}/\text{ft}^2$), were above the screening value. The shelf in the cage reported a lead concentration of $6,036 \mu\text{g}/\text{ft}^2$. Both floor samples exceeded the screening value, northern below the hole in the wall $43,479 \mu\text{g}/\text{ft}^2$ and southern end $7,134 \mu\text{g}/\text{ft}^2$. Based on these concentrations it appears as though no cleaning was performed after the Navy sampling. The Inert Magazine will require abatement for lead prior to building demolition.

4.12 Room #12/AWSEP (Former Range)

The AWSEP is located in the north west corner of Building 61. It is accessed through the Hall and shares a common (east) wall with the Range. The AWSEP is the largest single room in the building, it is approximately 60 feet wide and 82 feet long. The room has an overhead door in the west wall. The ceiling is painted particle board. Lighting is provided by suspended incandescent and fluorescent lighting fixtures. The room also has exposed painted wood support beams. The north wall has a similar construction to the Range and Inert Magazine, poured concrete to approximately 3 feet above the floor with a small ledge. The remainder of the wall is painted concrete block. This is the ledge that the plate sits upon, also evident are supports to hold the

plate at the required angle. At the base of the north wall the asphalt floor is absent and filled with sand, presumably the former pit for this range. The floor is mainly sealed asphalt. The floor in the south end of the room is painted concrete. Some peeling of the floor paint was observed. In the extreme south east corner of the room is the former AWSEP Office. This 12 by 16 foot room is standard drywall construction. The floor of the office is carpet squares over 9-inch tile. The office has two open pass-through windows along the west wall. Figure 2 presents the building layout.

A total of 16 samples were collected from the AWSEP. Table 1 presents the analytical results and references the photo number that corresponds with each sample. Photos 80 through 95 document the locations of samples collected from the AWSEP. The Navy collected six samples from this room. Five of the six exceeded the OSHA screening value of $200 \mu\text{g}/\text{ft}^2$. The samples collected from the north ledge, floor near sand and ledge in the AWSEP Office were able to be resampled by EnSafe to determine if a cleanup had been accomplished. The Navy sample collected from the north ledge, east end ($11,834 \mu\text{g}/\text{ft}^2$) correlates to sample FO61WS1207 ($33,552 \mu\text{g}/\text{ft}^2$). The north floor Navy sample ($4,852 \mu\text{g}/\text{ft}^2$) correlates with sample FO61WS1211 ($627 \mu\text{g}/\text{ft}^2$). The EnSafe sample FO61WS1216 ($615 \mu\text{g}/\text{ft}^2$) was collected from the same location as the Navy's office window ledge sample ($3,789 \mu\text{g}/\text{ft}^2$). Of the 16 samples collected by EnSafe, 11 samples exceeded the OSHA screening value. Samples collected from the suspended lighting fixtures ($459 \mu\text{g}/\text{ft}^2$ and $1,069 \mu\text{g}/\text{ft}^2$), diagonal support beams ($2,199 \mu\text{g}/\text{ft}^2$ and $3,315 \mu\text{g}/\text{ft}^2$), north wall ($33,552 \mu\text{g}/\text{ft}^2$, $260 \mu\text{g}/\text{ft}^2$ and $1,760 \mu\text{g}/\text{ft}^2$), floor ($627 \mu\text{g}/\text{ft}^2$, $208 \mu\text{g}/\text{ft}^2$, and $479 \mu\text{g}/\text{ft}^2$) and the AWSEP Office window ledge ($615 \mu\text{g}/\text{ft}^2$) all exceeded the screening value. From this data it appears as though no clean up was performed and that abatement of this lead will be required prior to demolition of Building 61.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Room #1/Senior's Office

The results of the sampling performed in the Senior's Office indicate that lead dust in excess of the 200 $\mu\text{g}/\text{ft}^2$ OSHA screening value are present on most horizontal surfaces except the floor of the office proper. This room will require abatement actions prior to demolition. Specifically, the suspended acoustic tile and ventilation duct work should be disposed as lead contaminated waste. The floor in the head, window sills and other horizontal surfaces should be cleaned prior to demolition.

5.2 Room #2/Quarter Deck

The results of the sampling performed in the Quarter Deck indicate that lead containing paint is the source of the exceedance in this room. The duct work should be removed and disposed of as lead containing waste. The peeling paint should be addressed prior to demolition of Building 61.

5.3 Room #3/Armory

The results of the sampling performed in the Armory indicate that concentrations of lead dust in excess of the OSHA screening value are present on the horizontal surfaces of the room. This room will require abatement prior to demolition. Specifically, the light fixture should be disposed of as lead containing waste. The floor should be cleaned prior to demolition.

5.4 Room #4/Duty Office

Lead dust in excess of the OSHA screening value is present on the upper surface of the suspended acoustic ceiling tile. This room will require limited abatement prior to demolition. Specifically the suspended tile and duct work should be removed and disposed as lead containing waste. Samples from all other surfaces were below the OSHA screening level of 200 $\mu\text{g}/\text{ft}^2$.

5.5 Room #5/MACS Office

Lead dust and possibly paint chips contributed to the exceedances of the OSHA lead screening values on the upper surface of the suspended acoustic ceiling tile, window sill and carpeted floor. This room will require abatement prior to demolition. Specifically, the suspended ceiling, duct work and carpet squares should be removed and disposed as lead containing waste. After removal other horizontal surfaces, window sills and floors, should be cleaned prior to demolition.

5.6 Room #6/Men's Head

Lead dust and possible paint chips contributed to the exceedances of OSHA screening values on the ceiling, window sill, and floor of this room. The Men's Head will require abatement of the lead prior to demolition activities. The duct work should be removed and disposed as lead containing waste. All other surfaces including the ceiling should be cleaned to remove dust and peeling paint prior to demolition.

5.7 Room #7/Hall

The results of the sampling performed in the Hall indicate that concentrations of lead dust in excess of the OSHA screening value are present on the horizontal surfaces of the room. This room will require abatement prior to demolition. Specifically, the light fixtures and duct work should be disposed of as lead containing waste. After these are removed, the floor should be cleaned prior to demolition.

5.8 Room #8/Gear Locker

The results of the sampling performed in the Gear Locker indicate that lead dust in excess of the 200 $\mu\text{g}/\text{ft}^2$ OSHA screening value are present on all horizontal surfaces including the floor of the room. In addition, the wall also exhibited elevated lead concentrations. This room will require abatement actions prior to demolition. Specifically, the ventilation duct work and furnace and carpet squares should be disposed as lead contaminated waste. The walls, as well as the floor, shelf, and other surfaces should be cleaned prior to demolition.

5.9 Room #9/Range

The results of the sampling performed on the Range indicate significant lead dust is present which will require abatement actions prior to demolition. Specifically, all light fixtures, heating, supply and exhaust duct work, deflector/baffle panels and the pit and plate including the spent bullets and sand should be disposed of as lead containing waste. Although they were not part of this sampling, the exterior exhaust air handling and filter systems should also be disposed as lead containing waste. The exposed support beams, wall surfaces and floors should be thoroughly cleaned following removal of the other features.

5.10 Room #10/Break Room

The results of the sampling performed in the Break Room indicate that abatement will be required prior to demolition. Specifically, the lighting fixtures, carpet squares and all duct work should be removed and disposed of as lead containing waste. The ceiling, support beams, and walls should be thoroughly cleaned, after removal of the other features.

5.11 Room #11/Inert Magazine

The results of the sampling performed in the Inert Magazine indicate that concentrations of lead dust in excess of the OSHA screening value are present on all sampled surfaces of the room. This room will require abatement prior to demolition. Specifically, the light fixtures and shelving should be disposed of as lead containing waste. The ceiling, walls, and floor should be cleaned prior to demolition.

5.12 Room #12/AWSEP (Former Range)

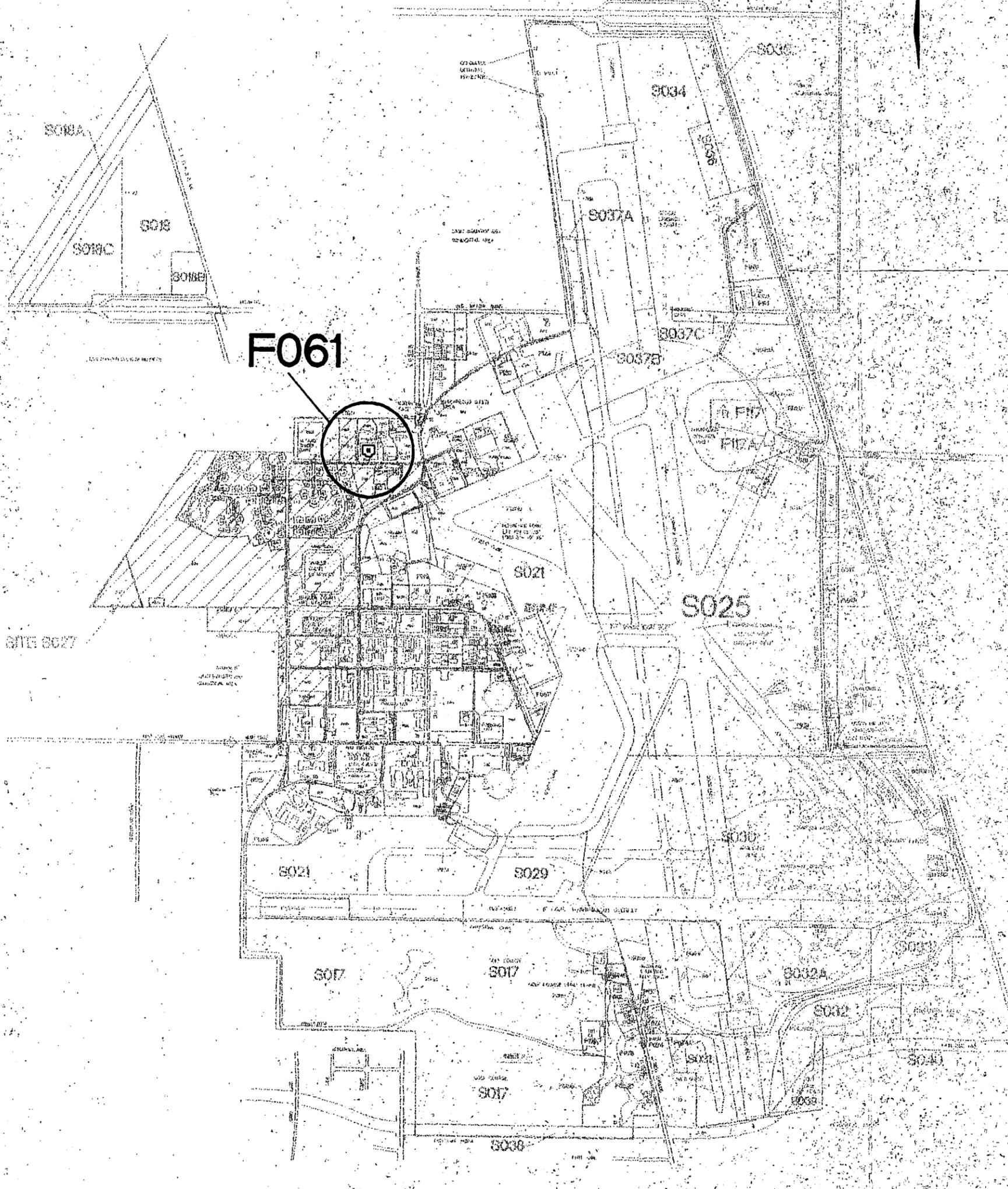
The results of the sampling performed on the AWSEP (Former Range) indicate significant lead dust is present which will require abatement actions prior to demolition. Specifically, all light fixtures, duct work, and pit sand should be disposed of as lead containing waste. The wall surfaces, exposed support beams, walls, and floors should be thoroughly cleaned following removal of the other features.

6.0 SUMMARY

Building 61 currently contains lead in excess of the OSHA screening value of 200 $\mu\text{g}/\text{ft}^2$ in all of the 12 rooms. It does not appear as though any abatement was performed between the 1995 Navy sampling and recent sampling.

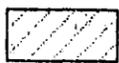
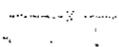
The concentration and distribution of the lead contamination varies between rooms. Some of the rooms may only require limited abatement activities while others will require an extensive removal and disposal as well as a through cleaning prior to building demolition. All existing ductwork, heating, supply and exhaust, deflector/baffle panels, pit and plate features and suspended ceiling tiles should be removed and disposed as lead containing waste without being cleaned. Carpet should also be removed and disposed as lead waste. Most of the suspended lighting fixtures will require disposal without cleaning. The exposed support beams, a few ceilings, and many of the walls will require washing. Smooth surface floors should be cleaned to remove any lead which may be present or be transported there by other abatement activities. The cleaning and confirmation sampling should proceed as described in the Lead Removal Plan.

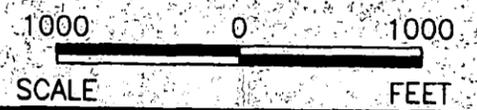
FIGURES



F061

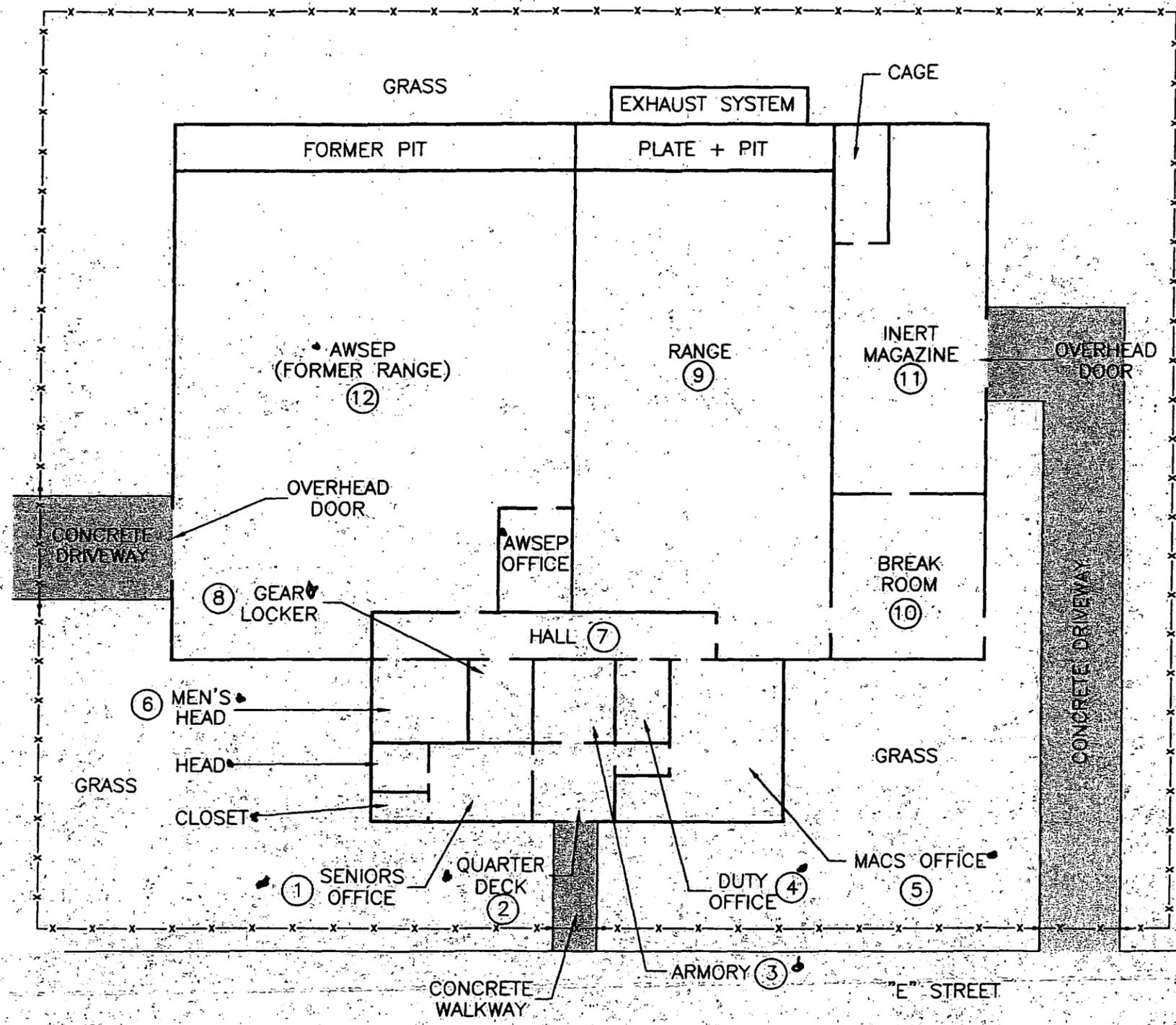
LEGEND

-  - SITE F061
-  - PROPERTY TO BE RETAINED BY THE NAVY
-  - 6 FOOT CHAIN-LINK FENCE



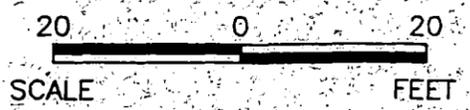
SITE F061
 INDOOR SMALL ARMS RANGE
 INTERIOR LEAD ASSESSMENT
 BUILDING 61
 NAVAL AIR STATION GLENVIEW,
 GLENVIEW, IL

FIGURE 1
SITE LOCATION



LEGEND

- 9 — ROOM NUMBER
- x—x—x— — 6 FOOT CHAIN-LINK FENCE
- ▬ — CONCRETE



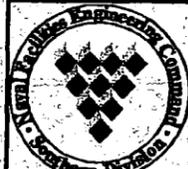

 SITE F061—INDOOR SMALL ARMS RANGE
 INTERIOR LEAD ASSESSMENT
 BUILDING 61
 NAVAL AIR STATION GLENVIEW
 GLENVIEW, ILLINOIS

FIGURE 2
BUILDING LAYOUT

TABLES

Table 1
Lead Wipe Sample Results
Building 61
NAS Glenview

Room Number/Name	Sample ID	Location	Surface	Photo Number	Result $\mu\text{g}/\text{ft}^2$	Screening Value
# 1 - Senior's Office	F061WS0101	Ceiling	Painted Particle Board	1	< 20.0	200 $\mu\text{g}/\text{ft}^2$
	F061WS0102	Ceiling	Suspended Acoustic Tile	2,3	4,544.1	
	F061WS0103	West Wall - Senior Head	Painted Concrete Block	4	< 20.0	
	F061WS0104	Window Sill - West Head Window	Tile	5,6	454.4	
	F061WS0105	Head Floor - Southwest Corner	12" Tile	7	481.9	
	F061WS0106	Window Sill - Southwest	Painted Wood	8	1,450.4	
	F061WS0107	North Wall	Painted Concrete Block	9	< 20.0	
	F061WS0108	Floor	Carpet	10	128.7	
	F061WS0109	Floor	Concrete beneath Carpet	11	26.6	
	F061WS0110	2 nd Shelf in Closet	Bare Wood	12	481.9	
# 2 - Quarter Deck	F061WS0201	Ceiling	Painted Particle Board	13	< 20.0	200 $\mu\text{g}/\text{ft}^2$
	F061WS0202	East Wall	Painted Concrete Block	14	38.4	
	F061WS0203	Floor	Carpet	15	128.7	
	F061WS0204	Floor	9" Tile beneath Carpet	16	22.7	
	F061WS0205	Dropdown Wall	Painted Particle Board, Peeling	17	984.3	
# 3 - Armory	F061WS0301	Ceiling	Painted Sheetrock	18	< 20.0	200 $\mu\text{g}/\text{ft}^2$
	F061WS0302	Fluorescent Light	Painted Metal	19	9,725.7	
	F061WS0303	East Wall	Painted Concrete Block	20	< 20.0	
	F061WS0304	Floor	Concrete	21	1,062.7	
	F061CS0304	Floor (F061WS0304 Duplicate)	Concrete	21	709.5	
# 4 - Duty Office	F061WS0401	Ceiling	Painted Particle Board	22	< 20.0	200 $\mu\text{g}/\text{ft}^2$
	F061WS0402	Ceiling	Suspended Acoustic Tile	23	2,189.2	
	F061WS0403	West Wall	Painted Concrete Block	24	42.3	
	F061WS0404	Room Divider	Stained Wood	25	179.7	
	F061WS0405	Floor	Carpet	26	175.8	
	F061WS0406	Floor	9" Tile beneath Carpet	27	105.1	

Table 1
Lead Wipe Sample Results
Building 61
NAS Glenview

Room Number/Name	Sample ID	Location	Surface	Photo Number	Result $\mu\text{g}/\text{ft}^2$	Screening Value
•#5 - MACS Office	F061WS0501	Ceiling	Painted Particle Board	28	38.4	200 $\mu\text{g}/\text{ft}^2$
	F061WS0502	Ceiling	Suspended Acoustic Tile	29	2,778.0	
	F061WS0503	West Window Sill	Painted Wood	30	2,738.7	
	F061WS0504	North Wall	Painted Concrete Block	31	<20.0	
	F061WS0505	Floor	Carpet	32	525.1	
	F061WS0506	Floor	9" Tile beneath Carpet	33	101.2	
•#6 - Men's Head	F061WS0601	Ceiling	Painted Transite Panel	34	269.9	200 $\mu\text{g}/\text{ft}^2$
	F061WS0602	West Window Sill	Painted Wood	No Photo	1,701.6	
	F061WS0603	South Wall	Painted Concrete Block	35	46.2	
	F061WS0604	Floor	9" Tile	36	364.1	
•#7 - Hall	F061WS0701	Ceiling	Painted Particle Board	37	<20.0	200 $\mu\text{g}/\text{ft}^2$
	F061WS0702	Fluorescent Light	Painted Metal	38	501.5	
	F061WS0703	South Wall	Painted Concrete Block	39	<20.0	
	F061WS0704	South Wall	Painted Concrete Block	40	109.0	
	F061WS0705	East Floor	12" Tile	41	835.1	
	F061WS0706	West Floor	12" Tile	42	1,277.7	
•#8 - Gear Locker	F061WS0801	Ceiling	Transite Panel	43	132.1	200 $\mu\text{g}/\text{ft}^2$
	F061WS0802	Shelf next to Utility Sink	12" Tile	44	239.8	
	F061WS0803	East Wall	Painted Concrete Block	45	219.8	
	F061WS0804	Floor	Carpet	46	275.7	
	F061WS0805	Floor	Concrete beneath Carpet	No Photo	279.7	

Table 1
 Lead Wipe Sample Results
 Building 61
 NAS Glenview

Room Number/Name	Sample ID	Location	Surface	Photo Number	Result $\mu\text{g}/\text{ft}^2$	Screening Value
#9 - Range	F061WS0901	Ceiling (up range)	Painted Plywood	47	< 20.0	200 $\mu\text{g}/\text{ft}^2$
	F061WS0902	Ceiling (down range)	Painted Wood	48	50.2	
	F061WS0903	Fluorescent Light	Painted Metal	49	395.5	
	F061WS0904	Spot Light Shelf	Bare Wood	50	16,005.3	
	F061WS0905	Deflector/Baffle Panel	Steel	51	36,414.1	
	F061WS0906	Ceiling	Plastic backed Insulation	52	< 20.0	
	F061WS0907	Deflector/Baffle Panel	Steel	53	27,387.1	
	F061WS0908	Deflector/Baffle Panel	Steel	54	12,080.5	
	F061WS0909	Deflector/Baffle Panel	Steel	55	22,284.9	
	F061WS0910	Fluorescent Light	Painted Metal	56	19,537.6	
	F061WS0911	East Wall	Painted Plywood	57	273.9	
	F061WS0912	West Wall	Painted Acoustic Tile	58	360.2	
	F061WS0913	East Wall	Painted Acoustic Tile	59	167.9	
	F061WS0914	West Wall	Painted Acoustic Tile	60	109.0	
	F061WS0915	South Wall	Painted Concrete Block	61	411.2	
	F061WS0916	Floor	Painted	62	12,080.5	
	F061WS0917	Floor	Painted	63	1,679.0	
	F061WS0918	Floor	Painted	64	4,073.1	
	F061WS0919	Floor	12" Tile	65	941.1	
	F061WS0920	Floor	12" Tile	66	1,780.1	
#10 - Break Room	F061WS1001	Ceiling	Painted Particle Board	67	835.1	200 $\mu\text{g}/\text{ft}^2$
	F061WS1002	Fluorescent Light	Painted Metal	68	1,561.3	
	F061WS1003	Diagonal Support Beam	Painted Wood	69	19,930.1	
	F061WS1004	South Wall	Painted Concrete Block	70	144.4	
	F061WS1005	Floor	Carpet	71	203.2	
	F061WS1006	Floor	Concrete beneath Carpet	72	93.3	

Table 1
Lead Wipe Sample Results
Building 61
NAS Glenview

Room Number/Name	Sample ID	Location	Surface	Photo Number	Result $\mu\text{g}/\text{ft}^2$	Screening Value
#11 Inert Magazine	F061WS1101	Ceiling	Unpainted Particle Board	73	505.4	200 $\mu\text{g}/\text{ft}^2$
	F061WS1102	Light Reflector	Metal	74	27,387.1	
	F061WS1103	East Wall	Painted Concrete Block	75	203.2	
	F061WS1104	West Wall	Painted Concrete Block	76	580.0	
	F061WS1105	Shelf in Cage Area	Painted Wood	77	6,035.5	
	F061WS1106	Floor	Concrete	78	43,478.6	
	F061WS1107	Floor	Concrete	79	7,134.4	
#12 AWSEP (Former Range)	F061WS1201	Ceiling	Painted Particle Board	80	< 20.0	200 $\mu\text{g}/\text{ft}^2$
	F061WS1202	Ceiling	Painted Particle Board	81	< 20.0	
	F061WS1203	Fluorescent Light	Painted Metal	82	459.2	
	F061WS1204	Fluorescent Light	Painted Metal	83	1,069.4	
	F061WS1205	Diagonal Support Beam	Painted Wood	84	3,315.3	
	F061WS1206	Diagonal Support Beam	Painted Wood	85	2,198.5	
	F061WS1207	North Wall	Painted Concrete Block	86	33,552.0	
	F061WS1208	North Wall	Painted Concrete Block	87	259.7	
	F061CS1208	North Wall (F061WS1208 Duplicate)	Painted Concrete Block	87	1,759.7	
	F061WS1209	East Wall	Painted Concrete Block	88	< 20.0	
	F061WS1210	West Wall	Painted Concrete Block	89	72.3	
	F061WS1211	Floor	Sealed Asphalt	90	626.7	
	F061WS1212	Floor	Sealed Asphalt	91	207.9	
	F061WS1213	Floor	Painted Concrete	92	479.1	
	F061WS1214	AWSEP Office Floor	Carpet	93	180.0	
	F061WS1215	AWSEP Office Floor	Concrete & 9" Tile	94	< 20.0	
F061WS1216	AWSEP Office Window Ledge	Stained Wood	95	614.7		

APPENDIX A
WORKPLACE MONITORING REPORT

SCHNEIDER LABORATORIES INCORPORATED

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • (FAX) 804-353-6928

Excellence In Service and Technology

AIR/ELLAP 109527, NVLAP 1150, NYELAP 11413, CAELAP 2078, NC 593, SC 93003

LABORATORY ANALYSIS REPORT

Lead Analysis by EPA 3050B/7420 Method

ACCOUNT #: 1882-01-111
CLIENT: Ensafe, Inc. - Memphis
ADDRESS: 5724 Summer Trees Drive
Memphis, TN 38134
PO NO.: 2356/Release 047
PROJECT NAME: Navy Clean
PROJECT NO.: 1051-001-08-400-00
JOB LOCATION: NAS Glenview Bld 61

DATE COLLECTED: 5/14/2001
DATE RECEIVED: 5/17/2001
DATE ANALYZED: 5/22/2001
DATE REPORTED: 5/23/2001

SAMPLE TYPE: WIPE

SLI Sample No.	Client Sample No.	Sample Description	Sample Area (ft ²)	Dilution Factor	Total Lead (µg) [*]	Lead Conc (µg/ft ²)
1938727	F061 WS1201			1	< 20.0	
1938728	F061 WS1202			1	< 20.0	
1938729	F061 WS1203			1	459.2	
1938730	F061 WS1204			1	1,069.4	
1938731	F061 WS1205			10	3,315.3	
1938732	F061 WS1206			10	2,198.5	
1938733	F061 WS1207			100	33,562.0	
1938734	F061 WS1208			1	259.7	
1938735	F081 CS1208			10	1,759.7	
1938736	F061 WS1209			1	< 20.0	
1938737	F061 WS1210			1	72.3	
1938738	F061 WS1211			1	626.7	
1938739	F061 WS1212			1	207.9	
1938740	F061 WS1213			1	479.1	
1938741	F061 WS1214			1	180.0	
1938742	F061 WS1215			1	< 20.0	
1938743	F061 WS1216			1	614.7	
1938744	F061 WS0801			1	132.1	
1938745	F061 WS0802			1	239.8	
1938746	F061 WS0803			1	219.8	
1938747	F061 WS0804			1	275.7	
1938748	F061 WS0805			1	279.7	
	QC - 18141	10.0 ppm Calibration Std			1,001.6	100.2%
	QC - 18141	200 µg spike			211.9	105.9%

Minimum Reporting Limit: 20 µg Total Lead. Effective 3/6/01, EPA Lead Hazard Standards: 40 µg/ft² for floors and 250 µg/ft² for interior window sills, based on weighted average of all samples taken. EPA Clearance Standards are 40 µg/ft² for floors, 250 µg/ft² for interior window sills, 400 µg/ft² for window troughs. Industrial projects may have limits established per project. *For true values, assume two (2) significant figures.

ACCOUNT - WORKORDER: 1882-01-111

Page 2 (Continued)

Sample No.	Client Sample No.	Sample Description	Sample Area (ft ²)	Dilution Factor	Total Lead (µg)*	Lead Conc (µg/ft ²)
	QC - 18141	5.0 ppm Calibration Std			511.0	102.2%
	QC - 18141	Blank			< 20.0	
	QC - 18141	NIST 2710 Standard			554.9	100.3%
1938749	F061 WS0801			1	269.9	
1938750	F061 WS0802			2	1,701.6	
1938751	F061 WS0803			1	48.2	
1938752	F061 WS0804			1	364.1	
1938753	F061 WS0701			1	< 20.0	
1938754	F061 WS0702			1	501.5	
1938755	F061 WS0703			1	< 20.0	
1938756	F061 WS0704			1	109.0	
1938757	F061 WS0705			1	835.1	
1938758	F061 WS0706			2	1,277.7	
1938759	F061 WS0101			1	< 20.0	
1938760	F061 WS0102			10	4,544.1	
1938761	F061 WS0103			1	< 20.0	
1938762	F061 WS0104			1	454.4	
1938763	F061 WS0105			1	481.9	
1938764	F061 WS0106			2	1,450.4	
1938765	F061 WS0107			1	< 20.0	
1938766	F061 WS0108			1	128.7	
1938767	F061 WS0109			1	26.6	
1938768	F061 WS0110			1	481.9	
1938769	F061 WS0201			1	< 20.0	
1938770	F061 WS0202			1	38.4	
1938771	F061 WS0203			1	128.7	
1938772	F061 WS0204			1	22.7	
1938773	F061 WS0205			1	984.3	
1938774	F061 WS0301			1	< 20.0	
1938775	F061 WS0302			100	9,725.7	
1938776	F061 WS0303			1	< 20.0	
1938777	F061 WS0304			1	1,062.7	
1938778	F061 CS0304			1	709.5	
1938779	F061 WS0401			1	< 20.0	
1938780	F061 WS0402			10	2,189.2	
1938781	F061 WS0403			1	42.3	
1938782	F061 WS0404			1	179.7	
1938783	F061 WS0405			1	175.8	
1938784	F061 WS0406			1	105.1	
1938785	F061 WS0501			1	38.4	
1938786	F061 WS0502			10	2,778.0	

Minimum Reporting Limit: 20 µg Total Lead. Effective 3/6/01, EPA Lead Hazard Standards: 40 µg/ft² for floors and 250 µg/ft² for interior window sills, based on weighted average of all samples taken. EPA Clearance Standards are 40 µg/ft² for floors, 250 µg/ft² for interior window sills, 400 µg/ft² for window troughs. Industrial projects may have limits established per project. *For true values, assume two (2) significant figures.

ACCOUNT - WORKORDER: 1882-01-111

Page 3 (Continued)

SLI Sample No.	Client Sample No.	Sample Description	Sample Area (ft ²)	Dilution Factor	Total Lead (µg)*	Lead Conc (µg/ft ²)
1938787	F061 WS0503			10	2,738.7	
1938788	F061 WS0504			1	< 20.0	
1938789	F061 WS0505			1	525.1	
1938790	F061 WS0506			1	101.2	
1938791	F061 WS1101			1	505.4	
1938792	F061 WS1102			100	27,387.1	
1938793	F061 WS1103			1	203.2	
1938794	F061 WS1104			1	580.0	
1938795	F061 WS1105			10	6,035.5	
1938796	F061 WS1106			100	43,478.6	
1938797	F061 WS1107			10	7,134.4	
1938798	F061BS0514			1	< 20.0	
1938799	F061BS0515			1	< 20.0	
1938800	F061BS0516			1	< 20.0	
1938801	F061WS1001			1	835.1	
1938802	F061WS1002			10	1,561.3	
1938803	F061WS1003			100	19,930.1	
1938804	F061WS1004			1	144.4	
1938805	F061WS1005			1	203.2	
1938806	F061WS1006			1	93.3	
1938807	F061WS0901			1	< 20.0	
1938808	F061WS0902			1	50.2	
1938809	F061WS0903			1	395.5	
1938810	F061WS0904			100	16,005.3	
1938811	F061WS0905			100	36,414.1	
1938812	F061WS0906			1	< 20.0	
1938813	F061WS0907			100	27,387.1	
1938814	F061WS0908			100	12,080.5	
1938815	F061WS0909			100	22,284.9	
1938816	F061WS0910			100	19,537.6	
1938817	F061WS0911			1	273.9	
1938818	F061WS0912			1	360.2	
1938819	F061WS0913			1	167.9	
1938820	F061WS0914			1	109.0	
1938821	F061WS0915			1	411.2	
1938822	F061WS0916			100	12,080.5	
1938823	F061WS0917			10	1,679.0	
1938824	F061WS0918			10	4,073.1	
1938825	F061WS0919			1	941.1	
1938826	F061WS0920			2	1,780.1	

No areas given.

QC - 18145

10.0 ppm Calibration Std

992.1

99.2%

Minimum Reporting Limit: 20 µg Total Lead. Effective 3/6/01, EPA Lead Hazard Standards: 40 µg/ft² for floors and 250 µg/ft² for interior window sills, based on weighted average of all samples taken. EPA Clearance Standards are 40 µg/ft² for floors, 250 µg/ft² for interior window sills, 400 µg/ft² for window troughs. Industrial projects may have limits established per project. *For true values, assume two (2) significant figures.

ACCOUNT - WORKORDER: 1882-01-111

Page 4 (Continued)

Sample No.	Client Sample No.	Sample Description	Sample Area (ft ²)	Dilution Factor	Total Lead (µg)*	Lead Conc (µg/ft ²)
	QC - 18145	200 µg spike			207.2	103.6%
	QC - 18145	5.0 ppm Calibration Std			513.3	102.7%
	QC - 18145	Blank			< 20.0	
	QC - 18145	NIST 2710 Standard			556.5	100.6%

ANALYST: MATTHEW ASBURY

Total no. of pages in report = 4

REVIEWED BY 

Minimum Reporting Limit: 20 µg Total Lead. Effective 3/6/01, EPA Lead Hazard Standards: 40 µg/ft² for floors and 250 µg/ft² for interior window sills, based on weighted average of all samples taken. EPA Clearance Standards are 40 µg/ft² for floors, 250 µg/ft² for interior window sills, 400 µg/ft² for window troughs. Industrial projects may have limits established per project. *For true values, assume two (2) significant figures.

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1 (TOTAL OF 11)
 PROJECT/JOB NO: 1051-001-13-00
 COC NO: 2056
 FD NO: 047
 REL NO: 047
 LAB NAME: SAMSON

DIVISION OF FORENSIC SCIENCE
 LABORATORY AND CHEMISTRY
 1000 S. BOSTON ST.
 BOSTON, MA 02118

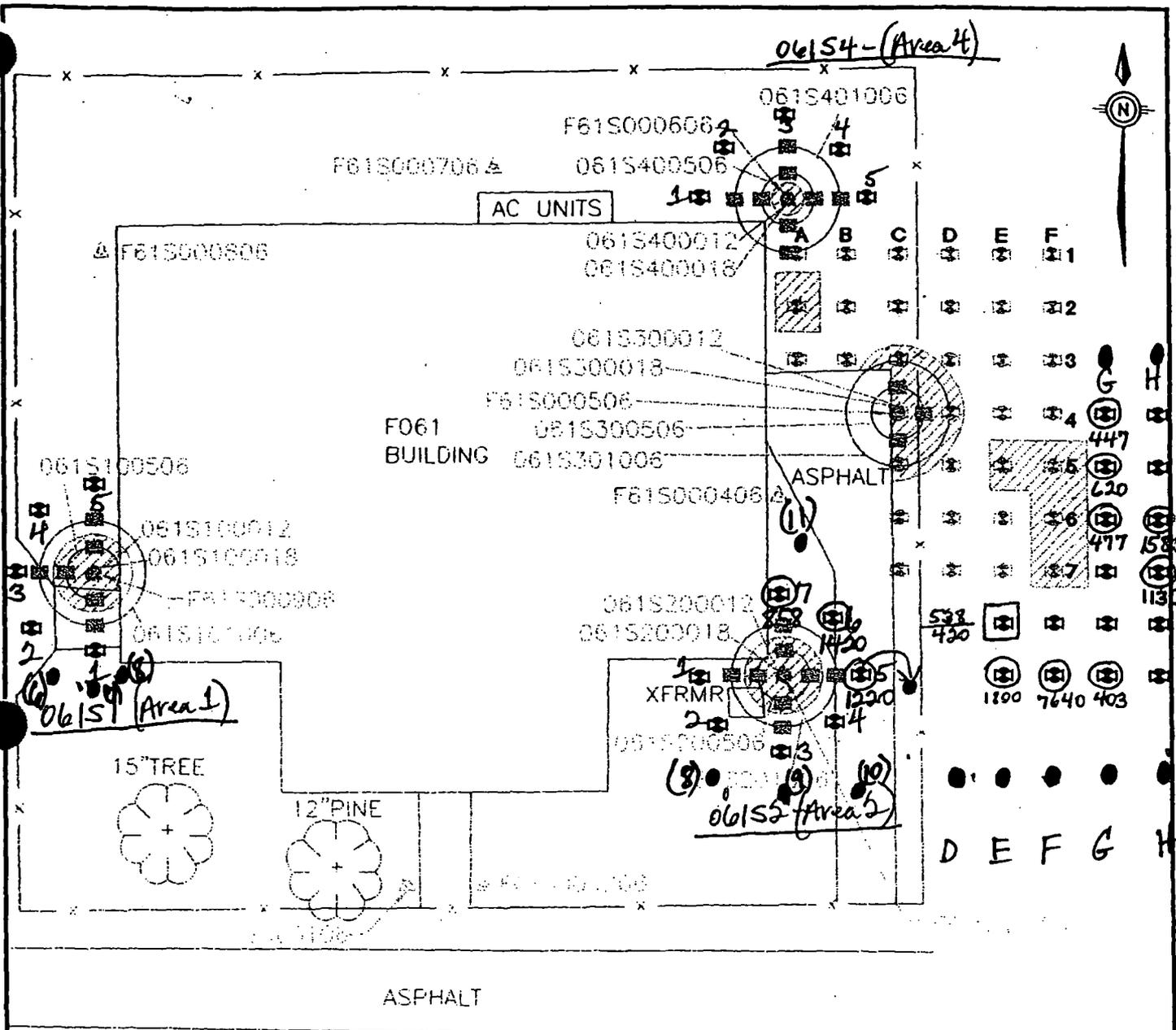
CLIENT: NAVY CLEAR PROJECT MANAGER: MONA BROWN
 LOCATION: NAS Glenburne Blvd TELE/FAX NO: 1900582562
 SAMPLERS (SIGNATURE): [Signature] [Signature]



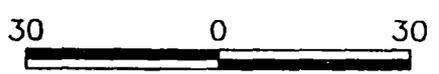
FIELD SAMPLE NUMBER	DATE	TIME	SAMPLE TYPE	TYPE/SIZE OF CONTAINER	PRESERVATION		NO. OF CONTAINERS	ANALYSE REQUIRED	REMARKS
					TEMP.	CHEMICAL			
FOG1WS1201	5/14/01	1000	Water	Beaker	-	-	1	X	
FOG1WS1202		1010	"	"	"	"	1	X	
FOG1WS1203		1055	"	"	"	"	1	X	
FOG1WS1204		1110	"	"	"	"	1	X	
FOG1WS1205		1122	"	"	"	"	1	X	
FOG1WS1206		1115	"	"	"	"	1	X	
FOG1WS1207		1130	"	"	"	"	1	X	
FOG1WS1208		1140	"	"	"	"	1	X	
FOG1251208		1140	"	"	"	"	1	X	
FOG1WS1209		1150	"	"	"	"	1	X	
FOG1WS1210		1200	"	"	"	"	1	X	
FOG1WS1211		1210	"	"	"	"	1	X	
FOG1WS1212		1340	"	"	"	"	1	X	
FOG1WS1213		1345	"	"	"	"	1	X	
FOG1WS1214		1350	"	"	"	"	1	X	
FOG1WS1215		1355	"	"	"	"	1	X	

RELEASED: [Signature] DATE: 5/17/01 RECEIVER: _____
 PRINTED: [Signature] TIME: _____
 COMPANY: EDSAFE COMPANY: _____

METHOD OF SHIPMENT: Box
 SHIPMENT NO: 1900 970 / 9157
 SEND RESULTS TO: Class Search
RSO 1900-2288 (FAX)
 COMMENTS: [Handwritten notes]
Field 5-17-01 10A @ 1900 970 / 9157



○ = 0-1' interval
 □ = 0-18" interval



LEGEND

SCALE (APPROXIMATE)

FEET

- x --- FENCE
- ⊛ 1998 HAND AUGER BORINGS (0-6" BGS AND 12-18" BGS)
- ⊠ ADDITIONAL CONTAMINATION EXTENT SAMPLE LOCATION (HAND AUGER BORINGS)
- ⊞ 1997 HAND AUGER BORINGS (DEPTHS RANGE FROM 0-18" BGS)
- ⊡ 1995 HAND AUGER BORINGS (0-6" BGS)
- ⊞ AREAS REQUIRING REMOVAL 100 CUBIC YARDS TOTAL
- A2 GRID IDENTIFICATION SYSTEM



F061 SAMPLING PLAN
 NAVAL AIR STATION GLENVIEW
 GLENVIEW, ILLINOIS

FIGURE 3
 F061
 NAVY SMALL ARMS RANGE
 CONTAMINATION EXTENT
 SAMPLING LOCATIONS

Lead Wipe Sample Results
 Building 61
 NAS Glenview

Room Number/Name	Sample ID	Location	Result $\mu\text{g}/\text{ft}^2$	Screening Value $\mu\text{g}/\text{ft}$
# 1 - Seniors Office	F061WS0101	Ceiling - Painted Particle Board	< 20.0	200 $\mu\text{g}/\text{ft}$
	F061WS0102	Ceiling - Suspended Tile	4,544.1	
	F061WS0103	Wall - West	< 20.0	
	F061WS0104	Window Sill - West	454.4	
	F061WS0105	Wall - Southwest Corner	481.9	
	F061WS0106	Window Sill - Southwest	1,450.4	
	F061WS0107	Wall - North	< 20.0	
	F061WS0108	Floor - Carpet	128.7	
	F061WS0109	Floor - Concrete	26.6	
	F061WS0110	Wall - 2 nd Shelf in Closet	481.9	
# 2 - Quarter Deck	F061WS0201	Ceiling - Center	< 20.0	200 $\mu\text{g}/\text{ft}$
	F061WS0202	Wall - East	88.7	
	F061WS0203	Floor - Carpet	22.7	
	F061WS0204	Floor - Concrete	22.7	
	F061WS0205	Wall - Dis. Room	88.7	
# 3 - Armory	F061WS0301	Ceiling - Center	< 20.0	200 $\mu\text{g}/\text{ft}$
	F061WS0302	Ceiling - Fluorescent Light	9,725.7	
	F061WS0303	Wall - East	< 20.0	
	F061WS0304	Floor - Concrete	1,062.7	
	F061CS0304	South of F061WS0304	709.5	

Lead Wipe Sample Results
 Building 61
 NAS Glenview

Room Number/Name	Sample ID	Location	Result $\mu\text{g}/\text{ft}^2$	Screening Value
#4 - Duty Office	F061WS0401	Ceiling - Painted Particle Board	<20.0	200 $\mu\text{g}/\text{ft}$
	F061WS0402	Ceiling - Suspended Ceiling Tile	2,189.2	
	F061WS0403	Wall - West	42.3	
	F061WS0404	Wall - East	179.7	
	F061WS0405	Floor - Carpet	175.8	
	F061WS0406	Floor - Carpet	105.1	

#4 - Duty Office	F061WS0401	Ceiling - Painted Particle Board	<20.0	200 $\mu\text{g}/\text{ft}$
	F061WS0402	Ceiling - Suspended Ceiling Tile	2,189.2	
	F061WS0403	Wall - West	42.3	
	F061WS0404	Wall - East	179.7	
	F061WS0405	Floor - Carpet	175.8	
	F061WS0406	Floor - Carpet	105.1	

#6 - Mens Head	F061 WS0601	Ceiling - Northwest Corner	269.9	200 $\mu\text{g}/\text{ft}$
	F061 WS0602	Window Sill - West Side	1,701.6	
	F061 WS0603	Wall - South Side	46.2	
	F061 WS0604	Floor	364.1	

Lead Wipe Sample Results
 Building 61
 NAS Glenview

Room Number/Name	Sample ID	Location	Result $\mu\text{g}/\text{ft}^2$	Screening Value
#7 - Hallway	F061 WS0701	Ceiling - Midway in Hall	<20.0	200 $\mu\text{g}/\text{ft}$
	F061 WS0702	Ceiling - Fluorescent Light	501.5	
	F061 WS0703	Wall - 5' from Range	<20.0	
	F061 WS0704	Wall - Concrete Block	109.0	
	F061 WS0705	Floor - Tile	835.1	
	F061 WS0706	Floor - 5' East of AWSEP Door	1,277.7	

#5 - Control Room	F061 WS0701	Ceiling	<20.0	200 $\mu\text{g}/\text{ft}$
	F061 WS0702	Steel Deck Ceiling	501.5	
	F061 WS0703	Wall - 5'	<20.0	
	F061 WS0704	Ceiling - Downway	109.0	
	F061 WS0705	Floor - 5' from East Wall	835.1	
	F061 WS0706	Floor - 5' from East Wall	1,277.7	

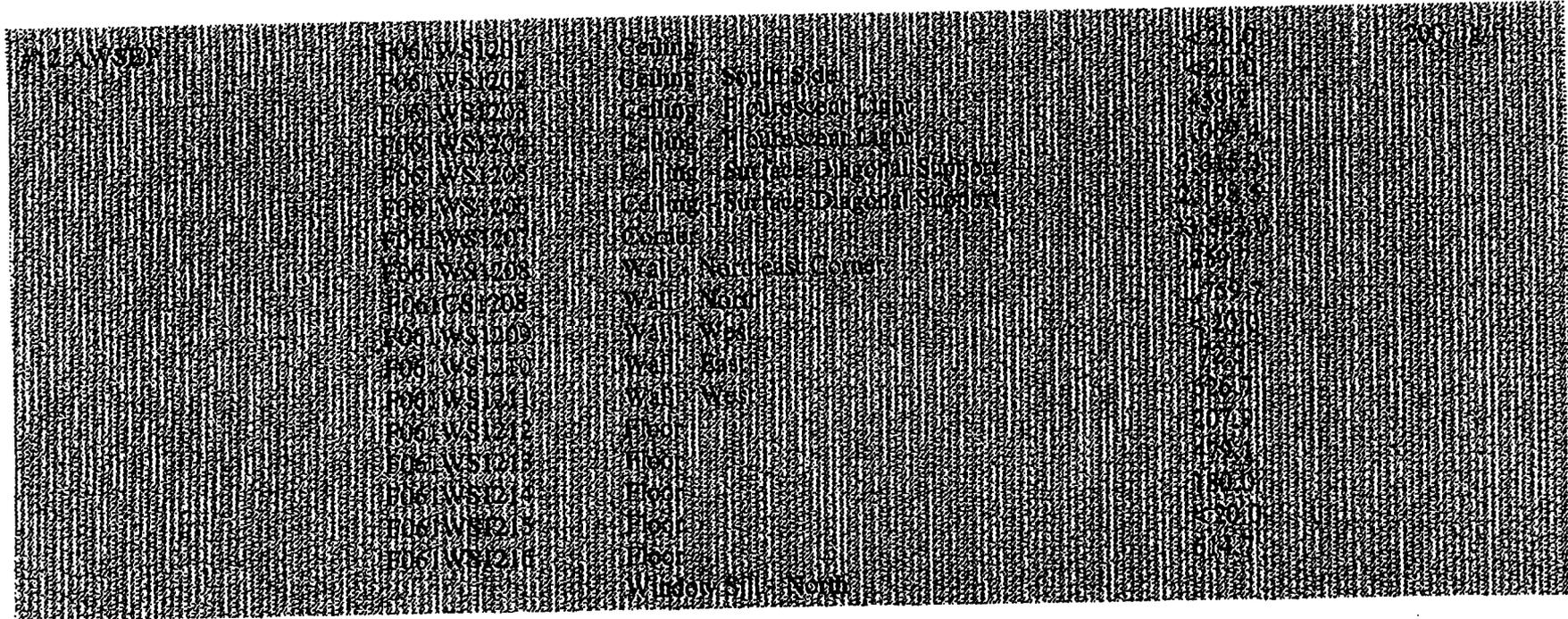
Lead Wipe Sample Results
 Building 61
 NAS Glenview

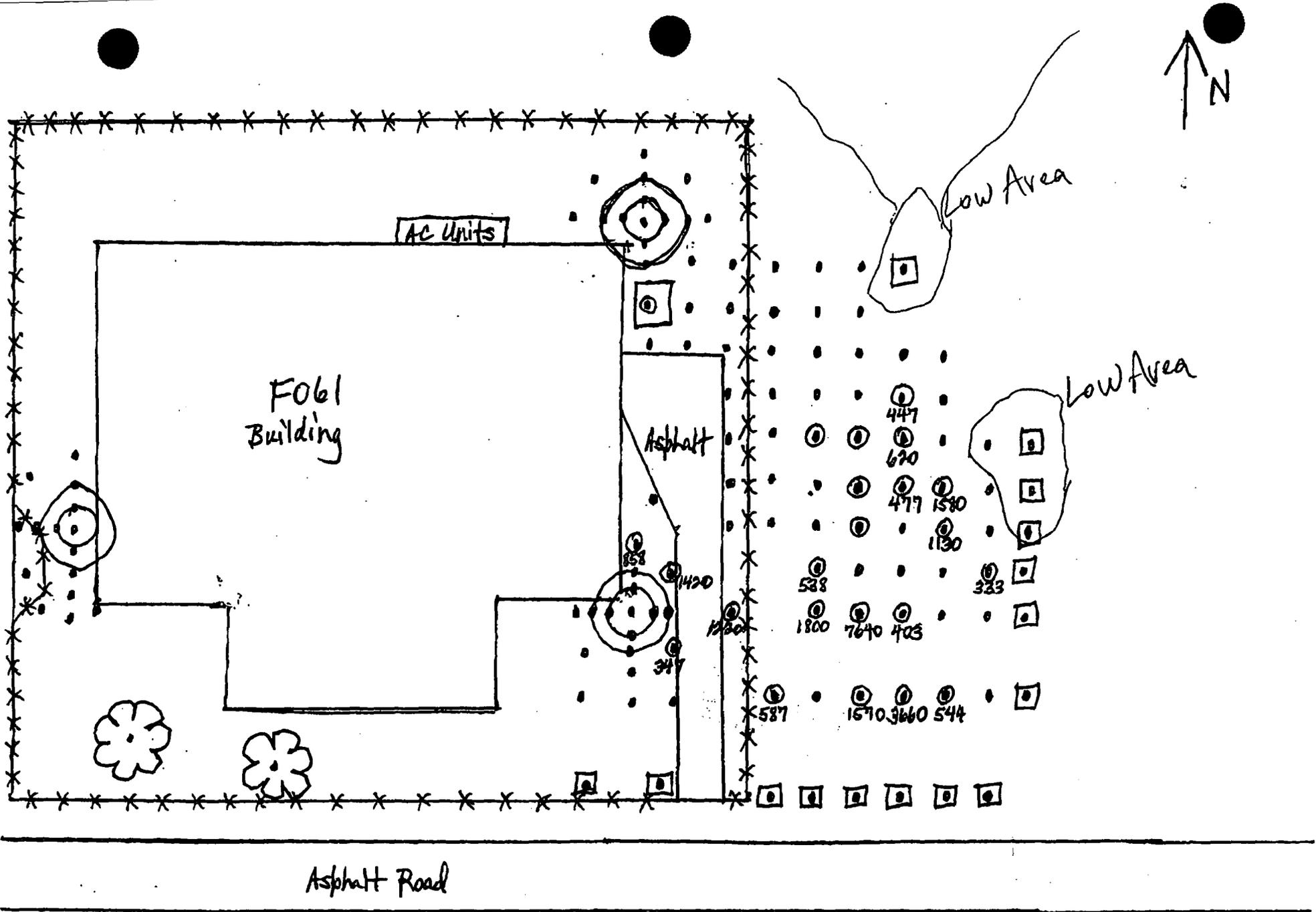
Room Number/Name	Sample ID	Location	Result μg/ft ²	Screening Value
#9 - Range	F061 WS0901	Ceiling	<20.0	200 μg/ft
	F061 WS0902	Ceiling - Wood Surface	50.2	
	F061 WS0903	Ceiling - Fluorescent Light	395.5	
	F061 WS0904	Ceiling - Spot Light	16,005.3	
	F061 WS0905	Ceiling - Deflector/Baffle Panels	36,414.1	
	F061 WS0906	Ceiling - Plastic backed Insulator	<20.0	
	F061 WS0907	Ceiling - Second Baffle	27,387.1	
	F061 WS0908	Ceiling - Deflector Baffle	12,080.5	
	F061 WS0909	Ceiling - Deflector Baffle	22,284.9	
	F061 WS0910	Ceiling - Fluorescent Light	19,537.6	
	F061 WS0911	Wall - East	273.9	
	F061 WS0912	Wall - West	360.2	
	F061 WS0913	Wall - Acoustic Tile	167.9	
	F061 WS0914	Wall - Acoustic Tile	109.0	
	F061 WS0915	Wall - South	411.2	
	F061 WS0916	Floor - Painted	12,080.5	
	F061 WS0917	Floor - Asphalt	1,679.0	
	F061 WS0918	Floor - Asphalt	4,073.1	
	F061 WS0919	Floor - Tile	941.1	
	F061 WS0920	Floor - Tile	1,780.1	

#9 - Break Room	F061 WS1001	Ceiling - Particle Board	825
	F061 WS1002	Ceiling - Fluorescent Light	1,251
	F061 WS1003	Ceiling - Diagonal Sheetrock Panels	2,900
	F061 WS1004	Wall - South	1,421
	F061 WS1005	Floor - Carpet	2,221
	F061 WS1006	Floor - Concrete	1,233

Lead Wipe Sample Results
 Building 61
 NAS Glenview

Room Number/Name	Sample ID	Location	Result $\mu\text{g}/\text{ft}^2$	Screening Value
#11 Inert Mag	F061WS1101	Ceiling	505.4	200 $\mu\text{g}/\text{ft}$
	F061WS1102	Ceiling - Light	27,387.1	
	F061WS1103	Wall - East	203.2	
	F061WS1104	Wall - West	580.0	
	F061WS1105	Wall - Shelves in Cage Area	6,035.5	
	F061WS1106	Floor - Concrete	43,478.6	
	F061WS1107	Floor - Concrete	7,134.4	





○ = samples exceeding 400 mg/kg (upper interval)

□ = New sample Locations (5/14/01)

1" = 30'



APPENDIX C

Correspondence with IEPA

Subj: **Fwd: Re: Glenview project**
 Date: 8/5/2002 12:13:21 PM Eastern Daylight Time
 From: BShadbolt@toltest.com
 To: JMTIINNEY@aol.com, JTinney@toltest.com
Sent from the Internet (Details)

correspondence from Brian Conrath 1 of 2

Received: from prep.admop.epa.state.il.us
 (epa.state.il.us [163.191.188.130])
 by toltest.com; Mon, 15 Jul 2002 09:55:25 -0400
 Received: from admisd3.epa.state.il.us (ADMISD3.adm.epa.state.il.us [10.16.8.117])
 by prep.admop.epa.state.il.us (8.11.6+Sun/8.10.2) with SMTP id g6FDqQW29547
 for <BShadbolt@toltest.com>; Mon, 15 Jul 2002 08:52:26 -0500 (CDT)
 Received: from ADMDO1-Message_Server by admisd3.epa.state.il.us
 with Novell_GroupWise; Mon, 15 Jul 2002 08:54:30 -0500
 Message-Id: <sd328dc6.014@admisd3.epa.state.il.us>
 X-Mailer: Novell GroupWise Internet Agent 5.5.6.1
 Date: Mon, 15 Jul 2002 08:54:29 -0500
 From: "Brian Conrath" <epa4476@epa.state.il.us>
 To: <BShadbolt@toltest.com>
 Cc: <JMTINNEY@aol.com>,
 "<Anthony Robinson"<robinsonab@efdsouth.navfac.navy.mil>
 Subject: Re: Glenview project
 Mime-Version: 1.0
 Content-Type: text/plain; charset=US-ASCII
 Content-Transfer-Encoding: quoted-printable
 Content-Disposition: inline

Mr. Shadbolt,

The Illinois Environmental Protection Agency (Illinois EPA or Agency) is in receipt of Figures 3A and 3B and the disposal facility waste characterization requirements list which were sent via electronic mail on Friday, July 12, 2002. Thank you for sending them out so quickly. Illinois EPA has reviewed the proposed waste characterization sample locations and the proposed confirmation sample locations. All of the waste characterization and confirmation sample locations are acceptable as shown. No adjustment is necessary. Please incorporate these into the Work Plan for the Indoor Gun Range, Building 061, as discussed previously. The Agency will verify their inclusion upon review of the Final Work Plan, once it has been submitted.

There is one additional item. Would you please send a hard copy of both Figures and the waste characterization requirements list? Some difficulty was encountered in printing these items from the electronic version. In this way, a copy can be saved in the file for this site. Thank you.

If you have any questions or require additional information, please contact me at (217) 557-8155 or by electronic mail at brian.conrath@epa.state.il.us.

Sincerely,

Brian A. Conrath
 Remedial Project Manager
 Federal Facilities Unit
 Federal Site Remediation Section
 Bureau of Land

ph. # 217-557-8155

Subj: Fwd: Re: Glenview
Date: 8/5/2002 12:15:49 PM Eastern Daylight Time
From: BShadbolt@toltest.com
To: JMTIINNEY@aol.com, JTinney@toltest.com
Sent from the Internet (Details)

Brian Conrath 2 of 2

Received: from prep.admop.epa.state.il.us
 (epa.state.il.us [163.191.188.130])
 by toltest.com; Mon, 15 Jul 2002 11:37:51 -0400
 Received: from admisd3.epa.state.il.us (ADMISD3.adm.epa.state.il.us [10.16.8.117])
 by prep.admop.epa.state.il.us (8.11.6+Sun/8.10.2) with SMTP id g6FFYqW05526
 for <BShadbolt@toltest.com>; Mon, 15 Jul 2002 10:34:52 -0500 (CDT)
 Received: from ADMDO1-Message_Server by admisd3.epa.state.il.us
 with Novell_GroupWise; Mon, 15 Jul 2002 10:36:26 -0500
 Message-Id: <sd32a5aa.032@admisd3.epa.state.il.us>
 X-Mailer: Novell GroupWise Internet Agent 5.5.6.1
 Date: Mon, 15 Jul 2002 10:36:21 -0500
 From: "Brian Conrath" <epa4476@epa.state.il.us>
 To: <BShadbolt@toltest.com>
 Subject: Re: Glenview
 Mime-Version: 1.0
 Content-Type: text/plain; charset=US-ASCII
 Content-Transfer-Encoding: quoted-printable
 Content-Disposition: inline

Mr. Shadbolt,

You requested an e-mail from me stating the Agency's position regarding the proposed lead dust abatement activities inside Building 061, Indoor Firing Range, at Naval Air Station Glenview. As it is understood, Toltest's plan is to use a detergent wash on the interior walls to remove the lead-contaminated dust and to test and of the resulting lead-contaminated wash water as appropriate, as per Illinois Hazardous Waste Regulations. It is assumed that this waste water will not be found to be hazardous, but will require disposal as a Special waste. In addition, the washed walls will be tested prior to demolition to determine if they still contain lead contamination. Final disposition of the walls will be determined after this testing has been completed. The question that was posed to Illinois EPA was whether the listed action, washing down the walls to remove the lead dust, would require a RCRA Permit under Subtitle C. Illinois EPA has considered the proposed action and has determined that a RCRA, Subtitle C Permit will not be required. However, if there are subsequent changes to the proposed action, Illinois EPA will require an additional review to determine whether those changes would warrant a change in this decision.

If you have any questions or require additional information, please contact me at (217) 557-8155 or by electronic mail at brian.conrath@epa.state.il.us.

Sincerely,

Brian A. Conrath
 Remedial Project Manager
 Federal Facilities Unit
 Federal Site Remediation Section
 Bureau of Land

ph. # 217-557-8155
fax # 217-782-3258

>>> "Brian Shadbolt" <BShadbolt@toltest.com> 07/15/02 09:41AM >>>

Brian,

Thanks for your help on this project. I will send hardcopies of the figures and the parameter list today. Could I ask a favor of you? I have your written confirmation (via email) of the lead soil remediation issues that we discussed. If you recall, I also discussed with you the lead dust abatement activities inside the building and you had indicated to me verbally that we were not subject to RCRA permitting requirements or Subtitle C. I have this conversation recorded in a telephone log but it would be great if I could put a copy of something written from you in the project file. Could you email a brief confirmation, please?

Thanks,
Brian Shadbolt
TolTest, Inc.

APPENDIX D

TCLP Lead Analytical Report

SEVERN TRENT LABORATORIES
ANALYTICAL REPORT

JOB NUMBER: 210547

Prepared For:

ToiTest, Inc.
1000 Northpoint Blvd.
Waukegan, IL 60085

Project: U.S. Navy

Attention: Jeff Tinney

Date: 07/09/2002

Nancy S. McDonald

Signature

7/9/02

Date

Name: Nancy S. McDonald

Title: Project Manager

E-Mail: nmcdonald@stl-inc.com

STL Chicago
2417 Bond Street
University Park, IL 60466

PHONE: (708) 534-5200
FAX...: (708) 534-5211

STL Chicago is part of Severn Trent Laboratories, Inc.

STL Chicago

SAMPLE INFORMATION
Date: 07/09/2002

Job Number.: 210547
Customer...: TolTest, Inc.
Attn.....: Jeff Tinney

Project Number.....: 20002385
Customer Project ID....: GLENVIEW 42117.01
Project Description....: U.S. Navy

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
210547-1	D-002	Solid	07/01/2002	12:30	07/02/2002	15:00
210547-2	D-003	Solid	07/01/2002	12:35	07/02/2002	15:00
210547-3	D-004	Solid	07/01/2002	12:40	07/02/2002	15:00
210547-4	D-005	Solid	07/01/2002	12:45	07/02/2002	15:00
210547-5	D-006	Solid	07/01/2002	12:50	07/02/2002	15:00

LABORATORY TEST RESULTS

Job Number: 210547

Date: 07/09/2002

CUSTOMER: TolTest, Inc.

PROJECT: GLENVIEW 42117.01

ATTN: Jeff Tinney

Customer Sample ID: D-002
Date Sampled.....: 07/01/2002
Time Sampled.....: 12:30
Sample Matrix.....: Solid

Laboratory Sample ID: 210547-1
Date Received.....: 07/02/2002
Time Received.....: 15:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Leachable, Metals Analysis (ICAP) Lead, TCLP Leach	0.026	B		0.0050	0.050	1	mg/L	56192		07/05/02 1625	lmr

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 210547

Date: 07/09/2002

CUSTOMER: ToiTest, Inc.

PROJECT: GLENVIEW 42117.01

ATTN: Jeff Tinney

Customer Sample ID: D-003
Date Sampled.....: 07/01/2002
Time Sampled.....: 12:35
Sample Matrix.....: Solid

Laboratory Sample ID: 210547-2
Date Received.....: 07/02/2002
Time Received.....: 15:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q. FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Leachable, Metals Analysis (ICAP) Lead, TCLP Leach	0.011	B	0.0050	0.050	1	mg/L	56192		07/05/02 1631	lmr

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 210547

Date: 07/09/2002

CUSTOMER: TolTest, Inc.

PROJECT: GLENVIEW 42117.01

ATTN: Jeff Tinney

Customer Sample ID: D-004
Date Sampled.....: 07/01/2002
Time Sampled.....: 12:40
Sample Matrix.....: Solid

Laboratory Sample ID: 210547-3
Date Received.....: 07/02/2002
Time Received.....: 15:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Leachable, Metals Analysis (ICAP) Lead, TCLP Leach	3.2			0.0050	0.050	1	mg/L	56192		07/05/02 1652	lmr

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 210547

Date: 07/09/2002

CUSTOMER: TolTest, Inc.

PROJECT: GLENVIEW 42117.01

ATTN: Jeff Tinney

Customer Sample ID: D-005
Date Sampled.....: 07/01/2002
Time Sampled.....: 12:45
Sample Matrix.....: Solid

Laboratory Sample ID: 210547-4
Date Received.....: 07/02/2002
Time Received.....: 15:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Leachable, Metals Analysis (ICAP) Lead, TCLP Leach	0.12			0.0050	0.050	1	mg/L	56192		07/05/02 1658	lmr

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 210547

Date: 07/09/2002

CUSTOMER: TolTest, Inc.

PROJECT: GLENVIEW 42117.01

ATTN: Jeff Tinney

Customer Sample ID: D-006
Date Sampled.....: 07/01/2002
Time Sampled.....: 12:50
Sample Matrix.....: Solid

Laboratory Sample ID: 210547-5
Date Received.....: 07/02/2002
Time Received.....: 15:00

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Leachable, Metals Analysis (ICAP) Lead, TCLP Leach	1.2			0.0050	0.050	1	mg/L	56192		07/05/02 1704	lmc

* In Description = Dry Wgt.

LABORATORY CHRONICLE

Job Number: 210547

Date: 07/09/2002

CUSTOMER: ToiTest, Inc.

PROJECT: GLENVIEW 42117.01

ATTN: Jeff Tinney

Lab ID: 210547-1	Client ID: D-002	Date Recvd: 07/02/2002	Sample Date: 07/01/2002					
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #	(S)	DATE/TIME ANALYZED	DILUTION	
3010A	Acid Dig. Leachates (ICAP)	1	56062	56017		07/05/2002 0945		
6010B	Leachable, Metals Analysis (ICAP)	1	56192	56062	-56017	07/05/2002 1625		
1311	TCLP Extraction	1	56017			07/02/2002 0000		
Lab ID: 210547-2	Client ID: D-003	Date Recvd: 07/02/2002	Sample Date: 07/01/2002					
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #	(S)	DATE/TIME ANALYZED	DILUTION	
3010A	Acid Dig. Leachates (ICAP)	1	56062	56017		07/05/2002 0945		
6010B	Leachable, Metals Analysis (ICAP)	1	56192	56062	-56017	07/05/2002 1631		
1311	TCLP Extraction	1	56017			07/02/2002 0000		
Lab ID: 210547-3	Client ID: D-004	Date Recvd: 07/02/2002	Sample Date: 07/01/2002					
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #	(S)	DATE/TIME ANALYZED	DILUTION	
3010A	Acid Dig. Leachates (ICAP)	1	56062	56017		07/05/2002 0945		
6010B	Leachable, Metals Analysis (ICAP)	1	56192	56062	-56017	07/05/2002 1652		
1311	TCLP Extraction	1	56017			07/02/2002 0000		
Lab ID: 210547-4	Client ID: D-005	Date Recvd: 07/02/2002	Sample Date: 07/01/2002					
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #	(S)	DATE/TIME ANALYZED	DILUTION	
3010A	Acid Dig. Leachates (ICAP)	1	56062	56017		07/05/2002 0945		
6010B	Leachable, Metals Analysis (ICAP)	1	56192	56062	-56017	07/05/2002 1658		
1311	TCLP Extraction	1	56017			07/02/2002 0000		
Lab ID: 210547-5	Client ID: D-006	Date Recvd: 07/02/2002	Sample Date: 07/01/2002					
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #	(S)	DATE/TIME ANALYZED	DILUTION	
3010A	Acid Dig. Leachates (ICAP)	1	56062	56017		07/05/2002 0945		
6010B	Leachable, Metals Analysis (ICAP)	1	56192	56062	-56017	07/05/2002 1704		
1311	TCLP Extraction	1	56017			07/02/2002 0000		

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 07/09/2002

REPORT COMMENTS

- 1) All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.
- 2) Soil, sediment and sludge sample results are reported on a "dry weight" basis except when analyzed for landfill disposal or incineration parameters. All other solid matrix samples are reported on an "as received" basis unless noted differently.
- 3) Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.
- 4) The test results for the noted analytical method(s) meet the requirements of NELAC. Lab Cert. ID# 100201
- 5) Arizona Environmental Laboratory License number AZ0603.
- 6) According to 40CFR Part 136.3, pH, Chlorine Residual and Dissolved Oxygen analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field (e.g. pH Field) they were not analyzed immediately, but as soon as possible on laboratory receipt.

Glossary of flags, qualifiers and abbreviations (any number of which may appear in the report)

Inorganic Qualifiers (Q-Column)

- U Analyte was not detected at or above the stated limit.
- < Not detected at or above the reporting limit.
- J Result is less than the RL, but greater than or equal to the method detection limit.
- B Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.
- S Result was determined by the Method of Standard Additions.
- F AFCEE: Result is less than the RL, but greater than or equal to the method detection limit.

Inorganic Flags (Flag Column)

- ICV,CCV,ICB,CCB,ISA,ISB,CRI,CRA,MRL: Instrument related QC exceed the upper or lower control limits.
- * LCS, LCD, MD: Batch QC exceeds the upper or lower control limits.
- + MSA correlation coefficient is less than 0.995.
- 4 MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
- E SD: Serial dilution exceeds the control limits.
- H MB, EB1, EB2, EB3: Batch QC is greater than reporting limit or had a negative instrument reading lower than the absolute value of the reporting limit.
- N MS, MSD: Spike recovery exceeds the upper or lower control limits.
- W AS(GFAA) Post-digestion spike was outside 85-115% control limits.

Organic Qualifiers (Q - Column)

- U Analyte was not detected at or above the stated limit.
- ND Compound not detected.
- J Result is an estimated value below the reporting limit or a tentatively identified compound (TIC).
- Q Result was qualitatively confirmed, but not quantified.
- C Pesticide identification was confirmed by GC/MS.
- Y The chromatographic response resembles a typical fuel pattern.
- Z The chromatographic response does not resemble a typical fuel pattern.
- E Result exceeded calibration range, secondary dilution required.
- F AFCEE:Result is an estimated value below the reporting limit or a tentatively identified compound (TIC)

Organic Flags (Flags Column)

- B MB: Batch QC is greater than reporting limit.
- * LCS, LCD, ELC, ELD, CV, MS, MSD, Surrogate: Batch QC exceeds the upper or lower control limits.
- EB1, EB2, EB3, MLE: Batch QC is greater than reporting Limit
- A Concentration exceeds the instrument calibration range
- a Concentration is below the method Reporting Limit (RL)
- B Compound was found in the blank and sample.
- D Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
- H Alternate peak selection upon analytical review
- I Indicates the presence of an interference, recovery is not calculated.
- M Manually integrated compound.

QUALITY ASSURANCE METHODS
REFERENCES AND NOTES

Report Date: 07/09/2002

P The lower of the two values is reported when the % difference between the results of two GC columns is greater than 25%.

Abbreviations

- AS Post Digestion Spike (GFAA Samples - See Note 1 below)
- Batch Designation given to identify a specific extraction, digestion, preparation set, or analysis set
- CAP Capillary Column CCB Continuing Calibration Blank
- CCV Continuing Calibration Verification
- CF Confirmation analysis of original
- C1 Confirmation analysis of A1 or D1
- C2 Confirmation analysis of A2 or D2
- C3 Confirmation analysis of A3 or D3
- CRA Low Level Standard Check - GFAA; Mercury
- CRI Low Level Standard Check - ICP
- CV Calibration Verification Standard
- Dil Fac Dilution Factor - Secondary dilution analysis
- D1 Dilution 1
- D2 Dilution 2
- D3 Dilution 3
- DLFac Detection Limit Factor
- DSH Distilled Standard - High Level
- DSL Distilled Standard - Low Level
- DSM Distilled Standard - Medium Level
- EB1 Extraction Blank 1
- EB2 Extraction Blank 2
- EB3 DI Blank
- ELC Method Extracted LCS
- ELD Method Extracted LCD
- ICAL Initial calibration
- ICB Initial Calibration Blank
- ICV Initial Calibration Verification
- IDL Instrument Detection Limit
- ISA Interference Check Sample A - ICAP
- ISB Interference Check Sample B - ICAP
- Job No. The first six digits of the sample ID which refers to a specific client, project and sample group
Lab ID An 8 number unique laboratory identification
- LCD Laboratory Control Standard Duplicate
- LCS Laboratory Control Standard with reagent grade water or a matrix free from the analyte of interest
- MB Method Blank or (PB) Preparation Blank
- MD Method Duplicate
- MDL Method Detection Limit
- MLE Medium Level Extraction Blank
- MRL Method Reporting Limit Standard
- MSA Method of Standard Additions
- MS Matrix Spike
- MSD Matrix Spike Duplicate
- ND Not Detected
- PREPF Preparation factor used by the Laboratory's Information Management System (LIMS)
- PDS Post Digestion Spike (ICAP)
- RA Re-analysis of original
- A1 Re-analysis of D1
- A2 Re-analysis of D2
- A3 Re-analysis of D3
- RD Re-extraction of dilution
- RE Re-extraction of original
- RC Re-extraction Confirmation
- RL Reporting Limit
- RPD Relative Percent Difference of duplicate (unrounded) analyses
- RRF Relative Response Factor

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 07/09/2002

RT Retention Time
RTW Retention Time Window Sample ID A 9 digit number unique for each sample, the first six digits are referred as the job number
SCB Seeded Control Blank
SD Serial Dilution
UCB Unseeded Control Blank
SSV Second Source Verification Standard
SLCS Solid Laboratory Control Standard(LCS)
PHC pH Calibration Check
LCSP pH Laboratory Control Sample
LCDP pH Laboratory Control Sample Duplicate
MDPH pH Sample Duplicate
MDFP Flashpoint Sample Duplicate
LCFP Flashpoint LCS
G1 Gelex Check Standard Range 0-1
G2 Gelex Check Standard Range 1-10
G3 Gelex Check Standard Range 10-100
G4 Gelex Check Standard Range 100-1000

Note 1: The Post Spike Designation on Batch QC for GFAA is designated with an "S" added to the current abbreviation used. EX. LCSS=LCS Post Spike (GFAA); MSS=MS Post Spike (GFAA)

SEVERN TRENT LABORATORIES
ANALYTICAL REPORT

JOB NUMBER: 210445

Prepared For:

ToiTest, Inc.
1000 Northpoint Blvd.
Waukegan, IL 60085

Project: U.S. Navy

Attention: Jeff Tinney

Date: 07/09/2002

Nancy S. McDonald

Signature

7/9/02

Date

Name: Nancy S. McDonald

Title: Project Manager

E-Mail: nmcdonald@stl-inc.com

STL Chicago
2417 Bond Street
University Park, IL 60466

PHONE: (708) 534-5200
FAX.: (708) 534-5211

STL Chicago is part of Severn Trent Laboratories, Inc.

Severn Trent Laboratories - Chicago
METALS CASE NARRATIVE

Client: ToLTest, Inc.
Project: Gleview 42117.01
STL Job#: 210445

Date Rec'd: 06/26/02

1. This narrative covers the Metals analysis of 1 Soil & 1 TCLP Leachate in the above Job..

Method Ref: USEPA SW - 846

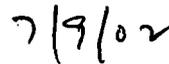
2. All analyses were performed within the required holding times.
3. All Initial and Continuing Calibration Verification (ICV/CCV's) were within control limits.
4. All Initial and Continuing Calibration Blanks (ICB/CCB's) were within control limits.
5. All ICP Interference Check Samples (ICSA and ICSAB) were within control limits.
6. All Laboratory Control Sample recoveries were within the 80-120% control limits.
7. All Method blank concentrations were less than the Reporting Limits.
8. Serial dilution analysis were within control limits.
9. Soil :Sample concentration was greater than 4X the spike added concentration. Therefore, spike recovery 75-125% control limits are not applicable.

Duplicate results were not within the 20% RPD control limits.

10. TCLP: Matrix spike recovery was greater than 50%
Duplicate results were within the 20% RPD control limits.



Mani S. Iyer
Metals Section Manager



Date

STL Chicago

SAMPLE INFORMATION
Date: 07/09/2002

Job Number.: 210445
Customer...: TolTest, Inc.
Attn.....: Jeff Tinney

Project Number.....: 20002385
Customer Project ID....: GLENVIEW 42117.01
Project Description....: U.S. Navy

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
210445-1	D-001	Solid	06/26/2002	10:15	06/26/2002	14:20
210445-2	D-002	Solid	06/26/2002	10:00	06/26/2002	14:20
210445-3	D-003	Solid	06/26/2002	09:45	06/26/2002	14:20
210445-4	D-004	Solid	06/26/2002	09:30	06/26/2002	14:20
210445-5	D-005	Solid	06/26/2002	09:15	06/26/2002	14:20
210445-6	D-006	Solid	06/26/2002	09:00	06/26/2002	14:20
210445-7	BG-001	Solid	06/26/2002	10:25	06/26/2002	14:20

Job Number: 210445

LABORATORY TEST RESULTS

Date: 07/09/2002

CUSTOMER: TolTest, Inc.

PROJECT: GLENVIEW 42117.01

ATTN: Jeff Tinney

Customer Sample ID: D-001
Date Sampled.....: 06/26/2002
Time Sampled.....: 10:15
Sample Matrix.....: Solid

Laboratory Sample ID: 210445-1
Date Received.....: 06/26/2002
Time Received.....: 14:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Leachable, Metals Analysis (ICAP) Lead, TCLP Leach	0.45			0.0050	0.050	1	mg/L	56192		07/05/02 1559	lmr

* In Description = Dry Wgt.

Job Number: 210445

LABORATORY TEST RESULTS

Date: 07/09/2002

CUSTOMER: TolTest, Inc.

PROJECT: GLENVIEW 42117.01

ATTN: Jeff Tinney

Customer Sample ID: BG-001
Date Sampled.....: 06/26/2002
Time Sampled.....: 10:25
Sample Matrix.....: Solid

Laboratory Sample ID: 210445-7
Date Received.....: 06/26/2002
Time Received.....: 14:20

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	FLAGS	MDL	RL	DILUTION	UNITS	BATCH	DT	DATE/TIME	TECH
6010B	Metals Analysis (ICAP Trace) Lead, Solid	120			0.41	0.48	1	mg/Kg	56183		07/05/02 1342	tds

* In Description = Dry Wgt.

STL Chicago

L A B O R A T O R Y C H R O N I C L E

Job Number: 210445

Date: 07/09/2002

CUSTOMER: TolTest, Inc.

PROJECT: GLENVIEW 42117.01

ATTN: Jeff Tinney

Lab ID: 210445-1	Client ID: D-001	Date Recvd: 06/26/2002	Sample Date: 06/26/2002			
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #	(S) DATE/TIME ANALYZED	DILUTION
3010A	Acid Dig. Leachates (ICAP)	1	56062	56017	07/05/2002	0945
6010B	Leachable, Metals Analysis (ICAP)	1	56192	56062 -56017	07/05/2002	1559
1311	TCLP Extraction	1	56017		07/02/2002	0000

Lab ID: 210445-7	Client ID: BG-001	Date Recvd: 06/26/2002	Sample Date: 06/26/2002			
METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #	(S) DATE/TIME ANALYZED	DILUTION
3050B	Acid Digestion: Solids (ICAP)	1	56023		07/03/2002	1720
6010B	Metals Analysis (ICAP Trace)	1	56183	56023	07/05/2002	1342

STL Chicago

Job Number.: 210445 QUALITY CONTROL RESULTS Report Date.: 07/09/2002

CUSTOMER: TolTest, Inc. PROJECT: GLENVIEW 42117.01 ATTN:

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
---------	-------------	------------	--------	-----------------	------	------

Test Method.....: 6010B Equipment Code.....: ICP5 Analyst....: tds
 Method Description.: Metals Analysis (ICAP Trace) Batch.....: 56183

MD	Method Duplicate	210445-7	07/05/2002	1349
----	------------------	----------	------------	------

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	* Limits	F
Lead, Solid	mg/Kg	77.53			124.09	46.2	R 20.0	*

STL Chicago

Job Number.: 210445 QUALITY CONTROL RESULTS Report Date.: 07/09/2002

CUSTOMER: TolTest, Inc. PROJECT: GLENVIEW 42117.01 ATTN:

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
---------	-------------	------------	--------	-----------------	------	------

Test Method.....: 6010B Equipment Code....: ICP4 Analyst....: lmr
 Method Description.: Leachable, Metals Analysis (ICAP) Batch.....: 56192

EB1	Extraction Blank 1	56062	56062 -001		07/05/2002	1547
-----	--------------------	-------	------------	--	------------	------

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	* Limits	F
Lead, TCLP Leach	mg/L	0.00500	U					

STL Chicago

Job Number.: 210445 QUALITY CONTROL RESULTS Report Date.: 07/09/2002

CUSTOMER: TolTest, Inc. PROJECT: GLENVIEW 42117.01 ATTN:

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
---------	-------------	------------	--------	-----------------	------	------

Test Method.....: 6010B Equipment Code.....: ICP4 Analyst....: lmr
 Method Description.: Leachable, Metals Analysis (ICAP) Batch.....: 56192

MD	Method Duplicate	210445-1	07/05/2002	1606
----	------------------	----------	------------	------

Parameter/Test Description	Units	QC Result	QC Result	True Value	Orig. Value	QC Calc.	* Limits	F
Lead, TCLP Leach	mg/L	0.43845			0.45090	2.8	R 20.0	

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 07/09/2002

REPORT COMMENTS

- 1) All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.
- 2) Soil, sediment and sludge sample results are reported on a "dry weight" basis except when analyzed for landfill disposal or incineration parameters. All other solid matrix samples are reported on an "as received" basis unless noted differently.
- 3) Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.
- 4) The test results for the noted analytical method(s) meet the requirements of NELAC. Lab Cert. ID# 100201
- 5) Arizona Environmental Laboratory License number AZ0603.
- 6) According to 40CFR Part 136.3, pH, Chlorine Residual and Dissolved Oxygen analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field (e.g. pH Field) they were not analyzed immediately, but as soon as possible on laboratory receipt.

Glossary of flags, qualifiers and abbreviations (any number of which may appear in the report)

Inorganic Qualifiers (Q-Column)

- U Analyte was not detected at or above the stated limit.
- < Not detected at or above the reporting limit.
- J Result is less than the RL, but greater than or equal to the method detection limit.
- B Result is less than the CRDL/RL, but greater than or equal to the IDL/MDL.
- S Result was determined by the Method of Standard Additions.
- F AFCEE: Result is less than the RL, but greater than or equal to the method detection limit.

Inorganic Flags (Flag Column)

- ICV,CCV,ICB,CCB,ISA,ISB,CRI,CRA,MRL: Instrument related QC exceed the upper or lower control limits.
- * LCS, LCD, MD: Batch QC exceeds the upper or lower control limits.
- + MSA correlation coefficient is less than 0.995.
- 4 MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
- E SD: Serial dilution exceeds the control limits.
- H MB, EB1, EB2, EB3: Batch QC is greater than reporting limit or had a negative instrument reading lower than the absolute value of the reporting limit.
- N MS, MSD: Spike recovery exceeds the upper or lower control limits.
- W AS(GFAA) Post-digestion spike was outside 85-115% control limits.

Organic Qualifiers (Q - Column)

- U Analyte was not detected at or above the stated limit.
- ND Compound not detected.
- J Result is an estimated value below the reporting limit or a tentatively identified compound (TIC).
- Q Result was qualitatively confirmed, but not quantified.
- C Pesticide identification was confirmed by GC/MS.
- Y The chromatographic response resembles a typical fuel pattern.
- Z The chromatographic response does not resemble a typical fuel pattern.
- E Result exceeded calibration range, secondary dilution required.
- F AFCEE:Result is an estimated value below the reporting limit or a tentatively identified compound (TIC)

Organic Flags (Flags Column)

- B MB: Batch QC is greater than reporting limit.
- * LCS, LCD, ELC, ELD, CV, MS, MSD, Surrogate: Batch QC exceeds the upper or lower control limits.
- EB1, EB2, EB3, MLE: Batch QC is greater than reporting Limit
- A Concentration exceeds the instrument calibration range
- a Concentration is below the method Reporting Limit (RL)
- B Compound was found in the blank and sample.
- D Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
- H Alternate peak selection upon analytical review
- I Indicates the presence of an interference, recovery is not calculated.
- M Manually integrated compound.

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 07/09/2002

P The lower of the two values is reported when the % difference between the results of two GC columns is greater than 25%.

Abbreviations

AS Post Digestion Spike (GFAA Samples - See Note 1 below)
 Batch Designation given to identify a specific extraction, digestion, preparation set, or analysis set
 CAP Capillary Column CCB Continuing Calibration Blank
 CCV Continuing Calibration Verification
 CF Confirmation analysis of original
 C1 Confirmation analysis of A1 or D1
 C2 Confirmation analysis of A2 or D2
 C3 Confirmation analysis of A3 or D3
 CRA Low Level Standard Check - GFAA; Mercury
 CRI Low Level Standard Check - ICP
 CV Calibration Verification Standard
 Dil Fac Dilution Factor - Secondary dilution analysis
 D1 Dilution 1
 D2 Dilution 2
 D3 Dilution 3
 DLFac Detection Limit Factor
 DSH Distilled Standard - High Level
 DSL Distilled Standard - Low Level
 DSM Distilled Standard - Medium Level
 EB1 Extraction Blank 1
 EB2 Extraction Blank 2
 EB3 DI Blank
 ELC Method Extracted LCS
 ELD Method Extracted LCD
 ICAL Initial calibration
 ICB Initial Calibration Blank
 ICV Initial Calibration Verification
 IDL Instrument Detection Limit
 ISA Interference Check Sample A - ICAP
 ISB Interference Check Sample B - ICAP
 Job No. The first six digits of the sample ID which refers to a specific client, project and sample group
 Lab ID An 8 number unique laboratory identification
 LCD Laboratory Control Standard Duplicate
 LCS Laboratory Control Standard with reagent grade water or a matrix free from the analyte of interest
 MB Method Blank or (PB) Preparation Blank
 MD Method Duplicate
 MDL Method Detection Limit
 MLE Medium Level Extraction Blank
 MRL Method Reporting Limit Standard
 MSA Method of Standard Additions
 MS Matrix Spike
 MSD Matrix Spike Duplicate
 ND Not Detected
 PREPF Preparation factor used by the Laboratory's Information Management System (LIMS)
 PDS Post Digestion Spike (ICAP)
 RA Re-analysis of original
 A1 Re-analysis of D1
 A2 Re-analysis of D2
 A3 Re-analysis of D3
 RD Re-extraction of dilution
 RE Re-extraction of original
 RC Re-extraction Confirmation
 RL Reporting Limit
 RPD Relative Percent Difference of duplicate (unrounded) analyses
 RRF Relative Response Factor

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 07/09/2002

RT Retention Time
RTW Retention Time Window Sample ID A 9 digit number unique for each sample, the first six digits are referred as the job number
SCB Seeded Control Blank
SD Serial Dilution
UCB Unseeded Control Blank
SSV Second Source Verification Standard
SLCS Solid Laboratory Control Standard(LCS)
PHC pH Calibration Check
LCSP pH Laboratory Control Sample
LCDP pH Laboratory Control Sample Duplicate
MDPH pH Sample Duplicate
MDFP Flashpoint Sample Duplicate
LCFP Flashpoint LCS
G1 Gelex Check Standard Range 0-1
G2 Gelex Check Standard Range 1-10
G3 Gelex Check Standard Range 10-100
G4 Gelex Check Standard Range 100-1000
Note 1: The Post Spike Designation on Batch QC for GFAA is designated with an "S" added to the current abbreviation used. EX. LCSS=LCS Post Spike (GFAA); MSS=MS Post Spike (GFAA)



1915 N. 12th St., P.O. Box 2186, Toledo, OH 43603-2186; Voice (419) 241-7175, Fax (419) 321-6259
 Ship To Address: ATTN: RECEIVING LAB, 1810 N. 12th St., Toledo, OH 43624-1304; Voice (419) 241-7175, Fax (419) 241-1808
 Sent From: Corporate Plymouth Pittsburgh Other Chicago

210445

Chain of Custody Record

31127

Page 1 of 1

Project No.: 42117.01		Client: US NAVY		Project/Location: Glenview (FOGI)		Parameters							
P.O. No.:		Project Mgr.: J. Tinney		Sampler's Name: Jeff Tinney		Total No. of Containers	TCLP Lead	Total Lead	Preserved Yes/No	LAB USE ONLY	Lab #		
Phone No. (847) 689-0697		Sampler's Signature: <i>Jeff Tinney</i>											
Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location							
1	D-001	6/26/02	10:15	Comp	Transite	Transite Tile from Mens Head	1	X			Y		
2	D-002	↓	10:00	Grab	Ceiling Tile	Tile from Senior, Duty, MALS, Range	1	X					
3	D-003		9:45	Grab	Air Filter	Air filter from Range	1	X					
4	D-004		9:30	Comp	Wood	Diagonal Beams from ^{→ Quarter Deck} Former Rang, Range	1	X					
5	D-005		9:15	Comp	Wall Board	Wall Board w/ insulation from ^{Former} Range	1	X					
6	D-006		9:00	Comp	Carpet	Sample from every room w/ carpet	1	X					
7	B5-001		↓	10:25	Comp	Soil	Composite from each corner of fence	1	X			↓	
8													
9													
10													

Item No.	Relinquished By:	Date / Time	Received By:	Date / Time	LAB USE ONLY
1-7	<i>Jeff Tinney</i>	6/26/02 12:15	<i>[Signature]</i>	6/26/02 12:15	Were samples delivered <input type="checkbox"/> in person <input type="checkbox"/> by courier Were samples preserved <input type="checkbox"/> in field <input type="checkbox"/> in lab <input type="checkbox"/> N/A Temp of samples _____ °C Did samples arrive intact and sealed? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> N/A Were proper containers used? <input type="checkbox"/> yes <input type="checkbox"/> no Was container labeled properly for contents? <input type="checkbox"/> yes <input type="checkbox"/> no Were samples packaged properly for type of material? <input type="checkbox"/> yes <input type="checkbox"/> no Was shipping label completed properly per regulations? (49 CFR 170, etc.) <input type="checkbox"/> yes <input type="checkbox"/> no Comments: _____
			<i>[Signature]</i>	6/26/02 1920	

TAT 5 days

APPENDIX E

Lead Training Documentation

The Great Lakes Center

For Occupational & Environmental Safety & Health

The University of Illinois at Chicago, School of Public Health, 2121 W. Taylor Street, Chicago, Illinois 60612 (312) 996-6904

Certifies that MIKE GRAF, 381-74-9295, has Attended

LEAD ABATEMENT FOR CONTRACTORS & SUPERVISORS

Which has been fully approved and accredited by the Illinois Department of Public Health.

and Successfully Passed the Competency Exam

with a minimum score of at least 70%

Certificate Number: A13919

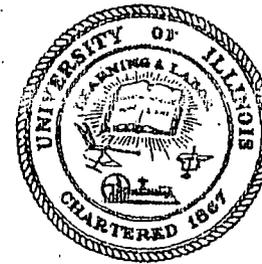
Date of Examination: 02/10/00
Course Date: 02/07/00 to 02/10/00

Date of Issuance: 02/10/00

Leslie Nichols

Director, Continuing Education


Director





State of Illinois

A 128981

Department of Public Health

LICENSE, PERMIT, CERTIFICATION, REGISTRATION

The person, firm or corporation whose name appears on this certificate has complied with the provisions of the Illinois Statutes and/or rules and regulations and is hereby authorized to engage in the activity as indicated below.

JOHN R. LUMPKIN, M.D.
DIRECTOR

Issued under the authority of
The State of Illinois
Department of Public Health

EXPIRATION DATE	CATEGORY	I.D. NUMBER
03/31/2003	5317	L- 7771
Mike P Graf		
LEAD SUPERVISOR		

BUSINESS ADDRESS

Toltest, Inc.
1000 Northpoint Blvd
Waukegan

IL 60085

CERTIFICATE OF ACHIEVEMENT

Construction and General Laborers
District Council of Chicago and
Vicinity Training Trust Funds
4N250 OLD GARY AVE
CLOVERDALE, ILLINOIS 60182
(708)653-9006



No. 873 F

MAILING ADDRESS
CHICAGO LABORERS TRAINING FUND
P.O. BOX 29589
CAROL STREAM, ILLINOIS 60182

This is to certify that **BRAYNE WILLIAMS** has successfully completed the **LEAD ABATEMENT WORKER GENERAL** course and passed the examination with a minimum score of at least 70%. Training was in compliance with State and Federal Regulations. This course is EPA and Illinois Department of Public Health accredited.

ANTHONY SOLANO

Administrator

COURSE DATE 09/03/99 THRU 09/08/99
EXAM DATE 09/08/99
EXPIRATION DATE 09/08/02





ORDER # 102-886-0572-0	TYPE NR	PRIMARY LAB FINAL	REPORT STATUS PG 1	03 N 01	FA. 04-17-02 13:07
TIME 1430	ADDITIONAL INFORMATION RC: ,BS: ,TP: ,FP: ,CT: DOB: 04/27/61			CLINICAL INFORMATION 04-17-02 13:07	
RB CD- AES12001910	SEX M			AGE (W/MOS) 040/11	PHYSICIAN LB SRIPATHY V
PATIENT INFORMATION WILLIAMS, DWAYNE			ACCOUNT UPIN: F83654	AES1200191	TVOL
DATE OF COLLECTION 04/12/02			DATE ENTERED 04/12/02	DATE REPORTED 04/15/02	0565
SOUTH EASTERN MEDICAL CTR 106TH & TORRENCE AVE CHICAGO, IL 60611			12001910 10 10 773-375-2200 ILC		
LEAD, BLOOD (ADULT)					
Environmental Exposure: WED <20 mcg/dL Occupational Exposure: OSEA Lead Std 40 mcg/dL BEI 30 mcg/dL USPHS Y2K Goal <25 mcg/dL Detection Limit = 1 mcg/dL					
LAB: BN LABCORP BURLINGTON 1447 YORK COURT BURLINGTON, NC 27215-2230			DIRECTOR: FRANK HANCOCK, MD		
FOR INQUIRIES, THE PHYSICIAN MAY CONTACT: BRANCH: 800-597-8026 LAB: 630-993-1500 LAST PAGE OF REPORT					

WILLIAMS, DWAYNE

REPORT
AES1200191

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Certificate of Completion

LEAD BASED PAINT ABATEMENT WORKER INITIAL COURSE

Accredited by the Illinois Department of Public Health

This is to certify that GERARDO MELENDEZ SS# 355-86-4115 has successfully passed with a minimum score of at least 70%, the 3 - day EPA model curriculum for Lead-Based Paint Abatement Worker Initial Course: HUD Interim Guidelines (6-95); Illinois Department of Public Health, Lead Poisoning Prevention Code 77 ILL ADM Code (12-94) Title X, Housing and Urban Development Act (1992); this day of January 30, 2002

January 28 - 30, 2002
Course Dates

January 30, 2005
Expires

LWIJGDLT03442002
Certificate Number

SWC training (Spanish)
Environmental Training
2201 South Halsted Avenue, 2nd Floor
Chicago, IL 60608


Gustavo De La Espinella
DIRECTOR

THE PERSON, FIRM OR CORPORATION WHOSE NAME APPEARS ON THIS CERTIFICATE HAS COMPLIED WITH THE PROVISIONS OF THE ILLINOIS STATUTES AND/OR RULES AND REGULATIONS AND IS HEREBY AUTHORIZED TO ENGAGE IN THE ACTIVITY INDICATED ON THE FACE OF THIS CARD.

State of Illinois A 126252
Department of Public Health
LICENSE, PERMIT, CERTIFICATION, REGISTRATION



ISSUED UNDER THE AUTHORITY OF
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC HEALTH

EXPIRATION DATE 03/31/2003	CATEGORY 5317	ID NUMBER L- 4863
-------------------------------	------------------	----------------------

Antonio Fierro

LEAD WORKER LICENSE

Certificate of Completion

LEAD-BASED PAINT ABATEMENT WORKER REFRESHER COURSE

Approved by the Illinois Department of Public Health

This is to certify that ANTONIO FIERRO ID# 5317 240-78-2841 has successfully passed with a minimum score of at least 70% the 1-day EPA model curriculum for Lead-Based Paint Abatement Worker Initial Course: HUD Interim Guidelines (6-95); Illinois Department of Public Health, Lead Poisoning Prevention Code, 72 Ill. Administrative Code Title 7, Housing and Urban Development Act (1992); this day of January 22, 2001

January 22, 2001
Course Date

January 22, 2004
Expires

LWRGDLT102001
Certificate Number

SWC training (Spanish)
Environmental Training
2201 South Halsted Avenue, 2nd Floor
Chicago, IL 60604

Gustavo De la Espinella
DIRECTOR



REGIONAL LABORATORY FACILITY

1355 Mittel Boulevard, Wood Dale, IL 60191

1-800-323-5917 (Regional Laboratory)

1-800-631-1390 (Client Services)

1-800-444-2123 (Industrial Client Service)

D. Jax Taylor, M.D.
D. JAX TAYLOR, M.D.

Delbert A. Fisher, M.D.
DELBERT A. FISHER, M.D.

CLIA REGISTRATION: 14D0417052
MEDICARE CERTIFICATE: 14-8229

PATIENT LELENDEZ, GERARDO			FINAL REPORT <input checked="" type="checkbox"/>		ACCOUNT NO. 621292	ROUTE/STOP 101144
AGE 34	PATIENT ID 355864115	DRAWN DATE AND TIME 01/29/2002 13:50	PARTIAL REPORT <input type="checkbox"/>		CHICAGO HEALTHWORKS 2724 W 47TH ST CHICAGO IL 60632	
SCIMEN NO. 547838058	HOSP. NO.	DOCTOR	RECEIVED DATE 01/29/2002		REPORT DATE AND TIME 01/30/02 834A	
REMARKS						

TEST NAME	RESULTS		UNIT OF MEASURE	REFERENCE RANGE
	WITHIN REFERENCE RANGE	OUTSIDE REFERENCE RANGE		

EAD, BLOOD 3 MCG/DL

CDC RECOMMENDED REFERENCE RANGES:

UP TO 16 YEARS OF AGE: 0-9.9 MCG/DL

ADULTS: 0-24.9 MCG/DL

IF PATIENT'S AGE IS NOT PROVIDED THE ADULT REFERENCE RANGE IS USED TO FLAG ELEVATED RESULTS.

OSHA LEAD EXPOSURE ACTION LIMIT: 40 MCG/DL

State of Illinois # 126919
 Department of Public Health
 LICENSE, PERMIT, CERTIFICATION, REGISTRATION

EXPIRATION DATE	CATEGORY	
03/31/2003	5317	L- 6750

Dwayne Williams

LEAD WORKER LICENSE



State of Illinois A 125315
Department of Public Health

LICENSE, PERMIT, CERTIFICATION, REGISTRATION

The person, firm or corporation whose name appears on this certificate has complied with the provisions of the Illinois Asbestos Worker rules and regulations and is hereby authorized to engage in the activity as indicated below.

JOHN R. LUMPKIN, M.D.
DIRECTOR

Issued under the authority of
 The State of Illinois
 Department of Public Health

EXPIRATION DATE	CATEGORY	ISSUE NUMBER
02/01/2003	057	057296752

DWAYNE L. WILLIAMS
ASBESTOS WORKER LICENSE

**ALTERING OF THIS CERTIFICATE MAY
 RESULT IN LEGAL ACTION**

BUSINESS ADDRESS

DWAYNE L. WILLIAMS
7742 S. KING DRIVE
CHICAGO IL 60619

**THIS LICENSE IS NOT VALID IF YOUR
 TRAINING COURSE CERTIFICATE IS NOT CURRENT**

Issued by Authority of the State of Illinois

CERTIFICATE OF ACHIEVEMENT

Construction and General Laborers'
District Council of Chicago and
Vicinity Training Trust Fund
1200 Old Gary Avenue
Carol Stream IL 60188
(630) 653-0006



NO. 963 R

Mailing Address:
Chicago Laborers Training Fund
P.O. Box 88658
Carol Stream, IL 60188

This is to certify that **STEVEN CUELLAR** has successfully completed the **LEAD ABATEMENT WORKER RENEWAL** course and passed the examination with a minimum score of at least 70%. Training was in compliance with State and Federal Regulations. This course is EPA and Illinois Department of Public Health accredited.

COURSE DATE 11/14/01 thru 11/14/01
EXAM DATE 11/14/01
EXPIRATION DATE 11/14/04

By Anthony Solano
Administrator

State of Illinois A 127144

Department of Public Health

CENSE, PERMIT, CERTIFICATION, REGISTRATION

EXPIRATION DATE	CATEGORY	I.D. NUMBER
03/31/2003	5317	L-3533

rardo Melendez

LEAD WORKER LICENSE

THE PERSON, FIRM OR CORPORATION WHOSE NAME APPEARS ON THIS CERTIFICATE HAS COMPLIED WITH THE PROVISIONS OF THE ILLINOIS STATUTES AND/OR RULES AND REGULATIONS AND IS HEREBY AUTHORIZED TO ENGAGE IN THE ACTIVITY INDICATED ON THE FACE OF THIS CARD.



ISSUED UNDER THE AUTHORITY OF
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC HEALTH

SIGNATURE OF LICENSEE

SPECIMEN # 332-886-2719-0		TYPE R	PRIMARY LAB REPORTS TO NR	REPORTS TO FINAL PG 1	03 N 01	FAX 1-30-01 14:35
RC: , HS: , TP: , FP: , CT: DOB: SS#: RB 07/2/58				PHYSICIAN ID IIMATOUK TVOL		
CD- ABF1200110 Fasting N				ACCOUNT ABF1200191		
PATIENT INFORMATION CUELLAR, STEVEN M 543/04				ACCOUNT SOUTHEASTERN MEDICAL CTR 12001910 106TH & TORRENCE AVE 10 CHICAGO IL 60617- 10		
DATE OF DELIVERY DATE ENTERED 11/28/01		DATE REPORTED 11/29/01		773-375-2200 ILC		
TEST	RESULT	UNITS	REFERENCE INTERVAL LAB			
Lead, Blood (Adult)	2	mcg/dL	0 - 19 BN	Environmental Exposure: WHO <20 mcg/dl Occupational Exposure: OSHA Lead Std 40 mcg/dL BEI 30 mcg/dL USPHS Y2K Goal <25 mcg/dL Detection Limit = 1 mcg/dL		
1467 YORK COURT BURLINGTON, NC 27215-7230				Director: P. S. BRADY, MD		
FOR INQUIRIES, THE PHYSICIAN MAY CONTACT: BRANCH: 800-597-8026 LAB: 630-993-1500				LAST PAGE OF REPORT		

CUELLAR, STEVEN

REPORT
ABF1200191

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1/28/01



State of Illinois A 127957
Department of Public Health

LICENSE, PERMIT, CERTIFICATION, REGISTRATION

The person, firm or corporation whose name appears on this certificate has complied with the provisions of the Illinois Statutes and/or rules and regulations and is hereby authorized to engage in the activity as indicated below.

JOHN R. LUMPKIN, M.D.
DIRECTOR

Issued under the authority of
The State of Illinois
Department of Public Health

EXPIRATION DATE	CATEGORY	L.I. NUMBER
03/31/2003	5317	L- 1938
Steven Cuellar		
LEAD WORKER LICENSE		

BUSINESS ADDRESS

2611 E. 106th St.
Chicago

IL 60617

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State of Illinois A 127957
Department of Public Health
LICENSE, PERMIT, CERTIFICATION, REGISTRATION

EXPIRATION DATE	L.I. NUMBER
03/31/2003	L- 1938

Steven Cuellar

LEAD WORKER LICENSE

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ISSUED UNDER THE AUTHORITY OF
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC HEALTH

Signature of Steven Cuellar

SIGNATURE OF LICENSEE

CERTIFICATE OF ACHIEVEMENT

Construction and General Laborers'
District Council of Chicago and
Vicinity Training Trust Fund
1200 Old Gary Avenue
Carol Stream IL 60188
(630) 653-0006



NO. 1018 R

Mailing Address:
Chicago Laborers Training Fund
P.O. Box 88658
Carol Stream, IL 60188

This is to certify that FRANCISZEK CZARNECKI has successfully completed the LEAD ABATEMENT WORKER RENEWAL course and passed the examination with a minimum score of at least 70%. Training was in compliance with State and Federal Regulations. This course is EPA and Illinois Department of Public Health accredited.

COURSE DATE 03/27/02 thru 03/27/02
EXAM DATE 03/27/02
EXPIRATION DATE 03/27/05

By Anthony Solano
Administrator

LEAD CLEARANCE LETTER

NAME: Frank Czarnecki SSN: 343-70-2067

DATE OF TEST: 03-15-02

Dear Employer:

This letter confirms the above individual was examined in compliance with the OSHA Lead standard (CFR 1910.1025). A detailed work and medical history with particular attention to lead exposure was performed.

Blood Lead Results: 10.1 MCG/DL Normal: Y N
Were within normal limits. The patient may begin work.

Abnormal Findings: Blood Pb level 10.1 maybe
Normal limits
Recommendations:

Thank You for the opportunity to examine this individual.

William Stanaszek
Physician's Name-please print

[Signature]
Physician's Signature

Carnow, Conibeary & Associates, Ltd. - Address
WILLIAM STANASZEK M.D.
Physician and Surgeon
7045 W. Belmont
Chicago, IL 60634
(773) 745-7377 Fax (773) 745-7397

Westmed Laboratories, Inc.
 330 N. ELSTON AVE., CHICAGO, IL 60630 (773) 725-5454

ILL. LIC # 0803
 Medicare # 14-8136

ACCOUNT NAME & NUMBER
 STANASZEK, WILLIAM J *3292* (773) 745-7377
 WILLIAM N. STANASZEK, MD
 7045 W. BELMONT AV
 CHICAGO, IL 60634

PATIENT NAME			AGE	SEX
CZAREMCKI, FRANK			64	M
DATE RECEIVED	DATE DRAWN	DATE REPORTED	ACCESSION NO.	
03/18/02	03/15/02	03/27/02	2396069	

** COMPLETE REPORT ** **LABORATORY REPORT** Route: 5 Page: 1 2

TEST	OUT OF RANGE	RESULT	REFERENCE RANGE
------	--------------	--------	-----------------

LEAD, BLOOD		10.1H	MCG/DL <10.0
-------------	--	-------	--------------

REFERENCE RANGES FOR LEAD WHOLE BLOOD:

AGE	REFERENCE RANGE	ALERT
< 15 YEARS OLD	< 10.0 MCG/DL	> 20 MCG/DL
15 YEARS AND OLDER	< 10.0 MCG/DL	> 30 MCG/DL
OSHA INDUSTRIAL ALERT	----	> 40 MCG/DL

TEST PERFORMED AT SPECIALTY LABORATORIES, INC.
 2211 MICHIGAN AVE
 SANTA MONICA, CA 90404

State of Illinois A 128097

Department of Public Health

LICENSE, PERMIT, CERTIFICATION, REGISTRATION

EXPIRATION DATE	CATEGORY	I.D. NUMBER
03/31/2003	5317	L- 2094

Frank

Czarnecki

LEAD WORKER LICENSE

THE PERSON, FIRM OR CORPORATION WHOSE NAME APPEARS ON THIS CERTIFICATE HAS COMPLIED WITH THE PROVISIONS OF THE ILLINOIS STATUTES AND/OR RULES AND REGULATIONS AND IS HEREBY AUTHORIZED TO ENGAGE IN THE ACTIVITY OF THIS CARD.

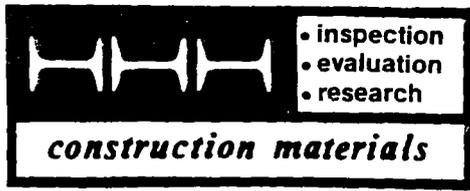


ISSUED UNDER THE AUTHORITY OF STATE OF ILLINOIS DEPARTMENT OF PUBLIC HEALTH

SIGNATURE OF LICENSEE

APPENDIX F

Fill Material



H. H. HOLMES TESTING LABORATORIES, INC.

May 25, 2001 • 170 Shepard Avenue • Wheeling, Illinois 60090 • 847-541-4040 • Fax: 847-537-9098

Report No. L-2

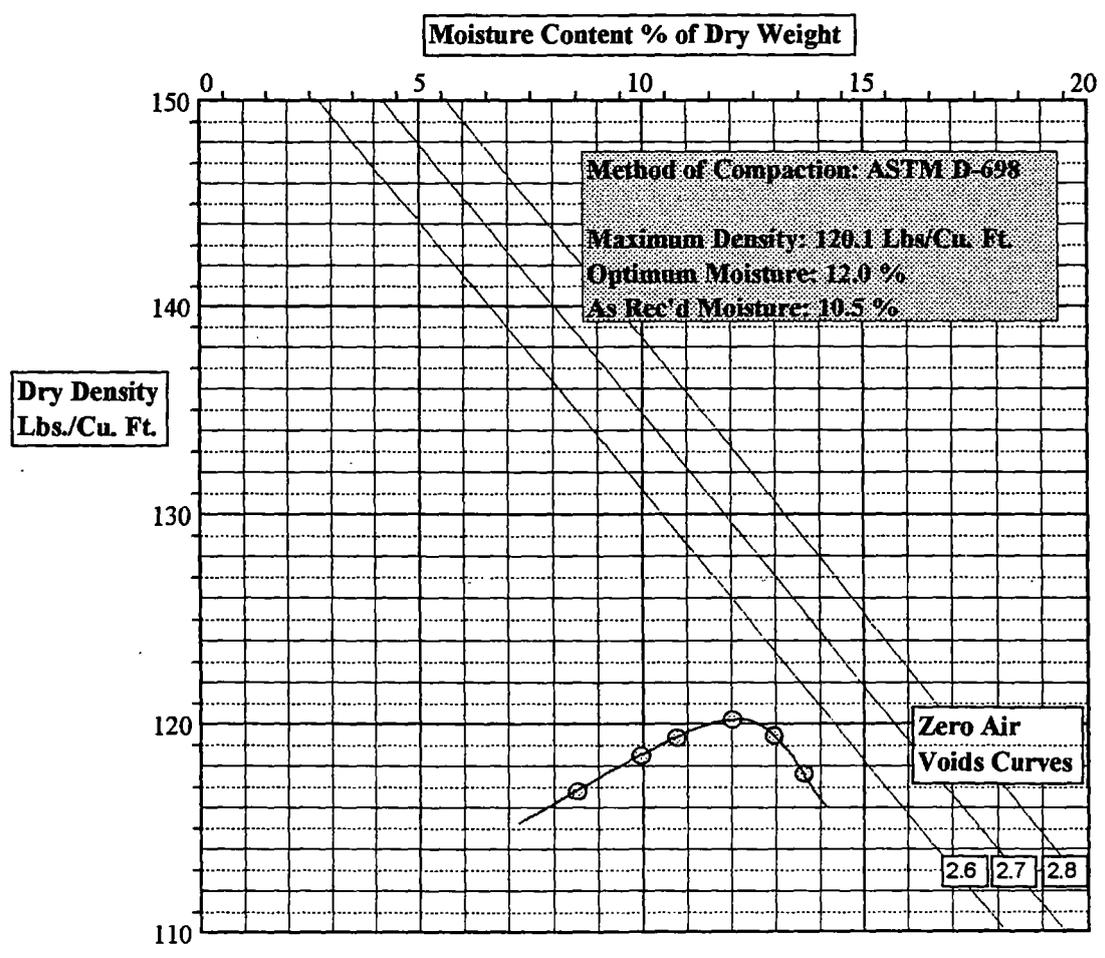
Lab No. 01-3493
File No. 1434.001

Toltest, Inc.
1915 N. 12TH Street
Toledo, OH 43624

Re: Building 144 Demolition
G.L.N.T.C.
Great Lakes, IL

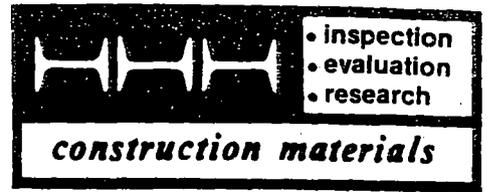
Report of Tests

Subject: Standard Proctor Test of Crushed Concrete CA-6
Source: Vulcan - Lake Bluff



Respectfully Submitted,

Scott R. Nelson
President *CR*



H. H. HOLMES TESTING LABORATORIES, INC.

May 19, 2001

• 170 Shepard Avenue • Wheeling, Illinois 60090 • 847-541-4040 • Fax: 847-537-9098

Report No. L-1

Lab No. 01-3493

File No. 1434.001

Toltest, Inc.
1915 N. 12TH Street
Toledo, OH 43624

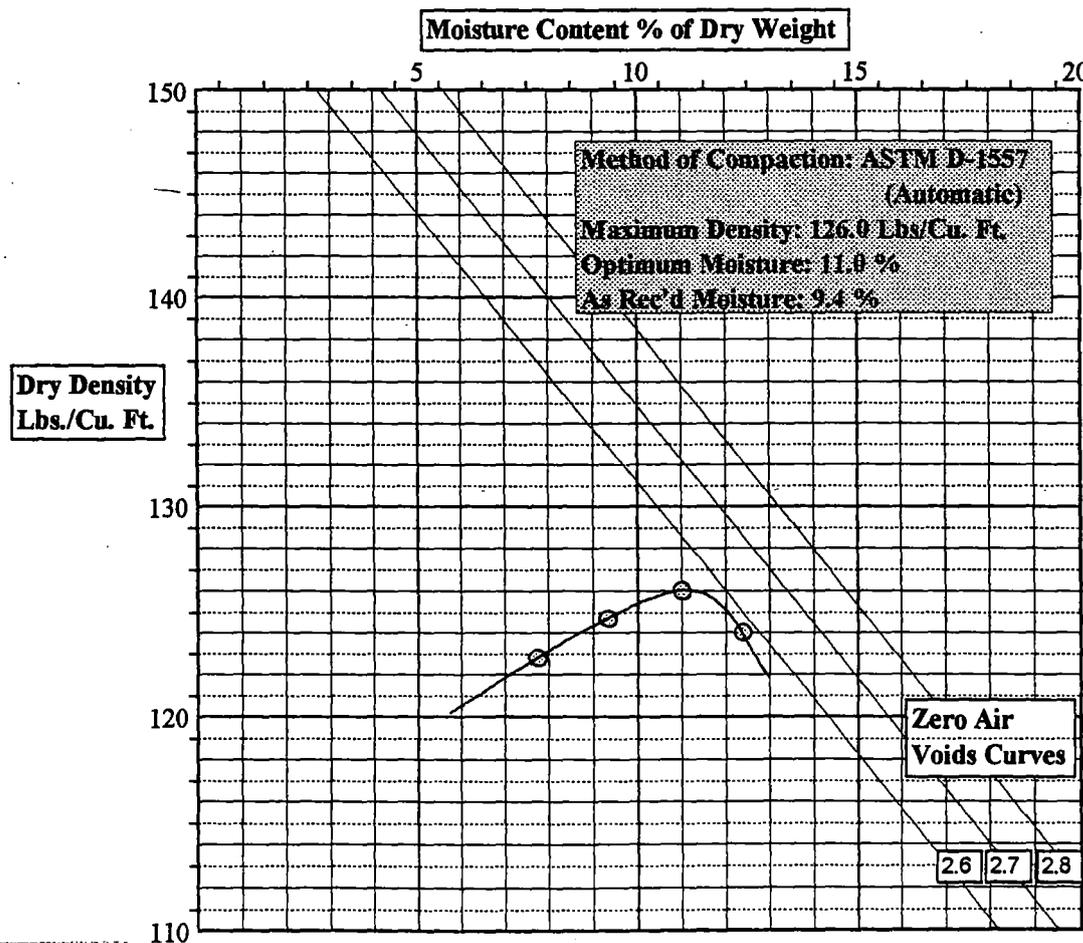
Re: Building 144 Demolition
G.L.N.T.C.
Great Lakes, IL

Report of Tests

Subject: Modified Proctor Test of Crushed Concrete

Source: Site

Date Sampled: 5/12/01



Respectfully Submitted,

Scott R. Nelson
President *CHI*

APPENDIX G

**Disposal Facility Certifications
and Lead-Impacted Soil Characterization Analytical Requirements**



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE MANAGEMENT RCRA PART B PERMIT

IEPA #1438120003 -- Peoria County
USEPA ILD #000805812
Peoria Disposal Company
Permit #B-24-M-49 & 51
RCRA -- Part B - Administrative Record

Issue Date: September 30, 1987
Effective Date: November 4, 1987
Expiration Date: November 4, 1997
Modification Date: August 6, 1999

Peoria Disposal Company
4700 North Sterling Avenue
Peoria, Illinois 61615

A Part B permit is hereby granted pursuant to the Resource Conservation and Recovery Act, Illinois Environmental Protection Act, and Title 35 Illinois Administrative Code (I.A.C.) parts 702, 703, 705, and 720 through 729 to the Peoria Disposal Company facility to construct/maintain and operate a waste management facility involved in the treatment, storage and disposal of hazardous waste. Peoria Disposal Company is located at 4349 Southport Road, Peoria, Illinois.

This permit consists of the conditions contained herein (including those in any attachments and appendices) and applicable regulations contained in the Illinois Environmental Protection Act and Title 35 I.A.C. Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this permit. The Environmental Protection Act (Ill. Rev. Stat., Chapter 111 1/2, Section 1039) grants the Illinois Environmental Protection Agency the authority to impose conditions on permits which are issued.

If you have any questions regarding this final permit, please contact Mark Schollenberger at 217/524-3307.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:MLC:bjh\961751S.WPD

Analytical Requirements

- I. pH
- Flashpoint (>200)
- % Solids
- Paint Filter
- Bulk Density
- * Total and Reactive Cyanides
- * Total and Reactive Sulfides
- Total Phenol
- Extractable Organic Halogen (E.O.X.)
- Radioactivity Screen (BICRON meter)

* Reactives only need to be run if totals are >10 ppm.

II. Total and TCLP Metals (TCLP's require matrix spike confirmation):

- Arsenic
- Barium
- Cadmium
- Chromium
- Lead
- Mercury
- Selenium
- Silver

IF HAZARDOUS FOR METALS, PDC IS REQUIRED TO RUN A TREATABILITY STUDY TO DEMONSTRATE COMPLIANCE WITH LDR'S

III. TCLP BNA's & TCLP VOA's (i.e. D018-D043 Matrix spike confirmation required)

VOLATILES:
EPA Method 8260

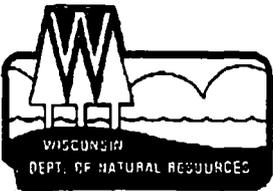
- Vinyl Chloride
- 1,1-Dichloroethene
- Chloroform
- 1,2-Dichloroethane
- Carbon Tetrachloride
- Trichloroethene
- Benzene
- Tetrachloroethene
- Chlorobenzene
- 1,4-Dichlorobenzene
- 2-Butanone (MEK)

BASE/NEUTRAL/ACID EXTRACTABLES:
EPA Method 8270

- | | |
|----------------------|-----------------------|
| <u>Base/Neutrals</u> | <u>Acids</u> |
| Pyridine | m,p-Cresol |
| Hexachloroethane | o-cresol |
| Nitrobenzene | 2,4,6-Trichlorophenol |
| Hexachlorobutadiene | 2,4,5-Trichlorophenol |
| 2,4-Dinitrotoluene | Pentachlorophenol |
| Hexachlorobenzene | |

 THE WASTE MUST BE ANALYZED BY PDC LABORATORIES FOR ANY UNIVERSAL TREATMENT STANDARDS LISTED FOR ALL APPLICABLE HAZARDOUS WASTE CODES

MUST BE ON SIGNED LABORATORY LETTERHEAD



MALLARD RIDGE PAGE 02

STATE OF WISCONSIN DEPT. OF NATURAL RESOURCES

SOLID WASTE FACILITY OPERATION LICENSE

AUTHORIZED CONTACT

MICHAEL C. ETTNER, GEN MGR
REPUBLIC SERVICES OF WIS LIMITED PARTNERS
W 8470 STATE RD 11
DELAVAN WI 53115

LICENSE NO: 03244

TYPE OF FACILITY:

Landfill > 500,000 Cu Yd

EFFECTIVE DATE: OCTOBER 01, 2001

DATE OF EXPIRATION: SEPTEMBER 30, 2002

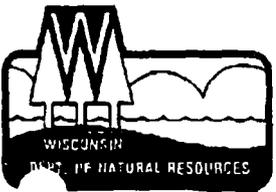
LICENSEE: REPUBLIC SERVICES OF WIS LIMITED PARTNERSHIP

NAME OF FACILITY: MALLARD RIDGE RECYCLING & DISPOSAL FACILITY

LOCATION OF FACILITY: SW 1/4 OF SE 1/4 OF SECTION 4, T 2, R 15E

W8470 STATE ROAD 11 DARIEN, TOWN OF
Walworth County

THIS LICENSE AUTHORIZES THE LICENSEE TO OPERATE THE SOLID WASTE FACILITY DESCRIBED ABOVE DURING THE TERM HEREOF EXCEPT AS MODIFIED BY THE DEPARTMENT. THIS LICENSE IS SUBJECT TO AND CONDITIONED UPON COMPLIANCE WITH THE PROVISIONS OF CHAPTER 289, WIS. STATS., AND CHAPTERS NR 500-538, WIS. ADM. CODE, ANY PLAN APPROVAL AND MODIFICATIONS THEREOF, AND ANY SPECIAL ORDER AND MODIFICATIONS THEREOF ISSUED BY THE DEPARTMENT. ANY EXEMPTIONS FROM THE REQUIREMENTS OF CHAPTERS NR 500-538, WIS. ADM. CODES, ISSUED FOR THIS FACILITY ARE LISTED ABOVE.



STATE OF WISCONSIN DEPT. OF NATURAL RESOURCES

SOLID WASTE FACILITY OPERATION LICENSE

AUTHORIZED CONTACT

SCOTT OTTERSON - GEN MGR
REPUBLIC SERVICES OF WIS LIMITED PARTNERS
1989 OAKES RD
RACINE WI 53406

LICENSE NO: 00572
TYPE OF FACILITY:
Landfill > 500,000 Cu Yd
EFFECTIVE DATE: OCTOBER 01, 2001
DATE OF EXPIRATION: SEPTEMBER 30, 2002

LICENSEE: REPUBLIC SERVICES OF WIS LIMITED PARTNERSHIP

NAME OF FACILITY: KESTREL HAWK RECYCLING & DISPOSAL FACILITY

LOCATION OF FACILITY: S 1/4 OF NE 1/4 OF SECTION 23, T 3, R22E
1777 OAKES ROAD RACINE, CITY OF
Racine County

THIS LICENSE AUTHORIZES THE LICENSEE TO OPERATE THE SOLID WASTE FACILITY DESCRIBED ABOVE DURING THE TERM HEREOF EXCEPT AS MODIFIED BY THE DEPARTMENT. THIS LICENSE IS SUBJECT TO AND CONDITIONED UPON COMPLIANCE WITH THE PROVISIONS OF CHAPTER 289, WIS. STATS., AND CHAPTERS NR 500-538, WIS. ADM. CODE, ANY PLAN APPROVAL AND MODIFICATIONS THEREOF, AND ANY SPECIAL ORDER AND MODIFICATIONS THEREOF ISSUED BY THE DEPARTMENT. ANY EXEMPTIONS FROM THE REQUIREMENTS OF CHAPTERS NR 500-538, WIS. ADM. CODES, ISSUED FOR THIS FACILITY ARE LISTED ABOVE.

ACORD CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YY)
02/14/2002

PRODUCER (630)850-7887 FAX (630)850-7996
Andersen Group, Ltd.
907 North Elm Street
Suite #200
Hinsdale, IL 60521

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED American Waste Haulers Inc.
P.o. Box 306
Maywood, IL 60153

INSURERS AFFORDING COVERAGE

INSURER A:	Zurich American Group
INSURER B:	
INSURER C:	
INSURER D:	
INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR	GLO2890914-03	02/14/2002	02/14/2003	EACH OCCURRENCE \$ 1,000,000 FIRE DAMAGE (Any one fire) \$ 50,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				
A	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> ALL OWNED AUTOS <input checked="" type="checkbox"/> RCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS <input checked="" type="checkbox"/> BI/PD DED \$2,500	BAP2890915-03	02/14/2002	02/14/2003	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN AUTO ONLY: EA ACC \$ AUG \$
A	EXCESS LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	WC3770479-00	02/01/2002	02/01/2003	WC STATU-TORY LIMITS (OTH-ER) E.L. EACH ACCIDENT \$ 500,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 500,000
	OTHER Physical Damage	BAP2890915-03	02/14/2002	02/14/2003	Comp/Co'l Deductible \$3,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS
EVIDENCE OF INSURANCE ONLY

CERTIFICATE HOLDER	ADDITIONAL INSURED: INSURER LETTER:	CANCELLATION
American Waste Hauler, Inc. P O Box 306 Maywood, IL 60153		SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE John Andersen/LP

ALORD!

DATE ISSUED

11-02

Wiedemann & Sons, Inc.

8. Golf Rd

Wilmington Heights, Il 60005

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

COMPANIES AFFORDING COVERAGE

- COMPANY A Greenwich Insurance Company
- COMPANY B
- COMPANY C
- COMPANY D

American Waste Haulers, Inc and
American Waste Processing, Ltd.
P.O. Box 306
Hawood, Il 60153

TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD SET FORTH HEREIN. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED ON ANY POLICY, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, CONDITIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YYYY)	POLICY EXPIRATION DATE (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY AUTOMOBILE GENERAL LIABILITY <input type="checkbox"/> CLAIM MADE <input type="checkbox"/> OCCUR <input type="checkbox"/> CONTRACTOR'S PROF				GENERAL AGGREGATE PRODUCTS - COMPACT AUTO PERSONAL & ADV GLEADY EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED EXP (Any one person)
	AUTOMOBILE LIABILITY <input type="checkbox"/> AUTO <input type="checkbox"/> OWNERS AUTO <input type="checkbox"/> RENTERS AUTO <input type="checkbox"/> UNINSURED AUTO				OPERATED ORALS LAST BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE
	SALES LIABILITY <input type="checkbox"/> AUTO				AUTO ONLY - EA ACCIDENT OTHER THAN AUTO ONLY: EACH ACCIDENT AGGREGATE
	EMPLOYEE LIABILITY <input type="checkbox"/> EMPLOYEE <input type="checkbox"/> NONEMPLOYEE <input type="checkbox"/> EXECUTIVES <input type="checkbox"/> VOLUNTEERS <input type="checkbox"/> OTHER				EACH OCCURRENCE AGGREGATE POLICY LIMIT CL EACH ACCIDENT CL DISEASE - POLICY LIMIT CL DISEASE - EA EMPLOYEE
	Pollution Legal Liability	Binder	3-1-02	3-1-03	\$1,000,000 Occurrences \$2,000,000 Aggregate

UNLESS ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL endeavor to MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY UPON ANY KIND UPON THE COMPANY OR REPRESENTATIVES.

Wiedemann & Sons, Inc.
J.M. Wiedemann



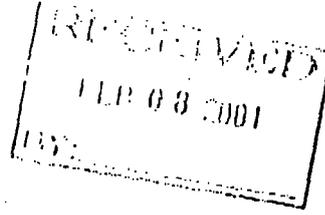
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

9511 WEST HARRISON STREET, DES PLAINES, ILLINOIS 60016

THOMAS V. SKINNER, DIRECTOR

847/294-4000

February 5, 2001



American Waste Processing, Ltd.
Attn: Mr. Joseph Strosnik
2010 W. Madison Street
Maywood, IL 60153

Re: 0311830002 -- Cook County
American Waste Processing, Ltd.
ILD000716894
Compliance File

Dear Mr. Strosnik:

On January 24, 2001, an inspection of the above referenced site was conducted by Anna VanOrden representing the Illinois Environmental Protection Agency. The purpose of this inspection was to determine the site's compliance with the Illinois Environmental Protection Act and 35 Illinois Administrative Code Part 722, Subparts A through G; Part 728, Subparts A through D and your Part B Permit (excluding groundwater monitoring and financial requirements).

No violations were noted at the time of this inspection. For your information, a copy of the inspection report is enclosed.

Should you have any questions regarding this inspection, please contact Anna VanOrden at 847/294-4000.

Sincerely,

Clifford Gould, Regional Manager
Field Operations Section
Bureau of Land

Enclosure

GEORGE H. RYAN, GOVERNOR

GENERAL OPERATING PERMIT



Environmental Protection Agency

2200 Churchill Road, Springfield, Illinois 62706

217/782-6760

REFER TO: COOK COUNTY - MAYWOOD/AMERICAN WASTE PROCESSING
PERMIT NO. 1981-40-OP

December 4, 1981

American Waste Processing, Ltd.
W. J. Vaydik, President
15 West 454 Lexington Avenue
Elmhurst, Illinois 60126

American Waste Processing, Ltd.
2006-2010 West Madison Street
Maywood, Illinois 60153

Attention: Brock Reinhard

Gentlemen:

Permit is hereby granted to W. J. Vaydik as owner, and American Waste Processing, Ltd., W. J. Vaydik, President as operator, to operate a waste management facility consisting of:

The West 150 feet of the East 200 feet of Block 12 in Commissioner's Partition of the North 56 acres of the West 1/2 of Section 15, Township 39 North, Range 12 East of the Third Principal Meridian (except that portion of premises taken for railroad purposes and Madison Street) also described as 2006-2010 West Madison Street, Maywood, Cook County, Illinois

to store, transfer, and treat liquid special waste, all in accordance with the application prepared by Patrick E. Lynch, P.E., and Brock Reinhard; said application consisting of seventeen pages, undated and received by the Agency September 24, 1980, two plan sheets dated September 30, 1980, and eighteen pages, undated, all received October 8, 1980, five pages dated November 3, 1980, and received December 22, 1980, one plan sheet dated April 12, 1981, and thirty-eight pages, undated, all received by the Agency April 21, 1981, nineteen pages and three plan sheets all dated October 20, 1981, and received October 20, 1981, and one page application for operating permit dated October 15, 1981, and received by the Agency on October 20, 1981.

This permit is subject to the standard conditions set forth on page 4, attached hereto and incorporated herein by reference, and further subject to the following special conditions:

1. This permit allows development and operation of a facility to store, transfer, and treat liquid special wastes.
2. Special wastes received at the facility shall be limited to the following:

- A. Acid wastes
- B. Alkaline wastes
- C. Flammable solvents
- D. Non-flammable solvents
- E. Oil wastes
- F. Sludges
 - (1) paint sludges
 - (2) dewatering sludges
 - (3) ink sludges
 - (4) coating sludges
 - (5) metal bearing sludges
 - (6) food processing sludges
 - (7) rags, paper, filter bearing sludges
 - (8) cleaning sludges
 - (9) chemical manufacturing sludges
- G. Aqueous wastes from contract manufacturing
 - (1) cosmetics
 - (2) electronics
 - (3) coolant waters

3. Special wastes exhibiting any of the following parameters shall not be accepted for neutralization at the facility:

- A. Cyanide compounds above 10 ppm
- B. Peroxide
- C. Insecticide
- D. Picric acid
- E. Explosive compounds

4. Special wastes exhibiting any of the following parameters shall not be accepted for lime addition process at the facility:

- A. Cyanide
- B. Radioactive wastes
- C. Peroxide
- D. Picric acid
- E. Explosive compounds

5. This permit allows a maximum volume of 5,600 gallons of liquid special waste to be stored at the facility in tanks at any time.

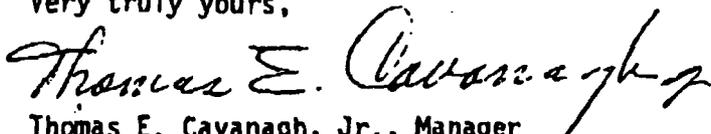
6. This permit allows a maximum volume of 18,000 gallons of special waste to be stored at the facility in drums at any time.

7. All hazardous wastes received and treated with lime will be considered hazardous wastes and shall be handled as such.

8. On a monthly basis, the volume of special wastes received shall be equal to the volume of special wastes removed from the facility.

9. Drums shall be stacked on pallets a maximum of two high. Aisles in drum storage areas shall be large enough to provide safe access to all areas.
10. Drum storage areas shall be developed and operated according to fire prevention regulations.
11. Further proposed modifications to the existing facility shall be the subject of an application for supplemental permit to this office.
12. The perimeter of the facility shall be inspected weekly for integrity. The active area of the facility shall be inspected daily. Any deficiencies shall be remedied immediately.
13. All unloading/loading shall take place within the diked area.
14. This facility shall be developed and operated in accordance with Chapters 2, 3, 7 and 9 of the Illinois Pollution Control Board Rules and Regulations.
15. Special wastes received at the facility for storage and/or treatment shall be transported to the facility utilizing the Agency's supplemental permit system and manifest system.
16. Special wastes at the site for disposal, incineration or further treatment elsewhere shall be transported to the receiving facility utilizing the Agency's supplemental permit system and manifest system.
17. This permit is subject to review and modification by the Agency as deemed necessary to fulfill the intent and purpose of the Environmental Protection Act, and all applicable environmental rules and regulations.
18. This permit is issued with the expressed understanding that no process or contaminated storm water discharge to Waters of the State or to a sanitary sewer will occur from these facilities. If such discharge occurs, additional or alternate facilities shall be provided. The construction of such additional or alternate facilities may not be started until a permit for their construction has been issued by the Agency.

Very truly yours,



Thomas E. Cavanagh, Jr., Manager
Residual Management Section
Division of Land/Noise Pollution Control

TEC/SAS/rr

Attachment

cc: Special Waste Unit
Northern Region
Patrick E. Lynch, P.E.

RCRA PART B PERMIT



Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

RCRA Log 158

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE MANAGEMENT RCRA PART B PERMIT

IEPA #0311830002 -- Cook County
USEPA ILD #000716894
Maywood/American Waste Processing
RCRA -- Part B - Administrative Record

Issue Date: September 29, 1995
Effective Date: November 3, 1995*
Expiration Date: November 3, 2005

American Waste Processing, Ltd.
2010 West Madison Street
Maywood, Illinois 60153

A Part B permit is hereby granted pursuant to the Resource Conservation and Recovery Act, Illinois Environmental Protection Act, and Title 35 Illinois Administrative Code (I.A.C.) Parts 702, 703, 705, and 720 through 729 to American Waste Processing to maintain and operate a waste management facility involved in the treatment and storage of hazardous waste. American Waste Processing is located at the property described as: The east 200.00 feet of Lot 12 (except that portion taken for railroad purposes and Madison Street) in circuit court commissioner's petition of the north 56 acres of the northwest 1/4 of Section 15, Township 39 North, Range 12 East of the 3rd Principal Meridian in Cook County, Illinois.

This permit consists of the conditions contained herein (including those in any attachments and appendices) and applicable regulations contained in the Illinois Environmental Protection Act and Title 35 I.A.C. Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this permit. The Environmental Protection Act (Ill. Rev. Stat., Chapter 111 1/2, Section 1039) grants the Illinois Environmental Protection Agency the authority to impose conditions on permits which are issued. This Permit contains 141 pages including Attachments A through I.

If you have any questions regarding this permit, please contact Mark A. Schollenberger at 217/524-3307.

Sincerely,

Edwin C. Bakowski, P.E.
Manager, Permit Section
Bureau of Land

ECB:MAS/mls/sp280X/8

cc: USEPA Region V, George Hamper
Vevsar, Inc., Midwest Regional Office

*See Section IX, Condition E(1)

the **AMERICAN WASTE**
GROUP

AMERICAN WASTE PROCESSING, LTD.

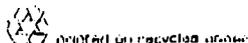
P. O. BOX 306, 2100 W. MADISON ST., MAYWOOD, IL. 60153
 FAX: (708) 681-5583 PHONE: (708) 681-3999
 (800) 841-6900

American Waste Processing, Ltd. is an EPA, Part B Permitted, Treatment and Storage Facility licensed under Federal USEPA #ILD000716874 and Illinois EPA #0311830002. We operate under the following EPA waste stream permits:

Permit #	Types of Material	Laboratory Analysis Req'd				
		A	B	C	D	None
000155	Hazardous Aerosols and Other Containers From Health, Beauty, Household, Automotive, Etc. (Normally shipped in original containers or drums.)	X				
000156	Non-Hazardous Surplus Product and chemicals (Normally shipped in original containers or drums)	X				
000157	Non-Hazardous Empty RCRA Containers (RCRA Empty Statement is required.)	X				
000220	Virgin Non-Hazardous Tank Bottoms & Cleaning Waters from Kerosene, Heating Oil, Diesel Fuel and Motor Fuels. No. 6 Oil requires testing.	X				
000383/ 000384	Spent Non-Hazardous Tank Bottoms & Cleaning Waters from Kerosene, Heating Oil, Diesel Fuel & Motor Fuels				X	
000221	Virgin Hazardous Tank Bottoms and Cleaning Waters from Petroleum Fuels and Alcohol Fuels	X				
000377/ 000378/ 000379	Spent Hazardous Tank Bottoms and Cleaning Waters from Petroleum Fuels and Alcohol Fuels		X			
000222	Virgin Hazardous Tank Bottoms and Cleaning Waters from Solvents, including F001 through F005 and Chlorinated	X				
000377/ 000378/ 000379	Spent Hazardous Tank Bottoms and Cleaning Waters from Solvents, including F001 through F005 and Chlorinated		X			
000377	Virgin Flammable Paint and Solvents	X				
000377	Spent Flammable Paint and Solvents		X			
000378	Virgin Flammable Material - Not Paint	X				

AMERICAN WASTE INDUSTRIES, INC.
 AMERICAN WASTE HAULERS, INC. AMERICAN RESOURCE RECOVERY, LTD.
 AMERICAN WASTE PROCESSING OF MAYWOOD, INC.

P.O. BOX 306, MAYWOOD, ILLINOIS 60153-0306
 (708) 681-3999 • (800) 841-6900 • FAX: (708) 681-5583



Permit #	Types of Material	A	B	C	D	None
000378	Spent Flammable Material - Not Paint		X			
000379	Virgin Halogenated (Chlorinated) Solvents	X				
000379	Spent Halogenated (Chlorinated) Solvents		X			
000380	Virgin Acids	X				
000380	Spent Acids			X		
000381	Virgin Caustics	X				
000381	Spent Caustics			X		
000382	Hazardous Sludges and Water * Plus Paint Filter			X*		
000383	Non Hazardous Sludges/Solids/Soils	X #1			X	
000384	Non-Hazardous Waters				X	
000379	Filters from Retail Dry Cleaners					X
	Sorbents - Permit Depends on Material					
	Oil Filters - Industrial Filters Laboratory Analysis is normally not needed.					X
	Fluorescent Bulbs & Ballast Laboratory Analysis is normally not needed.					X

If you wish for us to do the testing, we will need a quart sample or you can use a laboratory of your choice. Also acceptable are existing tests which are not over one (1) year old.

Laboratory analysis for PCBs, Phenols, TOC or TOX are tested when warranted. AWP reserves the right to request a specific test(s) to correctly identify a waste material.

Note #1: Many non-hazardous solids can use Generator certification.

LABORATORY REQUIREMENTS FOR GENERIC PERMITS

- A. Laboratory analysis are not needed for a product. MSDS, labels from the containers or generator's certification can normally be used.
- B. Physical Appearance, Flash Point, Water Reactivity, Total Metals, Cyanide/Sulfide, Total Solids, pH, BTU, Ash, Chlorine
- C. Physical Appearance, Total Metals, Water Reactivity, % Acidity or Alkalinity, Cyanide/Sulfide/ pH
- D. Physical Appearance, TCLP Metals, Water Reactivity, TCLP Organics, Cyanide/Sulfide, Total Solids, pH, Acidity or Alkalinity, Paint Filter, Flash Point

permits.frm

APPENDIX H

Material Safety Data Sheets

MSDS Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-998-6666

Outside U.S. and Canada
ChemTrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

ALCONOX(R)

MSDS Number: A2052 --- Effective Date: 02/21/00

1. Product Identification

Synonyms: Proprietary blend of sodium linear alkylaryl sulfonate, alcohol sulfate, phosphates, and carbonates.

CAS No.: Not applicable.

Molecular Weight: Not applicable to mixtures.

Chemical Formula: Not applicable to mixtures.

Product Codes: A461

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Alconox(R) proprietary detergent mixture	N/A	90 - 100%	Yes

3. Hazards Identification

Emergency Overview

CAUTION! MAY BE HARMFUL IF SWALLOWED OR INHALED. MAY CAUSE IRRITATION TO EYES AND RESPIRATORY TRACT.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES; LAB COAT

Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation:

May cause irritation to the respiratory tract. Symptoms may include coughing and shortness of breath.

Ingestion:

May cause irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea.

Skin Contact:

No adverse effects expected.

Eye Contact:

May cause irritation, redness and pain.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

No information found.

4. First Aid Measures

Inhalation:

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Wash exposed area with soap and water. Get medical advice if irritation develops.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Not expected to be a fire hazard.

Explosion:

No information found.

Fire Extinguishing Media:

Dry chemical, foam, water or carbon dioxide.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. When mixed with water, material foams profusely. Small amounts of residue may be flushed to sewer with plenty of water.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Moisture may cause material to cake. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

- OSHA Permissible Exposure Limit (PEL):

15 mg/m³ total dust, 5 mg/m³ respirable fraction for nuisance dusts.

- ACGIH Threshold Limit Value (TLV):

10 mg/m³ total dust containing no asbestos and < 1% crystalline silica for Particulates Not Otherwise Classified (PNOC).

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

White powder interspersed with cream colored flakes.

Odor:

No information found.

Solubility:

Moderate (1-10%)

Specific Gravity:

No information found.

pH:

No information found.

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

No information found.

Melting Point:

No information found.

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

No information found.

Conditions to Avoid:

No information found.

11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

-----\Cancer Lists\-----			
Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Alconox(R) proprietary detergent mixture	No	No	None

12. Ecological Information

Environmental Fate:

This product is biodegradable.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----
Ingredient                                     TSCA  EC   Japan  Australia
-----
Alconox(R)                                     Yes  No   No     No
proprietary detergent mixture

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-----\Chemical Inventory Status - Part 2\-----
Ingredient                                     Korea  DSL   NDSL  Phil.
-----
Alconox(R)                                     No     No   Yes   No
proprietary detergent mixture

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```

-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                     -SARA 302-  -SARA 313-----
RQ   TPQ   List  Chemical Catg.
-----
Alconox(R)                                     No   No   No     No
proprietary detergent mixture

```

```

-----\Federal, State & International Regulations - Part 2\-----
Ingredient                                     -RCRA-      -TSCA-
CERCLA  261.33    8(d)
-----
Alconox(R)                                     No          No
proprietary detergent mixture

```

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
 Reactivity: No (Pure / Solid)

Australian Hazchem Code: No information found.

Poison Schedule: No information found.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 0 Flammability: 0 Reactivity: 0

Label Hazard Warning:

CAUTION! MAY BE HARMFUL IF SWALLOWED OR INHALED. MAY CAUSE IRRITATION TO EYES AND RESPIRATORY TRACT.

Label Precautions:

Avoid contact with eyes.

Keep container closed.

Use with adequate ventilation.

Avoid breathing dust.

Wash thoroughly after handling.

Label First Aid:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. In all cases, get medical attention.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16.

Disclaimer:

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Prepared by: Strategic Services Division
Phone Number: (314) 539-1600 (U.S.A.)

MSDS Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtree: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

NITRIC ACID 1.0 N AND 2.0 N VOLUMETRIC SOLUTIONS

MSDS Number: N3659 --- *Effective Date: 11/02/01*

1. Product Identification

Synonyms: Azotic acid solution; nitric acid 6.3%; nitric acid 1.0 N volumetric solution; nitric acid 2.0 N volumetric solution; nitric acid 12.6%

CAS No.: 7697-37-2

Molecular Weight: 63.00

Chemical Formula: HNO₃ in H₂O

Product Codes: J.T. Baker: 5639

Mallinckrodt: 3510

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
-----	-----	-----	-----

Nitric Acid
Water

7697-37-2
7732-18-5

6 - 13%
> 87%

Yes
No

3. Hazards Identification

Emergency Overview

POISON! DANGER! OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. INHALATION MAY CAUSE LUNG AND TOOTH DAMAGE.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 3 - Severe (Poison)

Flammability Rating: 0 - None

Reactivity Rating: 3 - Severe (Oxidizer)

Contact Rating: 4 - Extreme (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: Yellow (Reactive)

Potential Health Effects

Nitric acid is extremely hazardous; it is corrosive, reactive, an oxidizer, and a poison.

Inhalation:

Corrosive! Inhalation of vapors can cause breathing difficulties and lead to pneumonia and pulmonary edema, which may be fatal. Other symptoms may include coughing, choking, and irritation of the nose, throat, and respiratory tract.

Ingestion:

Corrosive! Swallowing nitric acid can cause immediate pain and burns of the mouth, throat, esophagus and gastrointestinal tract.

Skin Contact:

Corrosive! Can cause redness, pain, and severe skin burns. Concentrated solutions cause deep ulcers and stain skin a yellow or

yellow-brown color.

Eye Contact:

Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Chronic Exposure:

Long-term exposure to concentrated vapors may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the corrosive properties of the acid.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

4. First Aid Measures

Immediate first aid treatment reduces the health effects of this substance.

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:

DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Can react with metals to release flammable hydrogen gas.

Explosion:

May react explosively with combustible organic or readily oxidizable materials such as: alcohols, turpentine, charcoal, organic refuse, metal powder, hydrogen sulfide, etc.

Fire Extinguishing Media:

If involved in a fire, use water spray.

Special Information:

Increases the flammability of combustible, organic and readily oxidizable materials. In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

J. T. Baker NEUTRASORB® or TEAM® 'Low Na+' acid neutralizers are recommended for spills of this product.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect from physical damage and direct sunlight. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

For Nitric Acid:

OSHA Permissible Exposure Limit (PEL):

2 ppm (TWA)

ACGIH Threshold Limit Value (TLV):

2 ppm (TWA); 4 ppm (STEL)

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134). Nitric acid is an oxidizer and should not come in contact with cartridges and canisters that contain oxidizable materials, such as activated charcoal. Canister-type respirators using sorbents are ineffective.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Colorless to yellowish liquid.

Odor:

Suffocating, acrid.

Solubility:

Infinitely soluble.

Specific Gravity:

No information found.

pH:

No information found.

% Volatiles by volume @ 21C (70F):

100 (as water and acid)

Boiling Point:

No information found.

Melting Point:

No information found.

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Containers may burst when heated.

Hazardous Decomposition Products:

When heated to decomposition, emits toxic nitrogen oxides fumes and hydrogen nitrate.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

A dangerously powerful oxidizing agent, concentrated nitric acid is incompatible with most substances, especially strong bases, metallic powders, carbides, hydrogen sulfide, turpentine, and combustible organics.

Conditions to Avoid:

Heat and incompatibles.

11. Toxicological Information

For Nitric Acid: Investigated as a mutagen and reproductive effector.

-----\Cancer Lists\-----

---NTP Carcinogen---

Ingredient	Known	Anticipated	IARC Category
Nitric Acid (7697-37-2)	No	No	None
Water (7732-18-5)	No	No	None

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility.

Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations.

Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: NITRIC ACID (WITH NOT MORE THAN 70% NITRIC ACID)

Hazard Class: 8**UN/NA:** UN2031**Packing Group:** II**Information reported for product/size:** 20L**International (Water, I.M.O.)**

Proper Shipping Name: NITRIC ACID (WITH NOT MORE THAN 70% NITRIC ACID)

Hazard Class: 8

UN/NA: UN2031

Packing Group: II

Information reported for product/size: 20L

15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
Nitric Acid (7697-37-2)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

Ingredient	Korea	--Canada--		Phil.
		DSL	NDSL	
Nitric Acid (7697-37-2)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

Ingredient	-SARA 302-		-SARA 313-	
	RQ	TPQ	List	Chemical Catg.
Nitric Acid (7697-37-2)	1000	1000	Yes	No
Water (7732-18-5)	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----

Ingredient	CERCLA	-RCRA-	-TSCA-
		261.33	8(d)
Nitric Acid (7697-37-2)	1000	No	No
Water (7732-18-5)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
 Reactivity: Yes (Mixture / Liquid)

Australian Hazchem Code: 2PE

Poison Schedule: S6

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 3 Flammability: 0 Reactivity: 0 Other: Oxidizer

Label Hazard Warning:

POISON! DANGER! OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. INHALATION MAY CAUSE LUNG AND TOOTH DAMAGE.

Label Precautions:

Do not get in eyes, on skin, or on clothing.

Do not breathe vapor or mist.

Use only with adequate ventilation.

Wash thoroughly after handling.

Keep from contact with clothing and other combustible materials.

Store in a tightly closed container.

Label First Aid:

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases call a physician.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 8.

Disclaimer:

Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling

of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)

MSDS**Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



Mallinckrodt
CHEMICALS



24 Hour Emergency Telephone: 908-659-2151
CHEMTREC: 1-800-424-9300

National Response In Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

LEAD METAL

MSDS Number: L2347 --- *Effective Date: 11/02/01*

1. Product Identification

Synonyms: Granular lead, pigment metal; C.I. 77575

CAS No.: 7439-92-1

Molecular Weight: 207.19

Chemical Formula: Pb

Product Codes: J.T. Baker: 2256, 2266

Mallinckrodt: 5668

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Lead	7439-92-1	95 - 100%	Yes

3. Hazards Identification

Emergency Overview

POISON! DANGER! MAY BE FATAL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. NEUROTOXIN. AFFECTS THE GUM TISSUE, CENTRAL NERVOUS SYSTEM, KIDNEYS, BLOOD AND REPRODUCTIVE SYSTEM. POSSIBLE CANCER HAZARD. MAY CAUSE CANCER BASED ON ANIMAL DATA. Risk of cancer depends on duration and level of exposure.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 3 - Severe (Life)

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

Storage Color Code: Blue (Health)

Potential Health Effects

Inhalation:

Lead can be absorbed through the respiratory system. Local irritation of bronchia and lungs can occur and, in cases of acute exposure, symptoms such as metallic taste, chest and abdominal pain, and increased lead blood levels may follow. See also Ingestion.

Ingestion:

POISON! The symptoms of lead poisoning include abdominal pain and spasms, nausea, vomiting, headache. Acute poisoning can lead to muscle weakness, "lead line" on the gums, metallic taste, definite loss of appetite, insomnia, dizziness, high lead levels in blood and urine with shock, coma and death in extreme cases.

Skin Contact:

Lead and lead compounds may be absorbed through the skin on prolonged exposure; the symptoms of lead poisoning described for ingestion exposure may occur. Contact over short periods may cause local irritation, redness and pain.

Eye Contact:

Absorption can occur through eye tissues but the more common hazards are local irritation or abrasion.

Chronic Exposure:

Lead is a cumulative poison and exposure even to small amounts can raise the body's content to toxic levels. The symptoms of chronic exposure are like those of ingestion poisoning; restlessness, irritability, visual disturbances, hypertension and gray facial color may also be noted.

Aggravation of Pre-existing Conditions:

Persons with pre-existing kidney, nerve or circulatory disorders or with skin or eye problems may be more susceptible to the effects of this substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard. Powder/dust is flammable when heated or exposed to flame.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire. Do not allow water runoff to enter sewers or waterways.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Can produce toxic lead fumes at elevated temperatures and also react with oxidizing materials.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Areas in which exposure to lead metal or lead compounds may occur should be identified by signs or appropriate means, and access to the area should be limited to authorized persons. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

For lead, metal and inorganic dusts and fumes, as Pb:

-OSHA Permissible Exposure Limit (PEL): 0.05 mg/m³ (TWA)

For lead, elemental and inorganic compounds, as Pb:

-ACGIH Threshold Limit Value (TLV): 0.05 mg/m³ (TWA), A3 animal carcinogen

ACGIH Biological Exposure Indices (BEI): 30 ug/100ml, notation B (see actual Indices for more information).

For lead, inorganic:

-NIOSH Recommended Exposure Limit (REL): 0.1 mg/m³ (TWA)

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a half-face high efficiency particulate respirator (NIOSH type N100 filter) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece high efficiency particulate respirator (NIOSH type N100 filter) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Other Control Measures:

Eating, drinking, and smoking should not be permitted in areas where solids or liquids containing lead compounds are handled, processed, or stored. See OSHA substance-specific standard for more information on personal protective equipment, engineering and work practice controls, medical surveillance, record keeping, and reporting requirements. (29 CFR 1910.1025).

9. Physical and Chemical Properties

Appearance:

Small, white to blue-gray metallic shot or granules.

Odor:

Odorless.

Solubility:

Insoluble in water.

Density:

11.34

pH:

No information found.

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

1740C (3164F)

Melting Point:

327.5C (622F)

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

1.77 @ 1000C (1832F)

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Does not decompose but toxic lead or lead oxide fumes may form at elevated temperatures.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Ammonium nitrate, chlorine trifluoride, hydrogen peroxide, sodium azide, zirconium, disodium acetylide, sodium acetylide and oxidants.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

11. Toxicological Information

Toxicological Data:

Investigated as a tumorigen, mutagen, reproductive effector.

Reproductive Toxicity:

Lead and other smelter emissions are human reproductive hazards. (Chemical Council on Environmental Quality; Chemical Hazards to Human Reproduction, 1981).

Carcinogenicity:

EPA / IRIS classification: Group B2 - Probable human carcinogen, sufficient animal evidence.

-----\Cancer Lists\-----			
Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Lead (7439-92-1)	No	No	2B

12. Ecological Information

Environmental Fate:

When released into the soil, this material is not expected to leach into groundwater. This material may bioaccumulate to some extent.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility.

Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations.

Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

```

-----\Chemical Inventory Status - Part 1\-----
Ingredient                                     TSCA  EC   Japan  Australia
-----
Lead (7439-92-1)                             Yes  Yes   Yes    Yes
  
```

```

-----\Chemical Inventory Status - Part 2\-----
Ingredient                                     Korea  --Canada--  DSL  NDSL  Phil.
-----
Lead (7439-92-1)                             Yes   Yes         No    Yes
  
```

```

-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                     -SARA 302-  -SARA 313-
RQ  TPQ  List  Chemical Catg.
-----
Lead (7439-92-1)                             No   No    Yes    No
  
```

```

-----\Federal, State & International Regulations - Part 2\-----
Ingredient                                     CERCLA  -RCRA-  -TSCA-
                                     10  261.33  8(d)
-----
Lead (7439-92-1)                             No   No    No
  
```

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
 Reactivity: No (Pure / Solid)

WARNING:

THIS PRODUCT CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

Australian Hazchem Code: No information found.

Poison Schedule: S6

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 3 Flammability: 1 Reactivity: 0

Label Hazard Warning:

POISON! DANGER! MAY BE FATAL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. NEUROTOXIN. AFFECTS THE GUM TISSUE, CENTRAL NERVOUS SYSTEM, KIDNEYS, BLOOD AND REPRODUCTIVE SYSTEM. POSSIBLE CANCER HAZARD. MAY CAUSE CANCER BASED ON ANIMAL DATA. Risk of cancer depends on duration and level of exposure.

Label Precautions:

Do not get in eyes, on skin, or on clothing.

Do not breathe dust.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 8.

Disclaimer:

Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER,

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Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)

Heavy Metal Cleaning Solution (HMCS-101)

(Catalog # RP-104)

General Information - Application Information - MSDS

I Product: HEAVY METAL CLEANING SOLUTION (HMCS-101)	
Description: Clear Liquid Manufacturer: Chemical Solutions Int'l. Corp. P.O. Box 891185 Houston, TX 77289-1185	Date Prepared: July 2000. Emergency Telephone No. (281) 992-3031 (800) 424-4804 E-mail: jimarnold@chemicalsolutionsintl.com Home Page: www.chemicalsolutionsintl.com

II Health Hazard Data: Health Hazards (Acute & Chronic) EYES: May cause discomfort. SKIN: Concentrate will dry out and chap sensitive skin as would detergent. INHALATION of fumes may upset stomach. SIGNS & SYMPTOMS OF EXPOSURE: EYES: Redness, tearing, blurred vision. SKIN: Dryness, redness, chapping. INGESTION may cause vomiting. FIRST AID: EYES: Flush 15 minutes with water. SKIN: Wash with soap and water. INHALATION: Move to fresh air. Apply artificial respiration if breathing has stopped. INGESTION: Do not induce vomiting. If any irritation persists, seek medical attention.	V Hazardous Ingredients: Hg Cleaning Solutions is a proprietary formulation which contains small amounts of minerals and organics. This product should be handled accordingly. Complies with OSHA 29 CFR XVIII-1910.1200 Section (I) "Trade Secrets" Contains no hazardous components under current OSHA definitions. VI Special Protection & Precautions: Hygienic Practices: Wash after each shift. Remove and wash contaminated clothing before re-used. Work Practices: Wear goggles or face shield. Rubber gloves. Other Protective Clothing: Long sleeved shirt buttoned at neck is desirable. Rubber boots.
III Precautions for Safe Handling & Use: If material is spilled, remove leaking package to safe area. Flush with water. Disposal: Any approved method for dilute cleaner.	VII Reactivity Data: Stable under normal use and storage conditions. Incompatible with strong oxidizing agents. Hazardous decomposition or byproducts - oxides of carbon.
	VIII Fire & Explosion Data:

Surfactants are highly biodegradable.	Flash Point/Method Used..... None/COC.
IV Physical Data:	IX Control Measures:
pH.....10	Respiratory Protection: Not Necessary.
Solubility in water.....100%	Ventilation: Local Exhaust/Desirable.
Boiling Point..... 212°F	Mechanical/Helpful in congested areas.
Vapor Pressure/Density..... Same as water	(Complies with OSHA 174, Sep. 1985.)
Evaporation Rate (Butyl Acetate=1).....<1	
Appearance & Odor: Clear liquid with medium viscosity and synthetic cleaner odor.	
Specific Gravity..... 1.06	

HMIS CODE: Health 1 Flammability 0 Reactivity 0 Personal Protection B

APPENDIX I

Incident Reports

ATTACHMENT 2 ASSOCIATE INJURY REPORT

This report is to be initiated by the associate's supervisor. Please answer all questions completely. This report must be forwarded to the Manager, Corporate Health and Safety within 24 hours of the injury/illness.

Injured's Name _____ Sex _____ SSN _____ Birth Date _____
 Home Address _____
 City _____ State _____ Zip _____ Phone () _____
 Job Title _____ Hire Date _____ Hourly Wage _____

Date of Incident _____ Time _____ Time Reported _____ To Whom? _____

Project/Department Name _____ Address _____

Project No _____ Time Shift Began _____ Did Associate Leave Work? No Yes When? _____

Has associate returned to work? No Yes When _____ Did associate miss a regularly scheduled shift? No Yes

Doctor/Hospital Name _____ Address _____

Witness Name(s) _____ Statement Attached? No Yes

Nature of Injury _____ Exact Body Part _____

Medical Attention: None First Aid On Site Doctor's Office Hospital ER Hospitalized

Job Assignment at Time of Incident _____

Describe Incident _____

Associate: _____
Print Signature Date

Comments on Incident and Corrective Action(s) _____

What Unsafe Condition(s) and/or Act(s) Contributed to the Incident? _____

What Corrective Action(s) Have Been Taken to Prevent Recurrence? _____

Supervisor: _____
Print Signature Date

ASSOCIATE INJURY REPORT

CONTINUED

Concur With Action Taken? Yes No Remarks _____

OSHA Classification: First Aid Recordable, No Lost/Restricted Workdays

Recordable, Lost Workdays Recordable, Restricted Activity Fatality

Days Away From Work _____ Days Restricted Work _____

Worker's Compensation Claim Number (if applicable) _____

To/ Test Tracking No. _____

Verbal Received (Date/Time) _____ Report Received (Date/Time) _____

Drug Screen Yes No Alcohol Screen Yes No

Manager, Corporate Health and Safety:

Manager, Corporate Health and Safety

Print

Signature

Date

A. Type of Injury or Illness Code: _____ E. Agent Code: _____

B. Injured Body Part Code: _____ F. Safety Rule Violated Code: _____

C. Activity at Time of Incident Code: _____ G. Incident Prevention Code: _____

D. Injury Cause Code: _____ H. Instruction/RE-Instruction Code: _____

ATTACHMENT 3 GENERAL LIABILITY, PROPERTY DAMAGE AND LOSS REPORT

This report is to be completed for all losses or damage to company property in excess of \$1000 and all third party damage, regardless of value, resulting from company activities.

Project/Department/Location _____ Project No. _____ Date _____

Address _____

How Did Damage or Loss Occur: _____

Description and Value (\$) of Damaged/Lost/Stolen Property: _____

Location of Damaged/Lost/Stolen Property (Before Loss): _____

Date and Time of Damage, Loss or Theft: _____

Owner of Damaged/Lost/Stolen Property:

Name _____ Phone No. () _____

Address _____ City _____

Employer and Address _____

Injured Parties (Also completed a Supervisor's Associate Injury Report if a Company Associate):

Name _____ Phone No. () _____

Address _____ City _____

Employer and Address _____

Description of Injury _____

Witnesses:

1. Name _____ Phone No. () _____

Address _____ City _____

Employer and Address _____

2. Name _____ Phone No. () _____

Address _____ City _____

Employer and Address _____

Were Pictures Taken? Yes No
Were Police Notified? Yes No Dept _____ Report No. _____

Completed By:

Print Signature Date

Manager, Corporate Health and Safety:

Print Signature Date

ATTACHMENT 4 INCIDENT INVESTIGATION REPORT

MUST BE COMPLETED WITHIN 72 HOURS

Investigation Date _____ Date of Incident _____

Employee Name _____

Supervisor Name _____

Dept. Name/Project Number/Project Name _____

Location of Incident _____

▪ **Incident Classification**

- | | | | | | |
|---------------|---|------------------|---|--------------------------|---|
| <u>Injury</u> | <input type="checkbox"/> First Aid | <u>Vehicle</u> | <input type="checkbox"/> Chargeable | <u>DOT</u> | <input type="checkbox"/> DOT Vehicle |
| | <input type="checkbox"/> OSHA Recordable | | <input type="checkbox"/> Non-Chargeable | | <input type="checkbox"/> DOT Reportable |
| | <input type="checkbox"/> Lost Workday | | | | |
| | <input type="checkbox"/> Restricted Workday | <u>Near Miss</u> | <input type="checkbox"/> | <u>General Liability</u> | <input type="checkbox"/> |

▪ Description (Provide facts, describe how incident occurred, provide diagram [on back] or photos)

▪ Analysis 1 (What unsafe acts or conditions contributed to the incident?)

▪ Analysis 2 (What systematic or management deficiencies contributed to incident?)

▪ Corrective Action(s) (List corrective action items, responsible person, scheduled completion date)

▪ Witnesses (Attach statements or indicate why unavailable)

Investigated By _____
Print Signature Date

Manager, Corp. _____
Health and Safety Print Signature Date

ATTACHMENT 5 INCIDENT REVIEW BOARD

DATE:	LOCATION:
BOARD MEMBERS:	
INCIDENT DATE:	ASSOCIATE(S) INVOLVED IN INCIDENT:
INVESTIGATION COMPLETE: YES <input type="checkbox"/>	INCIDENT CLASSIFICATION
NO <input type="checkbox"/>	
THE FOLLOWING INFORMATION <u>MUST</u> BE PROVIDED BY THE REVIEW BOARD FOR THIS INCIDENT (PRINT)	
SUPERVISOR: _____	
CAUSE OF INCIDENT:	
ACTION(S) RECOMMENDED BY BOARD*:	
*ALL ACTIONS BY THE INCIDENT REVIEW BOARD ARE SUBJECT TO FINAL REVIEW BY THE INDIVIDUALS LISTED BELOW.	
ACCEPTED:	
_____ ASSOCIATE SIGNATURE	_____ SUPERVISOR SIGNATURE
ACCEPTED:	REJECTED FOR:
_____ MANAGER, CORPORATE HEALTH AND SAFETY	_____
ACCEPTED:	REJECTED FOR:
_____ MANAGER, HUMAN RESOURCES	_____
ACCEPTED:	REJECTED FOR:
_____ DIVISION VICE PRESIDENT	_____

ATTACHMENT 6 VEHICLE INCIDENT REPORT

This report is to be initiated by the associate involved in the incident or his/her direct supervisor. Please answer all questions completely. This report must be forwarded to the Manager, Corporate Health and Safety within 24 hours of the incident.

INCIDENT DESCRIPTION

INCIDENT DATE _____ TIME _____ A.M. or P.M.
 LOCATION OF INCIDENT (ADDRESS, CITY AND STATE) _____
 DESCRIPTION OF INCIDENT _____

 WITNESS _____ PHONE NO. () _____
 ADDRESS _____ CITY _____ STATE _____ ZIP _____
 POLICE OFFICER'S NAME _____ DEPARTMENT _____

COMPANY VEHICLE

DRIVER _____ DRIVERS LICENSE _____ STATE _____
 ADDRESS _____ CITY _____ STATE _____ ZIP _____
 WORK PHONE NO () _____ SSN _____ PROJECT NAME/NO _____ OFFICE/DEPT _____
 VEHICLE NO _____ YEAR _____ MAKE _____ MODEL _____ LICENSE PLATE NO _____
 STATE _____ VEHICLE OWNER _____ COMPANY _____ LEASED/RENTED _____ PRIVATE VEHICLE _____
 VEHICLE TYPE _____ COMMERCIAL MOTOR VEHICLE _____ NON COMMERCIAL _____
 IF NOT COMPANY-OWNED: OWNER _____ PHONE NO () _____
 ADDRESS _____ CITY _____ STATE _____ ZIP _____
 VEHICLE DAMAGE _____
 NO. OF VEHICLES TOWED FROM SCENE _____ NUMBER OF INJURIES _____ NUMBER OF FATALITIES _____
 WERE HAZARDOUS MATERIALS RELEASED? _____ YES _____ NO IF YES, DESCRIBE MATERIALS _____

OTHER VEHICLE

DRIVER _____ DRIVERS LICENSE _____ STATE _____
 ADDRESS _____ CITY _____ STATE _____ ZIP _____
 PHONE NO () _____ SSN _____
 OWNERS NAME (CHECK IF SAME AS DRIVER) _____
 ADDRESS _____ CITY _____ STATE _____ ZIP _____
 INSURANCE COMPANY _____ POLICY NO _____
 ADDRESS _____ CITY _____ STATE _____ ZIP _____
 VEHICLE: YEAR _____ MAKE _____ MODEL _____ PLATE NO _____ STATE _____
 VEHICLE IDENTIFICATION NUMBER _____
 VEHICLE DAMAGE _____
 PASSENGERS YES NO INJURIES YES (List names and telephone numbers below) NO

WEATHER _____ CLEAR _____ CLOUDY _____ FOG _____ RAIN _____
 _____ SLEET _____ SNOW _____ OTHER _____
 PAVEMENT _____ ASPHALT _____ STEEL _____ CONCRETE _____ WOOD _____
 _____ GRAVEL/DIRT _____ BRICK/STONE _____ OTHER _____
 CONDITION _____ DRY _____ WET _____ ICY _____ POTHOLES _____
 _____ OTHER _____
 TRAFFIC CONTROL _____ TRAFFIC LIGHT _____ STOP SIGN _____ RAILROAD _____
 _____ NO INTERSECTION _____ NO CONTROL _____

VEHICLE INCIDENT REPORT (continued)

ROADWAY _____ NUMBER OF LANES EACH DIRECTION _____ RESIDENTIAL _____
 _____ DIVIDED HIGHWAY _____ UNDIVIDED HIGHWAY _____

Draw and name roadways showing each vehicle, direction of travel, and point of impact. Indicate travel direction before the incident with a solid line and post-incident movement with a broken line.

SYMBOLS:

- Your Vehicle ①
- Other Vehicle(s) ②
- ③
- Pedestrian ☺
- +
- Stop Sign ⬡
- Yield ▼
- Railroad ⚓

ADDITIONAL INFORMATION: _____

ASSOCIATE	_____	_____	_____
	(Print)	(Signature)	(Date)
SUPERVISOR	_____	_____	_____
	(Print)	(Signature)	(Date)
DEPARTMENT SAFETY REPRESENTATIVE	_____	_____	_____
	(Print)	(Signature)	(Date)
CORPORATE HEALTH & SAFETY MNGR.	_____	_____	_____
	(Print)	(Signature)	(Date)

~~HEALTH & SAFETY DEPARTMENT~~

TRACKING # _____ INCIDENT REPORT ORDERED _____ AT FAULT Y N

ORIGINAL: H&S FILE D&A SCREEN DEFENSIVE DRIVING Y N

CC: ASSOCIATE DEPT. SAFETY REP W/C FILE DENISE

APPENDIX J

Excavating and Trenching Procedures

Approved By:

Signatures on File

Richard L. Barcum, CSP, CHMM
Manager, Corporate Health and Safety

Signatures on File

David D. Alleman, CPA
Vice President, CFO

Procedure

EXCAVATION AND TRENCHING

1.0 PURPOSE AND SUMMARY

This procedure presents the federal requirements for excavation safety. Excavation operations pose unique and serious hazards. With very few exceptions, protective systems must be designed and installed to protect associates who enter excavations. Accepted protective systems include; sloping (including benching), shoring and shielding. The protective system must be designed by a registered professional engineer (civil), and plans must be available for inspections on-site, under prescribed conditions.

In addition to federal requirements, some states (such as California) and localities may require notification of trenching/excavation operations prior to beginning work.

Compliance with this procedure is mandatory to ensure associate protection when working in or around excavations. Additional programs in the Corporate Health and Safety Program manual on confined space, hazard communication, lock-out/tag-out, respiratory protection, and any other safety programs or procedures deemed essential for associate protection, are to be used in conjunction with this program.

2.0 RESPONSIBILITY MATRIX

2.1 Procedure Responsibility

The Manager, Corporate Health and Safety is responsible for the issuance, revision and maintenance of this procedure.

2.2 Program Responsibility

This program will be monitored by the Corporate Health and Safety Department.

2.3 Supervisors and Managers

It is the responsibility of each Project Supervisor and Project Manager to implement and maintain the procedures and steps set forth in this program.

2.4 Associates

Each associate involved with excavation and trenching work is responsible to comply with all applicable safety procedures and requirements of this program.

3.0 DEFINITIONS

3.1 Accepted Engineering Requirements – Those requirements or practices which are compatible with standards required by a registered professional engineer (civil).

3.2 Angle Of Repose – The greatest angle above the horizontal plane at which a material will lie without sliding.

3.3 Benching - A method of protecting associates 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.

3.4 Cave-In - The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by failing or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

3.5 Competent Person - One who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to associates, and who has authorization to take prompt corrective measures to eliminate them.

3.6 Confined Space – A space that:

- Is large enough and so configured that an associate can bodily enter and perform assigned work; and

- Has limited or restricted means for entry or exit (e.g., tanks, vessels, silos, storage bins, hoppers, vaults and pits are spaces that may have limited means of entry); and
- Is not designed for continuous associate occupancy.

3.7 Design Engineer – An individual, currently registered as a civil engineer in the applicable state, who, in all other respects, meets the requirements of a pertinent State OSHA Program, or Federal OSHA in terms of his or her ability to design shoring, sloping, benching, or alternate trench/excavation systems.

3.8 Duration Of Exposure - The longer an excavation is open, the longer the other factors have to work on causing it to collapse.

3.9 Excavation - Any man-made cut, trench, or depression in an earth surface, formed by earth removal.

3.10 Hazardous Atmosphere - 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.

3.11 Project Manager – An individual who is responsible to coordinate and direct the activities of both the Design Engineer and the Project Supervisor. The Project Manager is responsible to assure that all pre-excavation requirements are met.

3.12 Project Supervisor – An individual, such as a supervisor or engineer, who is familiar with the installation of shoring or sloping/benching systems and the attendant hazards of excavation or trenching operations. Project supervisors shall meet the particular requirements of State OSHA programs, or where applicable, the requirements of a Federal OSHA competent person. Project Supervisors shall assure that excavation/trenching work practices are properly followed.

3.13 Protective System - A method of protecting associates from cave-ins, from material that could fall or roll from an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide necessary protection.

3.14 Sheeting – Means the members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

- 3.15 **Shield** - A structure that is capable of withstanding the forces imposed on it by a cave-in and thereby protects associates within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. All shields must be in accordance with 29 CFR 1926.652(c)(3) or (c)(4).
- 3.16 **Shoring** - Means the members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.
- 3.17 **Sloping** - A method of protecting workers from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences such as soil type, length of exposure, and application of surcharge loads.
- 3.18 **Spoil** - The earth material that is removed in the formation of an excavation or trench.
- 3.19 **Support System** - Means a structure, such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.
- 3.20 **Surcharge Loads** - Generated by the weight of anything in proximity to the excavation, push starts for a cave-in (anything up top pushing down). Common surcharge loads:
- weight of spoil pile
 - weight of nearby buildings, poles, pavement, or other structural objects.
 - weight of material and equipment
- 3.21 **Tabulated Data** - Means a table and charts approved by a registered professional engineer (civil) and used to design and construct a protective system.
- 3.22 **Trench** - A narrow excavation below the surface of the ground, less than 15 feet wide, with a depth no greater than the width.
- 3.23 **Undermining** - Undermining can be caused by such things as leaking, leaching, caving or over-digging. Undermined walls can be very dangerous.

3.24 **Vibration** - A force that is present on construction sites and must be considered. The vibrations caused by backhoes, dump trucks, compactors and traffic on job sites can be substantial.

4.0 EXCAVATION COMPETENT PERSON

Before any excavation activity begins, TolTest will designate an excavation competent person who will oversee all TolTest activities in and around the excavation. This procedure applies regardless of whether personnel will enter a trench or an excavation. The TolTest competent person will determine the safety measures needed at all TolTest projects which involve excavation.

4.1 Competent Person Responsibilities

The competent person is defined as one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to associates, and who has authorization to take prompt corrective measures to eliminate them.

Additionally, the competent person must be on-site during any excavation activity for which he or she is responsible. The competent person must also perform or be capable of performing the following tasks:

- Application of 29 CFR 1926 Subpart P to the excavation activity;
- Daily inspections of the excavation, including an inspection after a hazard increasing event such as rain;
- Classifying soil at the excavation;
- Determining proper protective requirements;
- Determining the need for excavation de-watering operations and monitoring all de-watering activity;
- Completing the TolTest Excavation Permit.

5.0 SOIL CLASSIFICATION

Appendix A of 29 CFR 1926 Subpart P outlines the minimum requirements for the classification of soil at TolTest project sites. Upon determining the soil type, the

competent person must then determine the protection systems which will be used to protect any associate or subcontractor who may enter the excavation.

5.1 OSHA Soil Classifications

The following are the soil classifications recognized by OSHA in 29 CFR 1926 Subpart P. The competent person must classify the soil based on the manual and visual tests conducted at the excavation site.

5.1.1 Type A soil means:

Cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (TSF) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam, and, in some cases, silty clay loam and sandy clay loam. Cemented soils like caliche and hardpan are considered Type A.

However, Soil is NOT Type A if:

- It is fissured; or
- The soil is subject to vibration from heavy traffic, pile driving or similar effects; or
- The soil has been previously disturbed; or
- The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
- The material is subject to other factors that would require it to be classified as a less stable material.

The exclusions for Type A most generally eliminate it from most construction situations.

5.1.2 Type B soil means:

- Cohesive soil with an unconfined compressive strength greater than 0.5 TSF (48 kPa) but less than 1.5 TSF (144 kPa); or

- Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
- Soil that meets the unconfined compressive strength or cementation requirements for Type A, but has been previously disturbed; or
- Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subjected to vibration; or
- Dry rock that is not stable; or
- Material that is part of a sloped, layered system where the layers dip into the excavation on a slope of less steep than 4 horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

However, Soil is **NOT** Type B if:

- The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater.

5.1.3 Type C soil means:

- Cohesive soil with an unconfined compressive strength of 0.5 TSF (48 kPa) or less; or
- Granular soils including gravel, sand, and loamy sand; or
- Submerged soil or soil from which water is freely seeping; or
- Submerged rock that is not stable; or
- Material in a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or steeper.

5.2 Soil Classification Requirements

The competent person must be able to classify each soil and rock deposit associated with a trench or excavation as stable rock, Type A soil, Type B soil, or Type C soil.

5.3 Basis of Classification

The classification of soil type must be accomplished by at least one visual and one manual test. There are several allowable tests that can be used to determine soil type. This testing must be done by the competent person and performed prior to and during the job.

These tests should be run on freshly excavated samples from the excavation and are designed to determine stability based on a number of criteria: the cohesiveness, the presence of fissures, the presence and amount of water, the unconfined compressive strength, the duration of exposure, undermining, and the presence of layering, prior to excavation and vibration.

The cohesion tests are based on methods to determine the presence of clay. Clay, silt, and sand are size classifications, with clay being the smallest sized particles, silt intermediate and sand the largest. Clay minerals exhibit good cohesion and plasticity (can be molded). Sand exhibits no elasticity and virtually no cohesion unless surface wetting is present. The degree of cohesiveness and plasticity depend on the amounts of all three types and water.

When examining the soil, three questions must be asked: Is the sample granular or cohesive? Fissured or non-fissured? What is the unconfined compressive strength measured in TSF?

Note: The competent person has the option of following the requirements in section 5 of this procedure to determine soil type or assuming the soil to be Type C and following the protection requirements for Type C soil.

Methods of testing soils:

- *Visual test:* If the excavated soil is in clumps, it is cohesive. If it breaks up easily, not staying in clumps, it is granular.

- *Wet manual test:* Wet your fingers and work the soil between them. Clay is a slick paste when wet, meaning it is cohesive. If the clump falls apart in grains, it is granular.
- *Dry strength test:* Try to crumble the sample in your hands with your fingers. If it crumbles into grains, it is granular. Clay will not crumble into grains, only into smaller chunks.
- *Pocket penetrometer test:* This instrument is most accurate when soil is nearly saturated. This instrument will give unconfined compressive strength in tons per square foot. The spring-operated device uses a piston that is pushed into a coil up to a calibration groove. An indicator sleeve marks and retains the reading until it is read. The reading is calibrated in tons per square foot (TSF) or kilograms per cubic centimeter.
- *Thumb Penetration Test:* The competent person attempts to penetrate a fresh sample with thumb pressure. If the sample can be dented but penetrated only with great effort, it is Type A. If it can be penetrated several inches and molded by light pressure, it is Type C. Type B can be penetrated with effort and molded.

The following should be used as guidelines when performing the Thumb Penetration Test.

Type A – Penetrated to ½ of the thumb nail length with great effort.

Type B – Penetrated to the first thumb knuckle with great effort. Can be molded with effort

Type C – Penetrated several inches and easily molded with little effort or crumbles apart during the Thumb Penetration Test.

- *Shearvane:* Measures the approximate shear strength of saturated cohesive soils. The blades of the vane are pressed into a flat section of undisturbed soil, and the knob is turned slowly until soil failure. The dial is read directly when using the standard vane. The results will be in tons per square foot or kilograms per cubic centimeter.

The competent person will perform several tests of the excavation to obtain consistent, supporting data along its depth and length.

The soil is subject to change several times within the scope of an excavation and the moisture content will vary with weather and job conditions. The competent person must also determine the level of protection based on what conditions exist at the time of the test, and allow for changing conditions.

5.4 Reclassification

If, after the soil has been classified, conditions change, the competent person is responsible for evaluating the situation and, if necessary, changing the classification.

5.5 OSHA Soil Types

5.5.1 Stable Rock

Stable rock is not one of the texture classes. However, it is one of the OSHA classifications of soil. Stable rock is solid mineral material which can be excavated; and the sides stand vertical and remain stable and vertical throughout construction. Coral is not considered stable rock.

5.5.2 Cemented Soil

Cemented soils are soils that are held together by a chemical agent such as calcium carbonate. Examples of cemented soils would include caliche and hardpan. Cemented soils are classified as Type A soils with an unconfined compressive strength greater than 1.5 TSF.

5.5.3 Cohesive Soil

Cohesive soils are basically fine grained soils. Cohesive soils range from clay through clay loam. A cohesive soil will stand unsupported when excavated and is plastic when moist. That is, cohesive soil can be rolled into a ribbon. A cohesive soil is hard to break up when it is dry. Cohesive soils are classified as Type A soils with an unconfined compressive strength greater than 1.5 TSF

5.5.4 Granular Soil

Granular soils are composed of coarse grained material that have very little cohesive strength. Granular soils include loamy sand, sand and gravel. A soil is classified as granular if more than 65% of the grains

are distinguishable with the unaided eye. Granular soils, when excavated, will not stand and the walls of the excavation can crumble easily. Some granular soils will exhibit cohesion when wet, but when dry will fall apart. This type of soil is especially dangerous when found at a construction site because the walls of the trench appear to stand with no support, however, when they dry they could crumble and fall into the trench bottom. Granular soils are classified as soil Type B or C, and may require the highest degree of protection. Type C soils would have an unconfined compressive strength of less than 0.5 TSF.

5.5.5 Granular Cohesionless

Soils that range from silt through sandy loam or are composed of angular particles are said to be granular cohesionless soils. These are difficult soils to work with because the group ranges from a very stable Type B soil to the unstable Type C soil.

5.5.6 Layered Soil System

A layered soils system is composed of two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered. The layers may lay on a horizontal plane or be sloped. When they are sloped into the excavation they represent a collapse hazard to the trench wall. A slope greater than 4H:1V would classify any soil as Type C. Sloped layers less than 4H:1V may be classified as Type B soil, depending upon the soil classification. No layered system can be Type A soil.

6.0 SELECTION OF PROTECTIVE SYSTEMS

29 CFR 1926.652 requires that each associate in an excavation be protected from cave-ins by an adequate protective system unless excavations are:

- made in stable rock; or
- are less than five (5) feet in depth **and** examination by the competent person provides no indication of potential cave-in.

Additionally, whichever protective system is chosen must have the capacity to resist without failure all loads that are intended or could reasonably be applied to the system.

6.1 Design of Sloping and Benching Systems

The slopes and configurations of sloping and benching systems must be determined by the competent person in accordance with the requirements of 29 CFR 1926(b)(1) through (b)(4) as well as 29 CFR 1926 Subpart P – Appendix B.

After the competent person has determined the soil type based on one visual and one manual test, he or she may design the sloping and benching systems for excavations less than 20 feet deep using the following table.

MAXIMUM ALLOWABLE SLOPES BASED ON SOIL CLASSIFICATION

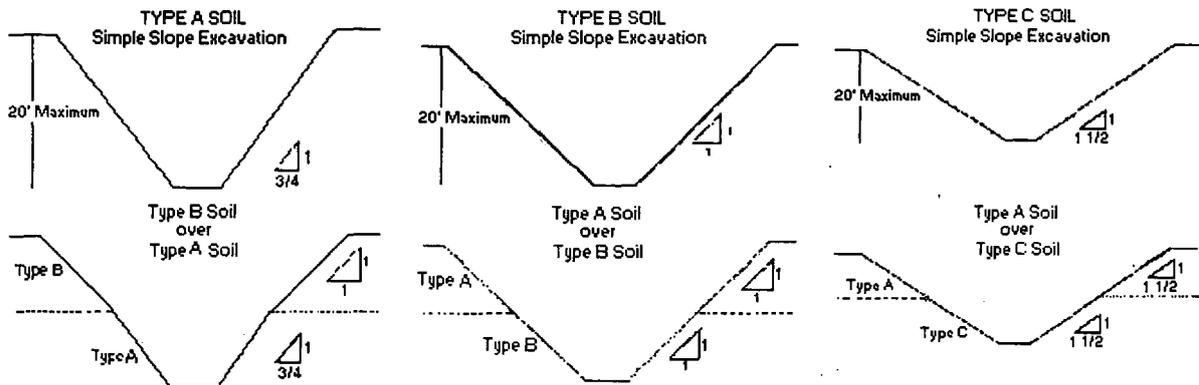
Soil Line	Maximum Allowable Slope/Bench for Excavations Less Than 20 Feet Deep
Stable Rock	Vertical Sides (90°)
Type A Soil	3/4H:1V (53°)
Type B Soil	1H:1V (45°)
Type C Soil	1 1/2H:1V (34°)

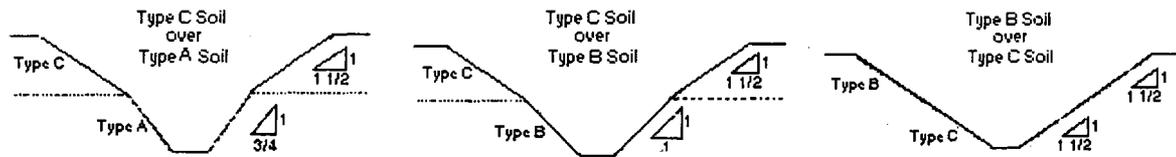
Note: If your sloped/benched soil shows any sign of distress you must increase the layback an additional 1/2H:1V.

Note: Sloping and Benching for excavations greater than 20 feet deep must be designed by a registered professional engineer (civil).

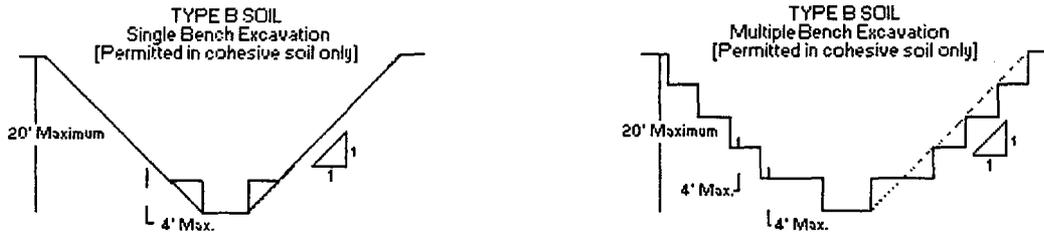
Note: Benching is not permitted in Type C soil unless the excavation is designed by a registered professional engineer (civil) and tabulated data provided.

SLOPE CONFIGURATIONS





BENCH CONFIGURATIONS



6.2 Design of Support Systems, Shield Systems, and Other Protective Systems

If the competent person determines that personnel will be protected from cave-ins by a protective system other than sloping and benching, the design of the support systems, shield systems, and other protective systems must be based on the conditions at the project site and data provided by a ToITest or subcontracted registered professional engineer or from tabulated data provided by the manufacturers of the protective systems. Deviation from the engineering recommendations must be approved by the registered professional engineer.

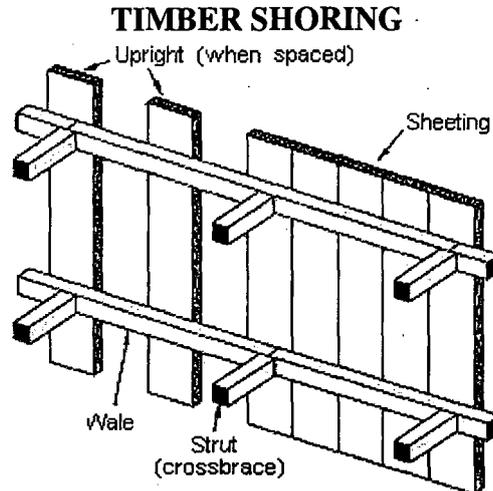
The design of the protective system must be in accordance with the requirements of 29 CFR 1926.652(c)(1) through (c)(4) and 29 CFR 1926 Subpart P – Appendices C, D, E.

In large/deep excavations where traditional shoring and sloping are not practical, alternate protective measures may be implemented to protect personnel in the excavation. Additionally, the top of the excavation must be protected with stop logs, earthen berms, or other types of protective barriers which will keep pedestrians and vehicles from approaching the edge of the excavation. Any deviations from traditional protective systems must be approved by the Manager, Corporate Health and Safety and a registered professional engineer (civil).

6.2.1 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 or depth of the cut makes sloping back to the maximum allowable slope

impractical. Shoring systems consist of posts, wales, struts, and sheeting. There are two basic types of shoring, timber and aluminum hydraulic.



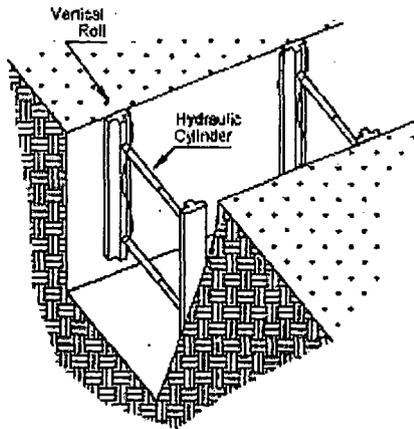
6.2.1.1 Hydraulic Shoring

Hydraulic shoring provides a critical safety advantage over timber shoring because workers do not have to enter the trench to install or remove hydraulic shoring. Other advantages of most hydraulic systems are that they:

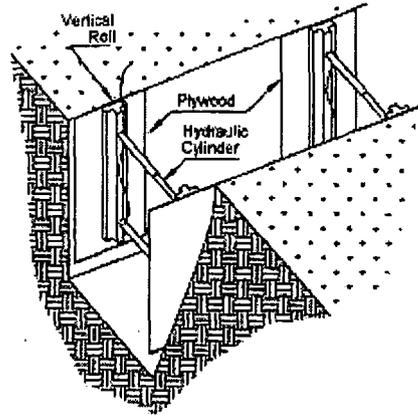
- Are light enough to be installed by one worker;
- Are gauge-regulated to ensure even distribution of pressure along the trench line;
- Can have their trench faces "preloaded" to use the soil's natural cohesion to prevent movement; and
- Can be adapted easily to various trench depths and widths.

All shoring should be installed from the top down and removed from the bottom up. Hydraulic 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.

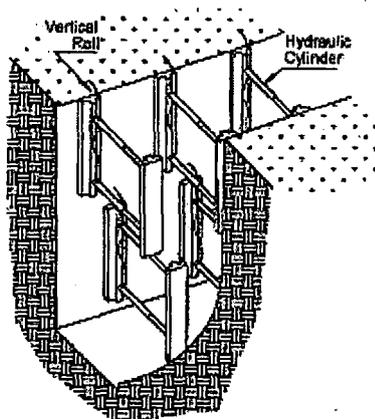
TYPICAL ALUMINUM HYDRAULIC SHORING INSTALLATIONS



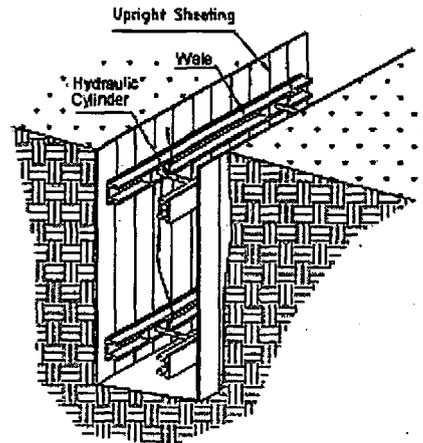
Vertical Aluminum Hydraulic Shoring
(Spot Bracing)



Vertical Aluminum Hydraulic Shoring
(With Plywood)



Vertical Aluminum Hydraulic Shoring
(Stacked)



Aluminum Hydraulic Shoring Water System
(Typical)

6.2.1.2 Pneumatic Shoring

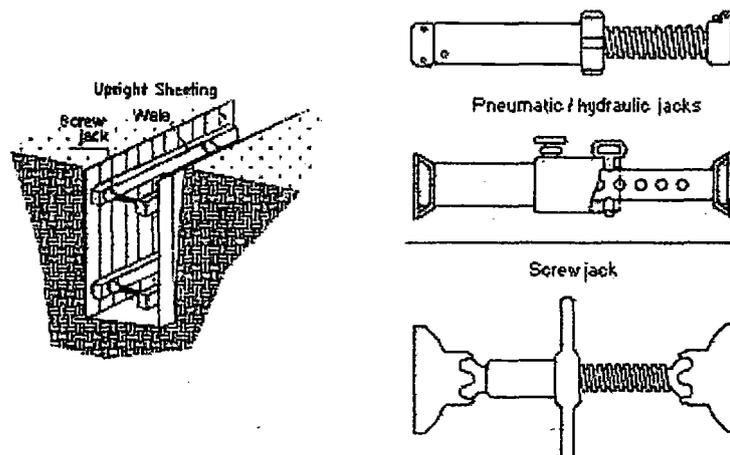
Pneumatic Shoring works in a manner similar to hydraulic shoring. The primary difference is that pneumatic shoring uses air pressure in place of hydraulic pressure. A disadvantage to the use of pneumatic shoring is that an air compressor must be on site.

1. Screw Jacks. Screw jack systems differ from hydraulic and pneumatic systems in that 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 water 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, and 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.

SHORING VARIATIONS



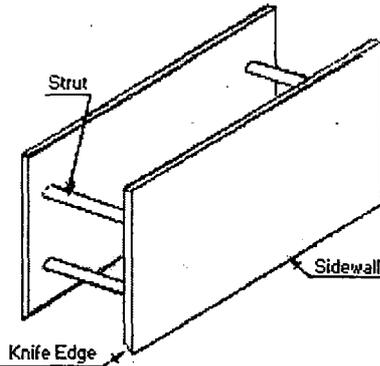
6.2.2 Shielding Types

6.2.2.1 Trench Boxes

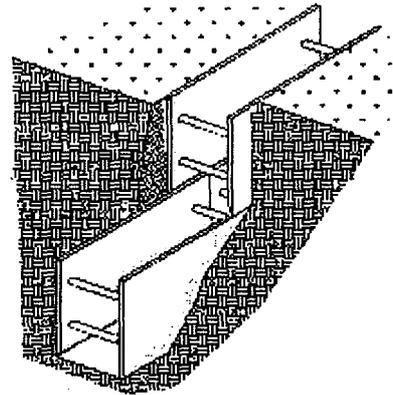
Trench Boxes are different from shoring because, instead of shoring up or otherwise supporting the trench face, they are intended primarily to protect workers from cave-ins and similar incidents. The excavated area between the outside of the trench box and the face of the trench should be as small as possible. The space between the trench boxes and the excavation 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.

TRENCH SHIELD



TRENCH SHIELD STACKED

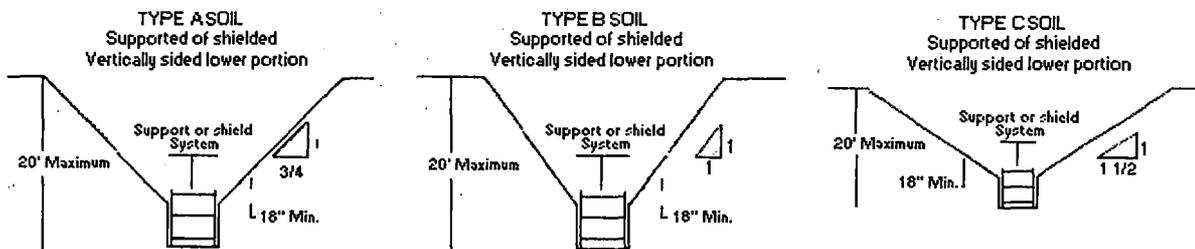


6.3 Combined Use

Trench boxes are generally used in open areas, but they also may be used in combination with sloping and benching. The box should extend at least 18 in (0.45 m) above 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 shield 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 of 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 excavating below the bottom of a shield. Careful visual inspection of the conditions mentioned above is the primary and most prudent approach to hazard identification and control.

SLOPE AND SHIELD CONFIGURATIONS



7.0 EXCAVATION SAFETY REQUIREMENTS

Excavation activity exposes TolTest personnel and subcontractors to many dangers which, if not recognized, can cause death or serious injury.

7.1 General

Each associate in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with 29 CFR 1926.652. The competent person shall ensure that the required protective system is installed and maintained per the design specifications.

No associates shall be permitted to enter the excavation unless they are specifically required to do so. Unauthorized persons shall not be allowed access.

7.2 Supervision

Work in an excavation shall at all times be supervised by a TolTest competent person. This individual will be responsible for identifying any unusual developments which may warn of impending earth movement.

7.3 Surface Hazards

The excavation area should be inspected and any debris, structures, and surface protrusions that are located so as to create a hazard to associates shall be evaluated for structural integrity and supported or removed if necessary.

7.4 Underground Installations/Utility Locations

Before conducting any excavation work, the location of utility installations, such as sewer, telephone, fuel, electric, water lines, fiber optic, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined.

Utility companies or the state utility protection service shall be contacted at least two (2) working days prior to excavation activities to be advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation.

Note: Some states and localities have notification requirements that differ from Federal OSHA. Prior to excavating in any area, the Project Manager or designee should contact the local service to identify their location specific requirements.

TolTest personnel and subcontractors should be careful to protect and preserve the markings of approximate locations of facilities until the markings are no longer required for safe and proper excavations.

If the markings of utility locations are destroyed or removed before excavation commences or is completed, the TolTest competent person must notify the utility company or utility protection service to inform them that the markings have been destroyed and need replaced. Normally, it will take two (2) to three (3) working days advance notice for the utility protection service to remark the locations.

TolTest equipment operators shall maintain at least 3 feet clearance between any underground utility and the cutting edge or point of powered equipment. When excavating within 36 inches of the markings of underground facilities, personnel should conduct the excavation in a careful and prudent manner, excavating by hand (i.e. shovel) to determine the precise location of the facility/utility and to prevent damage.

While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard associates and prevent damage.

7.5 Access and Egress

TolTest will provide a safe means of access to and egress from all excavations. The following are considered acceptable methods of entering and exiting excavations.

7.5.1 Structural Ramps

Structural ramps that are used solely by associates as a means of access or egress from excavations shall be designed by the competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design or structural engineering, and shall be constructed in accordance with the design.

Structural members used for ramps and runways shall be of uniform thickness. Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping. Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.

7.5.2 Means of Egress from Trench Excavations

A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for associates. Any ramp used for associate egress must be sloped at an angle which would allow associates to walk upright out of the excavation.

7.6 Exposure to Vehicular Traffic

TolTest and subcontract personnel who may be exposed to vehicular traffic both on projects and public highways shall be provided with and shall wear warning vests or other suitable garments marked with or made of reflectorized or high-visibility material. Additionally, depending upon site conditions the use of flaggers and warning signs may be necessary.

7.7 Exposure to Falling Loads

No TolTest associate or subcontractor shall be permitted underneath loads handled by lifting or digging equipment. Personnel must stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Truck drivers may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped with over-cab protective structures, in accordance with 29 CFR 1926.601(b)(6), to provide adequate protection for the operator from falling objects during loading and unloading operations.

7.8 Warning System for Mobile Equipment

When heavy equipment and trucks operate adjacent to an excavation or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals or stop logs. If possible, the approach grade should be away from the excavation.

7.9 Hazardous Atmospheres

Because there is a possibility that excavation activity at TolTest project sites involve hazardous atmospheres, the TolTest competent person must ensure that acceptable atmospheric conditions exist.

The TolTest competent person or his/her designee shall perform direct reading atmospheric monitoring in all excavations of any depth into which TolTest personnel or subcontractors must enter where a hazardous atmosphere exists or

could reasonably be expected to exist. If there are any questions, the competent person should treat the excavation like a confined space and follow Procedure HS401 – Confined Spaces.

Based on the competent person's visual observation of the excavation and the soil and/or fill material, atmospheric monitoring may not be necessary. However, if conditions change, the competent person must re-evaluate whether atmospheric monitoring is required.

7.9.1 Atmospheric Monitoring

When atmospheric monitoring is required, the competent person or his/her designee must check the atmosphere for the following in the order shown:

- Oxygen Content – acceptable conditions: 20.8%, 20.9% or 21%
- Flammable Conditions – acceptable conditions: less than 10% LEL
- Toxic Atmospheres – based on the established PEL or TLV

Note: Any reading other than those listed above, must be investigated prior to associates entering the excavation.

7.9.2 Ventilation

Adequate precautions shall be taken, for example providing ventilation to prevent associate exposure to harmful atmospheres. When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, direct reading air monitoring shall be conducted periodically as determined by the competent person or his/her designee to ensure that the atmosphere remains safe.

7.9.3 Emergency Response Equipment

Emergency rescue equipment, such as self-contained breathing apparatus (SCBA), a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be kept close to the excavation for use in an emergency.

7.10 Protection from Hazards Associated With Water Accumulation

Associates shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect associates against the hazards posed by water accumulation. The precautions necessary to protect associates adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.

If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.

If excavation work interrupts the natural drainage of surface water (such as streams); diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to run-off from heavy rains will require an inspection by a competent person.

7.11 Stability of Adjacent Structures

Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing or underpinning shall be provided to ensure the stability of such structures for the protection of associates.

Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to associates shall not be permitted except when:

- A registered professional engineer (civil) has approved the determination that such excavation work will not pose a hazard to associates; or
- A support system, such as underpinning, designed by a registered professional engineer (civil) is provided to ensure the safety of associates and the stability of the structure; or
- The excavation is in stable rock; or
- A registered professional engineer (civil) has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity.

- If a support system has been put in place to stabilize an adjacent structure, it must be inspected for movement and structural integrity daily by the competent person.
- Sidewalks, pavements, and other structures shall not be undermined unless a support system or another method of protection is provided to protect associates from the possible collapse of such structures.

7.12 Protection from Loose Rock or Soil

Adequate protection shall be provided to protect associates from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the excavation face to stop and contain falling material; or other means that provide equivalent protection.

Associates shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

7.13 Inspections

Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work each day and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard-increasing occurrence. These inspections are required when associate exposure can be reasonably anticipated. An Excavation/Trenching Permit must be completed by the competent person to document the inspections. Canceled Excavation/Trenching Permits should be placed in the project file upon completion of the project.

Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed associates shall be

removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

7.14 Fall Protection

Where associates or equipment are required or permitted to cross over excavations; walkways or bridges with standard guardrails shall be provided.

Since open excavations are often an attractive nuisance to the public, adequate barrier for physical protection shall be provided at all excavations. Remotely located excavations may require special protection including, but not limited to, highly visible snow fence, concrete "jersey" barriers, chain link fence and flashing warning light. All wells, pits, shafts, etc., shall be barricaded or covered. Upon completion of exploration and similar operations, temporary wells, pits, shafts, etc. shall be covered or backfilled.

8.0 EXCAVATION PERMITS

An Initial Excavation/Trenching Permit (Attachment 1) must be completed by the competent person on the first day that personnel enter the excavation. On each subsequent day that an excavation is open and poses safety hazards to personnel who work around or may have to enter excavations, the competent person may complete the Daily Excavation/Trenching Permit (Attachment 2). However, when soil classification changes are evident or when additional protective systems are determined to be required, the competent person shall complete the Initial Excavation/Trenching Permit.

If a project site has several excavations open and active, each excavation must have its own permit completed. Conversely, a project site which has an open excavation that is not active does not require a daily Excavation/Trenching Permit if the competent person determines that the excavation is NOT posing hazards to site personnel or the public, and is adequately guarded. The competent person must determine what type of inspections and documentation will be required.

The Excavation/Trenching Permit should be retained in the project file and will serve as a record of daily excavation inspection.

9.0 TRAINING

Associates shall not be assigned, or permitted, to design, supervise, or work in or about excavations until they have completed an excavation briefing to include:

- Types of hazards associated with excavation operations,
- Safe work practices and techniques,

- A review of applicable Federal, State, and Local regulations, and
- A review of this procedure.

This briefing can be conducted by the Project Manager or Project Supervisor.

Associates shall not be assigned, or permitted, to act as an excavation competent person until they have completed the TolTest Excavation and Trenching Safety Program presented by the Corporate Health and Safety Department. In the event that it is not feasible to attend this training course, another course may be allowed at the discretion of the Manager, Corporate Health and Safety.

Tailgate Safety Meetings detailing the specific hazards of the work to be performed and safety precautions and procedures specific for the job shall be conducted by the Project Supervisor or designee at the beginning of each shift for each job. These shall be conducted according to the requirements of IPP150: Health and Safety Meetings.

10.0 EXCEPTION PROVISIONS

Variations to this procedure shall be requested in accordance with established variance procedures.

11.0 ATTACHMENTS

1. Initial Excavation/Trenching Permit
2. Daily Excavation/Trenching Permit
3. Selection of Protective Systems for Excavations 20 Feet or Less in Depth
4. Sloping Options
5. Shoring or Shielding Options
6. Utility Location Services

Attachment 1

Initial Excavation/Trenching Permit

Project Name:	
Project Location:	Project Number:
Name of Competent Person:	Permit Good on This Date Only:
Excavation Length, Depth and Width:	

EMPLOYEE TRAINING AND PRE-EXCAVATION BRIEFING

1. Does this job require special training: YES _____ NO _____
 2. Mandatory pre-excavation briefing conducted on: _____ DATE

SOIL CLASSIFICATION and PROTECTIVE SYSTEM DETERMINATION

1. Will the competent person classify the soil based on its properties and site conditions? YES _____ NO _____
 If No, the soil is Type C, move to 9 of this section

VISUAL TEST

2. Based on visual observation, which best describes the soil in this excavation?
 Stable Rock Cemented Soil Cohesive Soil Granular Soil
 Granular Cohesionless Layered System Describe Layering: _____
3. Based on visual observation, which best describes the moisture condition of the soil? (check all that apply)
 Dry Soil Moist Soil Wet Soil Saturated Soil
 Seeping Water Surface Water Present Submerged
4. Is the excavation subject to vibration? YES _____ NO _____
 5. Is the excavation in previously disturbed soil? YES _____ NO _____
 6. Are fissures observed in the excavation walls or on the surface? YES _____ NO _____

MANUAL TEST (Must Perform At Least One of the Following)

THUMB PENETRATION TEST

7. Test Performed? YES _____ NO _____
 Soil indented with great effort (e.g. to 1/2 of the thumb nail) Type A
 Soil indented with some effort (e.g. to first thumb knuckle) Type B
 Soil easily penetrated several inches by thumb with little or no effort. Note: If soil is submerged seeping water, subjected to surface water, runoff, exposed to wetting. Type C

PENETROMETER OR SHEARVANE TEST

8. Test Performed? YES _____ NO _____
 Device Used/Serial Number: _____ Ave. TSF: _____

Soil with unconfined compressive strength of 1.5 TSF or greater Type A
Soil with unconfined compressive strength of greater than 0.5 TSF and less than 1.5 TSF. Type B
Soil with unconfined compressive strength of 0.5 TSF or less. Note: If soil is submerged seeping water, subjected to surface water, runoff, exposed to wetting. Type C

9. Soil Classification
 Stable Rock Type A Type B Type C
No soil is Type A if fissured, subject to vibration, previously disturbed, or layered dipping into excavation on a slope of 4H:1V or greater.

10. Which best describes the layering system of the excavation/trench?
 No Layering Horizontal Layering Less than 4H:1V 4H:1V or greater
If the layering system is Horizontal Layering, complete 11 of this section, otherwise skip to 12

11. Horizontal Layering
 Type A over Type B Type A over Type C Type B over Type A
 Type B over Type C Type C over Type A Type C over Type B

PROTECTIVE SYSTEM

12. What Type of Protective System Will Be Used?
 None Required Sloping Simple Bench Multiple Bench
 Timber Shoring Trench Shield Hydraulic Shoring
Note: All Protective Systems must have tabulated data, developed by a registered professional engineer, available.

ELECTRICAL SAFETY

1. Are all electrical devices grounded and/or GFCI protected? YES ___ NO ___ N/A ___

SURFACE ENCUMBRANCES

1. Have all surface encumbrances that are located so as to create a hazard to associates been removed or supported, as necessary, to safeguard associates? YES ___ NO ___ N/A ___

UNDERGROUND INSTALLATIONS

1. Have the estimated locations of all underground installations been determined prior to excavation? YES ___ NO ___ N/A ___
2. Have utility companies been contacted and advised of proposed work? YES ___ NO ___ N/A ___
3. If underground installations are exposed, are they protected, supported or removed while the excavation is open? YES ___ NO ___ N/A ___

ACCESS AND EGRESS

1. Are stairways, ladders, or ramps provided every 25 feet? YES ___ NO ___ N/A ___
2. Are structural ramps that are used for access and egress of equipment and/or personnel designed by a competent person qualified in structural design and constructed in accordance with the design? YES ___ NO ___ N/A ___

EXPOSURE TO VEHICULAR TRAFFIC

1. Are personnel exposed to public of project vehicular traffic wearing reflectorized or high visibility vests? YES ___ NO ___ N/A ___

EXPOSURE TO FALLING LOADS

1. Are associates prohibited from standing underneath loads handled by lifting or duffing equipment? YES ___ NO ___ N/A ___

WARNING SYSTEMS FOR MOBILE EQUIPMENT

1. Are warning systems utilized when mobile equipment is operated adjacent to or the edge of an excavation? YES ___ NO ___ N/A ___

If yes, which type is being used?

- Hand Signal Stop Logs Earthen Berm Other _____

TESTING FOR HAZARDOUS ATMOSPHERES

1. Are the atmospheric hazards that can be reasonably expected to exist in excavations greater than 4 feet deep tested and controlled? YES ___ NO ___ N/A ___
2. Is testing conducted as often as necessary to ensure safety of personnel? YES ___ NO ___ N/A ___

TIMES & READINGS:	Time: _____				
	LEL: _____ %				
	Oxygen: _____ %				
	Toxic: _____ ppm of _____				

SPECIAL PRECAUTIONS:

EMERGENCY RESCUE EQUIPMENT

1. Is emergency rescue equipment such as SCBA, safety harness and lifeline, or basket stretcher available and attended when hazardous atmospheric conditions exist? YES ___ NO ___ N/A ___

PROTECTION FROM HAZARDS ASSOCIATED WITH WATER ACCUMULATION

1. Is water being controlled or prevented from accumulating in excavation by the use of water removal equipment? YES ___ NO ___ N/A ___
2. Is water control equipment operation being monitored by a competent person? YES ___ NO ___ N/A ___

STABILITY OF ADJACENT STRUCTURES

1. Are support systems such as shoring, bracing, or underpinning provided to ensure stability of adjoining structures (i.e. buildings, walls) endangered by excavation activities? YES ___ NO ___ N/A ___
2. Has the support system been designed by a registered professional engineer (civil)? YES ___ NO ___ N/A ___

PROTECTION OF ASSOCIATES FROM LOOSE ROCK OR SOIL

1. Are associates protected from excavated or other material and equipment by placing spoils a minimum of two (2) feet from the edge of excavations or by the use of retaining devices? YES ___ NO ___ N/A ___

INSPECTIONS

1. Are daily inspections of excavations where associate exposure can be reasonably anticipated being done by the competent person? YES ___ NO ___ N/A ___
2. Are inspections being performed by a competent person after every rainstorm or other hazard increasing occurrence? YES ___ NO ___ N/A ___
3. Are associates removed from the excavation if the competent person finds evidence at any time of a situation that could result in a possible cave-in, protective system failure, hazardous atmosphere, or other hazardous condition? YES ___ NO ___ N/A ___

FALL PROTECTION

1. Are standard guardrails provided on walkways and bridges that cross over excavations? YES ___ NO ___ N/A ___
2. Are all remotely located excavations adequately barricaded or covered? YES ___ NO ___ N/A ___

SHORING AND OTHER PROTECTIVE SYSTEM

1. Have all shoring and/or protective systems been designed by a registered professional engineer (civil) or is it accompanied by tabulated data from the manufacturer? YES ___ NO ___ N/A ___
2. Are shoring and other protective systems checked/measured each day to detect movement and possible failure? YES ___ NO ___ N/A ___

(Signature of Competent Person)

(Date)

ATTACHMENT 2

Daily Excavation/Trenching Permit

Project Name:	
Project Location:	Project Number:
Name of Competent Person:	Permit Good on This Date Only:
Excavation Length, Depth and Width:	

SOIL CLASSIFICATION and PROTECTIVE SYSTEM DETERMINATION

- Has the soil classification changed from the previous day? YES _____ NO _____
If Yes, an Initial Excavation/Trenching Permit must be completed.
- Are additional protective systems needed which differ from those used during the previous day? YES _____ NO _____
If Yes, an Initial Excavation/Trenching Permit must be completed.

HAZARDS

- Are all electrical devices grounded and/or GFCI protected? YES ___ NO ___ N/A ___
- Have all surface encumbrances that are located so as to create a hazard to associates been removed or supported, as necessary, to safeguard associates? YES ___ NO ___ N/A ___
- If underground installations are exposed, are they protected, supported or removed while the excavation is open? YES ___ NO ___ N/A ___
- Are stairways, ladders, or ramps provided every 25 feet? YES ___ NO ___ N/A ___
- Are personnel exposed to public of project vehicular traffic wearing reflectorized or high visibility vests? YES ___ NO ___ N/A ___
- Are associates prohibited from standing underneath loads handled by lifting or diffing equipment? YES ___ NO ___ N/A ___
- Are warning systems utilized when mobile equipment is operated adjacent to or the edge of an excavation? YES ___ NO ___ N/A ___
If yes, which type is being used?
 Hand Signal Stop Logs Earthen Berm Other _____
- Are the atmospheric hazards that can be reasonably expected to exist in excavations greater than 4 feet deep tested and controlled? YES ___ NO ___ N/A ___
- Is testing conducted as often as necessary to ensure safety of personnel? YES ___ NO ___ N/A ___

TIMES & READINGS:	Time: _____				
	LEL: _____ %				
	Oxygen: _____ %				
	Toxic: _____ ppm of _____				

SPECIAL PRECAUTIONS:

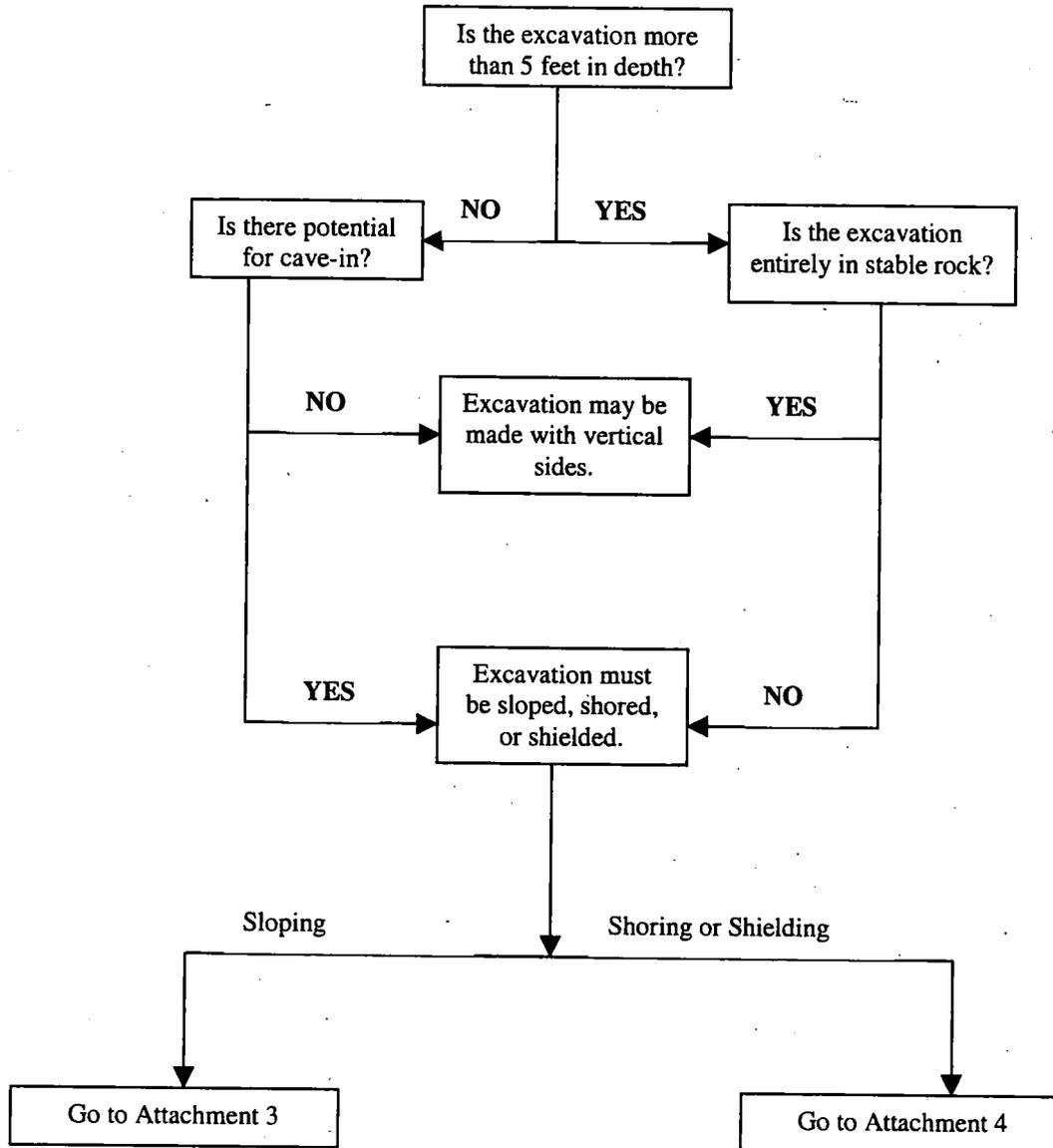
10. Is emergency rescue equipment such as SCBA, safety harness and lifeline, or basket stretcher available and attended when hazardous atmospheric conditions exist? YES ___ NO ___ N/A ___
11. Is water being controlled or prevented from accumulating in excavation by the use of water removal equipment? YES ___ NO ___ N/A ___
12. Is water control equipment operation being monitored by a competent person? YES ___ NO ___ N/A ___
13. Are support systems such as shoring, bracing, or underpinning provided to ensure stability of adjoining structures (i.e. buildings, walls) endangered by excavation activities? YES ___ NO ___ N/A ___
14. Are associates protected from excavated or other material and equipment by placing spoils a minimum of two (2) feet from the edge of excavations or by the use of retaining devices? YES ___ NO ___ N/A ___
15. Are daily inspections of excavations where associate exposure can be reasonably anticipated being done by the competent person? YES ___ NO ___ N/A ___
16. Are inspections being performed by a competent person after every rainstorm or other hazard increasing occurrence? YES ___ NO ___ N/A ___
17. Are associates removed from the excavation if the competent person finds evidence at any time of a situation that could result in a possible cave-in, protective system failure, hazardous atmosphere, or other hazardous condition? YES ___ NO ___ N/A ___
18. Are standard guardrails provided on walkways and bridges that cross over excavations? YES ___ NO ___ N/A ___
19. Are all remotely located excavations adequately barricaded or covered? YES ___ NO ___ N/A ___
20. Are shoring and other protective systems checked/measured each day to detect movement and possible failure? YES ___ NO ___ N/A ___

(Signature of Competent Person)

(Date)

ATTACHMENT 3

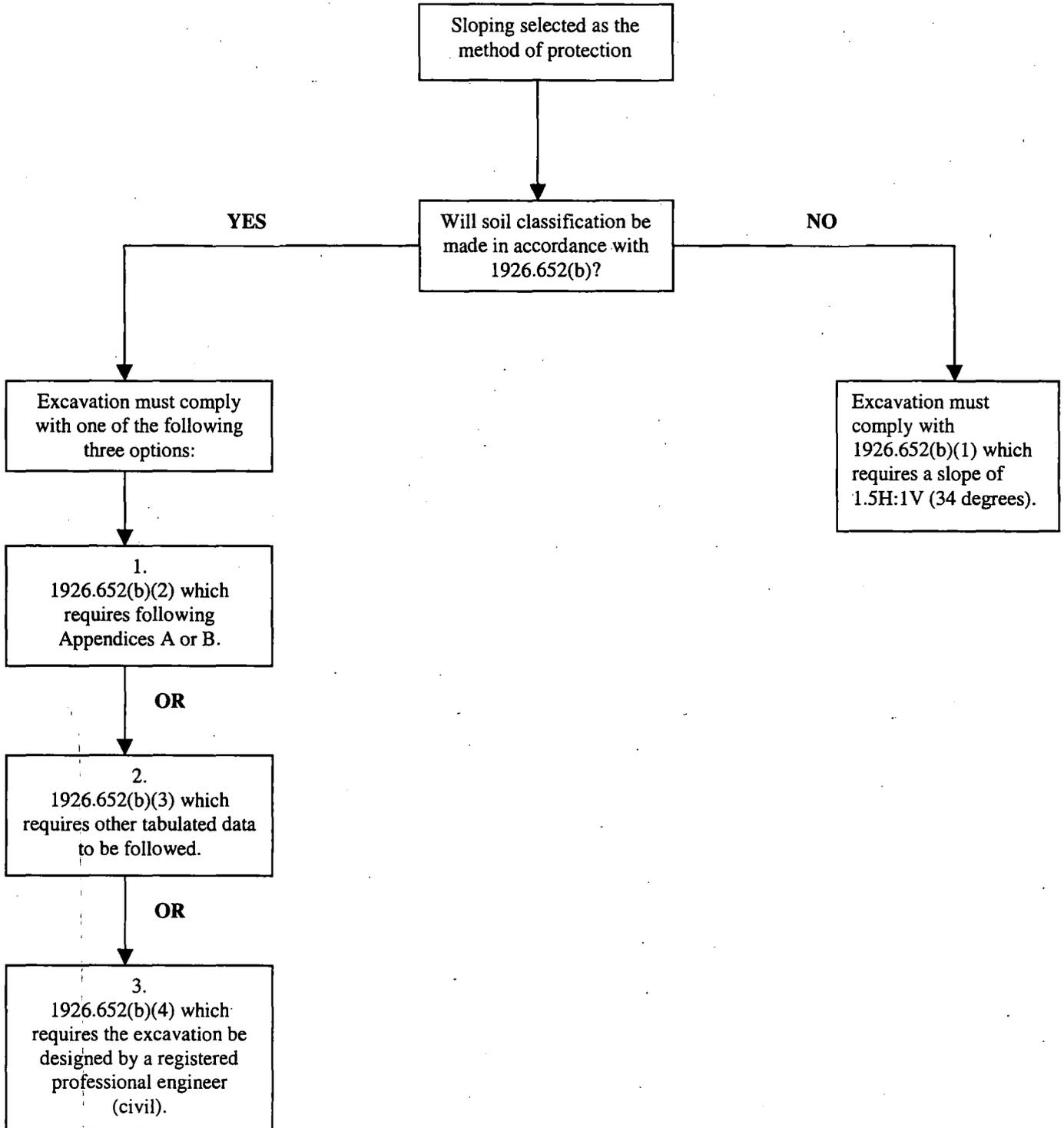
**SELECTION OF PROTECTIVE SYSTEMS FOR EXCAVATIONS
20 FEET OR LESS IN DEPTH**



For excavations greater than 20 feet in depth, design by a registered professional engineer (civil) in compliance with 1926.652(b) and (c) is required.

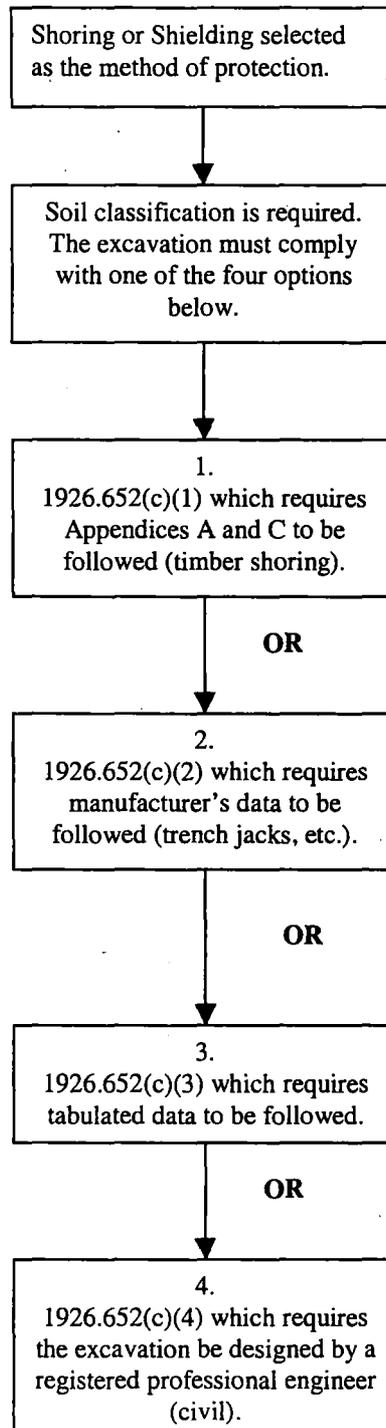
ATTACHMENT 4

SLOPING OPTIONS



ATTACHMENT 5

SHORING OR SHIELDING OPTIONS



ATTACHMENT 6

UTILITY LOCATION SERVICES

ALABAMA	Alabama One Call	1-800-292-8525
ALASKA	Locate Call Center of Alaska, Inc.	1-907-278-3121
ARIZONA	Arizona Blue Stake, Inc.	1-602-263-1100
ARKANSAS	Arkansas One Call System, Inc.	1-800-482-8998
CALIFORNIA	Underground Service Alert North Underground Service Alert South	1-800-422-4133 1-800-422-4133
COLORADO	Utility Notification Center of Colorado	1-800-922-1987
CONNECTICUT	Call Before You Dig	1-800-922-4455
DELAWARE	Miss Utility of Delmarva	1-800-282-8555
FLORIDA	Sunshine State One Call of Florida, Inc.	1-800-432-4770
GEORGIA	Utilities Protection Center, Inc.	1-800-282-7411
HAWAII	Hawaii One-Call	1-800-227-2600
IDAHO	Dig Line Palouse Empire Undrgrnd Crd. Cncl. Kootenai County Utility Coord. Cncl. Utilities Underground Location Center One Call Concepts – Idaho Shoshone county One Call	1-800-342-1585 1-800-822-1974 1-800-428-4950 1-800-424-5555 1-800-626-4950 1-800-398-3285
ILLINOIS	Julie, Inc. Chicago: Digger	1-800-892-0123 1-312-744-7000
INDIANA	Indiana Underground Plant Prototection Service. Inc.	1-800-382-5544
IOWA	Underground Plant Loc. Service, Inc.	1-800-292-8989
KANSAS	Kansas One Call Center	1-800-DIG-SAFE

KENTUCKY	Kentucky Underground Protec., Inc.	1-800-752-6007
LOUISIANA	Louisiana One Call	1-800-272-3020
MAINE	Dig Safe - Maine	1-888-344-7233
MARYLAND	Miss Utility of Delmarva Miss Utility	1-800-282-8555 1-800-257-7777
MASSACHUSETTS	Dig Safe - Massachusetts	1-888-344-7233
MICHIGAN	MISS DIG System Inc	1-800-482-7171
MINNESOTA	Gopher State One Call	1-800-252-1166
MISSISSIPPI	Mississippi One Call System, Inc.	1-800-227-6477
MISSOURI	Missouri One Call System, Inc.	1-800-344-7483
MONTANA	Utilities Underground Loc. Center Montana One Call	1-800-424-5555 1-800-551-8344
NEBRASKA	Diggers Hotline of Nebraska	1-800-331-5666
NEVADA	Underground Service Alert of NV	1-800-227-2600
NEW HAMPSHIRE	Dig Safe - New Hampshire	1-888-344-7233
NEW JERSEY	Garden State Undrgrnd. Plnt. Loc. Ser.	1-800-272-1000
NEW MEXICO	New Mexico One Call system, Inc.	1-800-321-ALERT
NEW YORK	Dig Safely New York New York City - Long Island One Call Center	1-800-962-7962 1-800-272-4480
NORTH CAROLINA	North Carolina One-Call Center	1-800-632-4949
NORTH DAKOTA	Utilities Underground Location Center	1-800-795-0555
OHIO	Ohio Utilities Protection Service	1-800-362-2764
OKLAHOMA	Call Okie	1-800-522-6543

OREGON	Utility's Underground Location Center	1-800-424-5555	
	Douglas Utility's Coordinating Council	1-503-673-6676	
	Josephine Utility's Coord Council	1-503-476-6676	
	Utility's Notification Center	1-800-332-2344	
	Rogue Basin Utility Coord Council	1-503-779-6676	
PENNSYLVANIA	Pennsylvania One Call System, Inc.	1-800-242-1776	
RHODE ISLAND	Dig Safe - Rhode Island	1-888-344-7233	
SOUTH CAROLINA	Palmetto Utility Protection Srvce Inc.	1-800-922-0983	
SOUTH DAKOTA	South Dakota One Call	1-800-781-7474	
TENNESSEE	Tennessee One Call System	1-800-351-1111	
TEXAS	Lone Star Notification Center	1-800-669-8344	
	Texas Excavation Safety System	1-800-344-8377	
	Texas One Call system	1-800-245-4545	
UTAH	Blue Stakes of Utah Utility Notification	1-800-662-4111	
VERMONT	Dig Safe - Vermont	1-888-344-7233	
VIRGINIA	Miss Utility of Virginia	1-800-552-7001	
	Miss Utility of Northern Virginia	1-800-257-7777	
WASHINGTON	Utilities Notification Center	1-800-332-2344	
	Grays Harbor & Pacific County Utility-Coordinating Council	1-206-532-3550	
	Utilities Underground Location Center	1-800-424-5555	
	Chelan-Douglas Utility Coord Council	1-509-663-6111	
	Upper Yakima County Underground Utilities Council	1-800-553-4344	
	Inland Empire Utility Coord. Council	1-509-456-8000	
	Utilities Council of Cowlitz County	1-360-425-2506	
	Palouse Empire Utility Cord. Council	1-800-822-1974	
	WASHINGTON, DISTRICT OF COLUMBIA	Miss Utility	1-800-257-7777

WEST VIRGINIA	Miss Utility of West Virginia, Inc.	1-800-245-4848
WISCONSIN	Diggers Hotline, Inc.	1-800-242-8511
WYOMING	Wyoming One-Call Call Before You Dig Of Wyoming	1-800-348-1030 1-800-849-2476
CANADA	Alberta: Alberta One-Call Location Corp. British Columbia: BC One Call Ontario: Ontario One Call Ltd Quebec:Info-Excavation	1-800-242-3447 1-800-474-6886 1-800-400-2255 or 905-709-1717 1-800-663-9228
AUSTRALIA	Dial Before You Dig 1100	1100

Note: Many of the above utility location services can be accessed via their website by following the appropriate links at www.underspace.com/refs/ocdir.htm.

APPENDIX K

Activity Hazard Analysis

ACTIVITY HAZARD ANALYSIS

ACTIVITY Site Preparation/Layout ANALYZED BY/DATE K. Helman 10/98 REVIEWED BY/DATE J. Tinney 01/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
<p>Site walk through</p> <p>Identification of work zones for construction activities</p>	<ol style="list-style-type: none"> 1. Exposure to irritant and toxic plants such as poison ivy and sticker bushes may cause allergic reactions. 2. Surfaces covered with heavy vegetation and undergrowth create a tripping hazard. 3. Back strain due to carrying instruments. 4. Native wildlife such as rodents, ticks, and snakes present the possibility of insect bites and associated diseases such as Lyme disease. 5. Driving vehicles on uneven or unsafe surfaces can result in incidents such as overturned vehicles or flat tires. 6. Electrical hazard due to fallen lines. 7. Thermal stress due to hot/cold temperature extremes. 	<ol style="list-style-type: none"> 1. Wear long sleeved clothing and slacks to minimize contact with irritant and toxic plants and to protect against insect bites. Appropriate first aid for personnel's known allergic reactions. 2. Be alert and observe terrain while walking to minimize slips and falls. Steel-toed boots provide additional support and stability. 3. Use proper lifting techniques to prevent back strain. 4. Avoid wildlife when possible. In case of an animal bite, perform first aid and capture the animal, if possible, for rabies testing. Perform a tick check after leaving a wooded or vegetated area. 5. Ensure all maintenance is performed on vehicles before going to the field. Site surveillance on foot might be required to choose clear driving paths. 6. Ensure fallen power lines are not energized. 7. Implement thermal stress management techniques such as shifting work hours, fluid intake, and monitoring employees, especially high risk
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
		<ol style="list-style-type: none"> 1. Review hazard analysis with personnel performing the site walk through prior to start

ACTIVITY HAZARD ANALYSIS

ACTIVITY Soil Excavation ANALYZED BY/DATE K. Helman 10/98 REVIEWED BY/DATE J. Tinney 01/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Excavation	<ol style="list-style-type: none"> 1. Exposure to airborne contaminants released during intrusive activities (e.g., lead). 2. Sides of excavation can cave in. Possible burying or crushing of workers due to 1) absence of shoring, 2) misjudgment of stability, 3) defective shoring, and/or 4) undercut sides. 3. Falling during access/egress or while monitoring or dismounting equipment, or stumbling into excavation. 4. Congested work area due to too many workers in a small area. 5. Existing utilities. 	<ol style="list-style-type: none"> 1. Monitor for airborne contaminants. 2. Regularly inspect trenches for conditions. 3. Provide adequate shoring or sloping of sides of the excavation ** See Appendix G. 4. Provide an adequate barrier around open pits. Material from pit must be placed away from edge to prevent cave ins and instability of pit. 5. To prevent overexertion, limit manual lifting and emphasize mechanical means where practical. 6. Maintain ample workroom between workers. 7. Find and mark utilities before excavating utilizing the Joint Utility Locating Information for Excavators (JULIE) service 72 hours prior to excavation activities. Use care while excavating, shore existing utilities crossing excavation area. Watch for overhead lines. 8. Check the performance of JULIE locate prior to digging.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
1. Backhoe	Daily, prior to use per manufacturer's recommendations, Fill our Safety Inspection Checklist	OSHA 1910.120 40-hr. training, 3 day OJT, 8 hr. Supervisory, 8 hr. refresher, OSHA Hazard Communication, Respirator and operator training
2. Rolloff Boxes	Use of assistive climbing equipment when covering or placing tarp on box	
3. PPE	Use of particulate filter breathing PPE as needed.	Lead Hazard Awareness

ACTIVITY HAZARD ANALYSIS

ACTIVITY Demolition ANALYZED BY/DATE R.R. Beckwith 11/93 REVIEWED BY/DATE J. Tinney 01/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Demolition Utilizing Hand Tools	<ol style="list-style-type: none"> 1. Injury to hands and eyes. 2. Electrocution. 3. Hearing damage. 4. Fall Hazard. 5. Congested work area due to too many workers in a small area. 6. Lead paint. 7. Lead dust. 	<ol style="list-style-type: none"> 1. Ensure all manufacturer's guards are in place and wear eye protection. 2. Use GFCI for all electrical tools. 3. Wear hearing protection during the use of any hand tool. 4. Ensure that Fall Protection requirements are adhered to at all times. 5. Maintain ample work room between workers. 6. Sample paint and determine lead content. Take precautions as appropriate. 7. Clean area with HCMS-101.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Reciprocating Saw	1. Fill out Safety Inspection Checklist	1. Train personnel to fill out ORD Form 892
Demo Saw	2. Fill out Safety Inspection Checklist	2. Train personnel to fill out ORD Form 892
Grinder	3. Fill out Safety Inspection Checklist	3. Train personnel to fill out ORD Form 892

ACTIVITY HAZARD ANALYSIS

ACTIVITY Demolition ANALYZED BY/DATE R.R. Beckwith 11/93 REVIEWED BY/DATE J. Tinney 01/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Demolition Utilizing Heavy Equipment	1. Falling debris 2. Injury to personnel on the ground 3. Lead dust.	1. Ensure there is adequate distance between the equipment and falling debris. 2. Maintain eye contact with all personnel in the vicinity of the equipment. 3. Monitor air for lead and dust particulates. Mist with water to suppress airborne dust.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Excavator	Daily, prior to use per manufacturer's recommendations, Fill our Safety Inspection Checklist	OSHA 1910.120 40-hr. training, 3 day OJT, 8 hr. Supervisory, 8 hr. refresher, OSHA Hazard Communication
Backhoe	Daily, prior to use per manufacturer's recommendations, Fill our Safety Inspection Checklist	OSHA 1910.120 40-hr. training, 3 day OJT, 8 hr. Supervisory, 8 hr. refresher, OSHA Hazard Communication
Loader	Daily, prior to use per manufacturer's recommendations, Fill our Safety Inspection Checklist	OSHA 1910.120 40-hr. training, 3 day OJT, 8 hr. Supervisory, 8 hr. refresher, OSHA Hazard Communication

ACTIVITY HAZARD ANALYSIS

ACTIVITY Soil Sampling ANALYZED BY/DATE K. Helman 10/98 REVIEWED BY/DATE J. Tinney 01/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Subsurface Soil Sampling	<ol style="list-style-type: none"> 1. Dermal contact with or inhalation of contaminants, potentially in high concentrations in sampling media. 2. Back strain and muscle fatigue due to lifting, shoveling and auguring techniques. 3. Dermal contact with or inhalation of decontamination solutions. 	<ol style="list-style-type: none"> 1. To minimize exposure to chemical contaminants, a thorough review of suspected contaminants shall be completed and implementation of an adequate protection program. 2. PPE shall include level D consisting of work uniform, steel toe boots/shoes, hard hat, safety glasses, hearing protection (when levels exceed 85 dbs), tyvek suit (may not be needed depending on site conditions), and nitrile gloves 3. Proper lifting (pre-lift weight assessment, use of legs, multiple personnel) techniques will prevent back strain. Use slow easy motions when shoveling, auguring, and digging to decrease muscle strain. 4. Material Safety Data Sheets for all decontamination solutions shall be included with the Site Health and Safety Plan. 5. First aid equipment shall be available based on MSDS requirements.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Soil sampling tools	<ol style="list-style-type: none"> 1. Inspect for proper operation. 	OSHA 1910.120 40-hr. training, 3 day OJT, 8 hr. Supervisory, 8 hr. refresher, OSHA Hazard Communication, and Respirator training. Knowledge and training on collection of environmental samples

ACTIVITY HAZARD ANALYSIS

ACTIVITY Backfill & Site Restoration ANALYZED BY/DATE K. Helman 10/98 REVIEWED BY/DATE J. Tinney 01/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
<p>Backfill excavation</p> <p>Compact backfill</p> <p>Seed area</p>	<p>1. Noise levels exceeding the OSHA PEL of 85 dBs are both a hazard and a hindrance to communication.</p> <p>2. Carbon monoxide from the heavy equipment.</p> <p>3. Overhead utility wires, i.e., electrical and telephone, can be hazardous when the dump truck bed is in the upright position.</p> <p>4. Falling backfill material from dump truck may cause injury.</p> <p>5. Moving the equipment over uneven terrain may cause the vehicle to roll over or get stuck in a rut or mud. Be aware of hazards associated with moving heavy machinery and other associated injury.</p> <p>6. High-pressure hydraulic lines and airlines used on heavy equipment are hazardous when they are in ill repair or incorrectly assembled.</p>	<p>1. Ear muffs or earplugs effectively reduce noise levels.</p> <p>2. Review the contaminants suspected to be on-site and perform air monitoring as required. Shut down equipment and/or divert exhaust fumes.</p> <p>3. All chains, lines, cables shall be inspected daily for weak spots.</p> <p>4. Hard hats shall be worn at all times when working around heavy equipment.</p> <p>5. Secure loose clothing.</p> <p>6. To avoid contact with any overhead lines, the truck bed shall be lowered prior to moving the truck. Overhead utilities shall be considered "live" until determined otherwise.</p> <p>7. The truck bed should not be erected within 10 feet of an overhead electrical line until the line is de-energized, grounded, or shielded and an electrician has certified that arcing cannot occur.</p> <p>8. All high-pressure lines shall be checked prior to and during use.</p>
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
1. Backhoe	Daily, prior to use per manufacturer's recommendations, Fill our Safety Inspection Checklist	OSHA 1910.120 40-hr. training, 3 day OJT, 8 hr. Supervisory, 8 hr. refresher, OSHA Hazard Communication, Respirator and operator training
2. Compactor / Roller	Daily, prior to use per manufacturer's recommendations, Fill our Safety Inspection Checklist	OSHA 1910.120 40-hr. training, 3 day OJT, 8 hr. Supervisory, 8 hr. refresher, OSHA Hazard Communication, Respirator and operator training
3. Dump truck	Upon arrival at site, check for proper operation.	Subcontractor activity.

ACTIVITY HAZARD ANALYSIS

ACTIVITY Debris Loadout REVIEWED BY/DATE K. Helman 10/98 REVIEWED BY / DATE J. Tinney 01/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Loadout Soil & Site Grading	<ol style="list-style-type: none"> 1. Noise levels exceeding 85 dbs are both a hazard and a hindrance to communication. 2. Carbon monoxide from the heavy equipment. 3. Overhead utilities. 4. Falling backfill material from backhoe may cause injury. 5. Moving the equipment over uneven terrain may cause the vehicle to roll over or get stuck 6. High-pressure hydraulic lines and airlines used on heavy equipment are hazardous when they are in ill repair or incorrectly assembled. 	<ol style="list-style-type: none"> 1. Ear muffs or earplugs effectively reduce noise levels 2. Review the contaminants suspected to be on-site and perform air monitoring as required. Shut down equipment and/or divert exhaust fumes. 3. All chains, lines, cables should be inspected daily for weak spots. 4. Hard hats should be worn at all times when working around a heavy equipment. 5. Secure loose clothing. 6. Overhead utilities should be considered "live" until determined otherwise. 7. Be aware of hazards associated with moving heavy equipment. 8. All high-pressure lines should be checked prior to and during use.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
1. Backhoe	Daily, prior to use per manufacturer's recommendations, Fill our Safety Inspection Checklist	OSHA 1910.120 40-hr. training, 3 day OJT, 8 hr. Supervisory, 8 hr. refresher, OSHA Hazard Communication, Respirator and operator training
2. Loader	Daily, prior to use per manufacturer's recommendations, Fill our Safety Inspection Checklist	OSHA 1910.120 40-hr. training, 3 day OJT, 8 hr. Supervisory, 8 hr. refresher, OSHA Hazard Communication, Respirator and operator training

ACTIVITY HAZARD ANALYSIS

ACTIVITY Equipment Decontamination ANALYZED BY/DATE K. Helman 10 /98 REVIEWED BY/DATE J. Tinney 01/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
<p>Decontaminate Heavy Equipment Using High Pressure Wash or Hand Scrubbing</p> <p>Decontaminate Sampling Equipment by Hand Washing</p>	<ol style="list-style-type: none"> 1. Contact with contaminated material, inhalation of airborne aerosols, contact with high-pressure wash stream, unexpected movement of material to be decontaminated. 2. Contact with nitric acid (decon solution). 	<ol style="list-style-type: none"> 1. Decontamination area to provide isolation and controlled access. 2. Level D PPE with face shield. Secure items to be decontaminated. Visually inspect integrity of containment liners and containers used for wastewater. CRZ provided for worker decontamination. 3. MSDS' obtained and reviewed for all cleaning solution chemicals.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<p>Wash with soap solution, nitric acid, then deionized water rinse, scrub brushes.</p>	<p>Use general safety rules and procedures listed in HASP, review manufacturer's recommendation and guidance on inspection of equipment. Complete on daily basis.</p>	<p>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory, 8 hour Refresher, HASP, OSHA Hazard Communication and Respirator training.</p>

ACTIVITY HAZARD ANALYSIS

ACTIVITY Lead Decontamination ANALYZED BY/DATE B. Shadbolt 05/02 REVIEWED BY/DATE J. Tinney 05/02

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
<p>Gross removal with HEPA vacuum/Vec loader</p> <p>Chemical wash (HCMS-101)</p>	<ol style="list-style-type: none"> 1. Airborne dust. 2. Splashing of chemical wash solution or rinse water. 3. Loss of containment of chemical was solution or rinse water. 	<ol style="list-style-type: none"> 1. Provide isolation and controlled access to work area. Isolate ventilation systems, etc. to keep dust from spreading through the building. Monitor the work area for lead in air. 2. Wear appropriate PPE to include but not be limited to particulate filter breathing PPE, eye protection, and skin protection. 3. Visually inspect integrity of containment and containers used for wastewater. CRZ provided for worker decontamination. 4. MSDS' obtained and reviewed for all cleaning solutions chemicals if used.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<p>Vec loader, drums, HCMS-101, water.</p>	<p>Use general safety rules and procedures listed in HASP, review manufacturer's recommendation and guidance on inspection of equipment. Complete on daily basis.</p>	<p>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory, 8 hour Refresher, HASP, OSHA Hazard Communication and Respirator training, Lead Hazard Awareness Training.</p>

ACTIVITY HAZARD ANALYSIS

ACTIVITY Asbestos Removal

ANALYZED BY/DATE G. Brown/06/01

REVIEWED BY/DATE

R. Barcum/07/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
<p>Asbestos Abatement</p>	<ol style="list-style-type: none"> 1. Exposure to airborne asbestos released during abatement activities. 2. Falling off scaffolds, ladders or manlifts. 3. Slipping on possible wet floors from abatement activities. 4. Congested work area due to too many workers in a small area. 5. Existing utilities. 6. Injury resulting from staples and nails from containment walls. 7. Slippery surfaces from wet material being disposed and wet cleaning activities. 8. Injury, strain from moving heavy equipment/objects or waste. 9. Slips, trips, falls 10. Sharp objects. 11. Electrical shock. 12. Inclement weather. 13. Crush potential. 14. Pinch points. 15. Inadequate lighting. 16. Traffic hazards. 17. Saw cutting. 	<ol style="list-style-type: none"> 1. Monitor for airborne contaminants; wear proper PPE including respirators with HEPA filters and disposable Tyvek suits. 2. Use caution while working on ladders and scaffolding and if over 6 foot, appropriate full-body harnesses with safety lanyards will be worn. Personnel working on ladders shall maintain 3 points of contact at all times. Only qualified persons shall operate manlifts. Maintain good housekeeping and keep moving equipment away. 3. Check for leaks in bags, and spills shall be cleaned up immediately. Maintain ongoing housekeeping practices. 4. Maintain ample room between workers to perform their work. Be aware of workers within your vicinity. 5. Isolate utilities before abatement. Watch for overhead lines. 6. Care is to be taken when tearing down containments. Not to hurry when cleaning the areas to get the job done. Be alert to objects and sharps that may potentially cause injury. 7. Looking for areas that may be wet and cleaning the areas to prevent slip, trip and fall hazards. Maintain good housekeeping. 8. Observe proper lifting techniques. To prevent overexertion, limit manual lifting and emphasize mechanical means where practical or obtain assistance from other personnel. 9. Clear pedestrian traffic areas of equipment materials, and debris. Identify, mark, or barricade immovable objects. Maintain good housekeeping at all times. 10. Wear gloves. Maintain hand and power tools in a safe condition. Keep guards in place during use. Eliminate or mark sharp, protruding objects. Be aware of pinch points. 11. Faulty or unsafe equipment shall be so marked and not used until repaired. Use power tools in conjunction with GFCIs. Power tools shall have a ground prong or be double insulated. Use proper lock out/tag out procedures for de-energized systems. 12. Take appropriate rest breaks to allow personnel to cool down or warm up. Drink plenty of non-caffeinated beverages. Maintain a healthy diet. Wear clothing appropriate for the weather. 13. Personnel will not work or stand beneath suspended loads. 14. Personnel will insure that they do not place themselves between two moving objects or a moving object and a fixed object. 15. Lighting shall be sufficient to allow personnel to perform work in a safe and efficient manner. If lighting is not sufficient, work will stop until the situation is corrected. All electrical lighting shall be used in conjunction with GFCIs. 16. Personnel shall wear high visibility vests while working within 25 feet of vehicular traffic areas or moving equipment. 17. Wet methods will be used to suppress fugitive dust. Personnel shall wear a hard hat and safety glasses to protect from flying debris. Personnel shall wear hearing protection when exposed to noise levels exceeding 85 dB.

Asbestos Activity Hazard Analysis (continued)

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Scaffolds/ladders/manlifts	1. Competent person shall inspect scaffolds/ladders/manlifts prior to use.	1. Appropriate use of scaffolding/ladders and fall protection. Only qualified operators shall operate manlifts.
Respirators	1. Manually inspect respirators prior to each and every donning.	1. Train personnel on how to care for a respirator and perform positive and negative air checks, 29 CFR 1910.134.
Asbestos Abatement Equipment	1. Review worker training documentation prior to commencing work.	1. All workers must satisfactorily pass an EPA accredited training course in accordance with 40 CFR Part 763, EPA Model Accreditation Plan.
AFDs	1. AFDs operation shall be consistently monitored by site supervisor.	1. All workers must satisfactorily pass an EPA accredited training course in accordance with 40 CFR Part 763, EPA Model Accreditation Plan.
Various hand tools/power tools	1. Visual inspection by competent person prior to use.	1. Review activity hazard analysis with personnel performing the abatement. Use tools only in accordance with manufacturer's intended use. Tools shall be used only by person's properly trained in their use.
Cutting saws	1. Visual inspection by competent person prior to use.	1. Proper training for hearing protection.

ACTIVITY HAZARD ANALYSIS

ACTIVITY Site Restoration/Demobilization ANALYZED BY/DATE G. Brown/06/01 REVIEWED BY/DATE R. Barcum/07/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
<p>Containment Tear Down</p> <p>Clean Up</p> <p>Removal of Equipment</p> <p>Remove Fencing (if used)</p>	<ol style="list-style-type: none"> 1. Injury resulting from staples and nails from containment walls. 2. Slippery surfaces from wet material being disposed and wet cleaning activities. 3. Injury, strain from moving heavy equipment/objects or waste. 4. Slips, trips, falls 5. Sharp objects. 6. Electrical shock. 7. Inclement weather. 8. Crush potential. 9. Pinch points. 10. Inadequate lighting. 11. Traffic hazards. 	<ol style="list-style-type: none"> 1. Care is to be taken when tearing down containments. Not to hurry when cleaning the areas to get the job done. Be alert to objects and sharps that may potentially cause injury. 2. Looking for areas that may be wet and cleaning the areas to prevent slip, trip and fall hazards. Maintain good housekeeping. 3. Observe proper lifting techniques. To prevent overexertion, limit manual lifting and emphasize mechanical means where practical or obtain assistance from other personnel. 4. Clear pedestrian traffic areas of equipment materials, and debris. Identify, mark, or barricade immovable objects. Maintain good housekeeping at all times. 5. Wear gloves. Maintain hand and power tools in a safe condition. Keep guards in place during use. Eliminate or mark sharp, protruding objects. Be aware of pinch points. 6. Faulty or unsafe equipment shall be so marked and not used until repaired. Use power tools in conjunction with GFCIs. Power tools shall have a ground prong or be double insulated. Use proper lock out/tag out procedures for de-energized systems. 7. Take appropriate rest breaks to allow personnel to cool down or warm up. Drink plenty of non-caffeinated beverages. Maintain a healthy diet. Wear clothing appropriate for the weather. 8. Personnel will not work or stand beneath suspended loads. 9. Personnel will insure that they do not place themselves between two moving objects or a moving object and a fixed object. 10. Lighting shall be sufficient to allow personnel to perform work in a safe and efficient manner. If lighting is not sufficient, work will stop until the situation is corrected. All electrical lighting shall be used in conjunction with GFCIs. 11. Personnel shall wear high visibility vests while working within 25 feet of vehicular traffic areas or moving equipment.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Various hand tools/power tools	1. Visual inspection by competent person prior to use.	1. Review activity hazard analysis with personnel performing the tear down and demobilization prior to site restoration. Use tools only in accordance with manufacturer's intended use. Tools shall be used only by person's properly trained in their use.

ACTIVITY HAZARD ANALYSIS

ACTIVITY Mobilization

ANALYZED BY/DATE G. Brown/06/01 REVIEWED BY/DATE R. Barcum/07/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
<p>Pre-cleaning</p> <p>Placement of Equipment</p> <p>Install Fencing (if required)</p> <p>Containment Setup</p>	<ol style="list-style-type: none"> 1. Injury resulting from staples and nails from containment walls. 2. Slippery surfaces from wet material being disposed and wet cleaning activities. 3. Injury, strain from moving heavy equipment/objects or waste. 4. Slips, trips, falls 5. Sharp objects. 6. Electrical shock. 7. Inclement weather. 8. Crush potential. 9. Pinch points. 10. Inadequate lighting. 11. Traffic hazards. 	<ol style="list-style-type: none"> 1. Care is to be taken when tearing down containments. Not to hurry when cleaning the areas to get the job done. Be alert to objects and sharps that may potentially cause injury. 2. Looking for areas that may be wet and cleaning the areas to prevent slip, trip and fall hazards. Maintain good housekeeping. 3. Observe proper lifting techniques. To prevent overexertion, limit manual lifting and emphasize mechanical means where practical or obtain assistance from other personnel. 4. Clear pedestrian traffic areas of equipment materials, and debris. Identify, mark, or barricade immovable objects. Maintain good housekeeping at all times. 5. Wear gloves. Maintain hand and power tools in a safe condition. Keep guards in place during use. Eliminate or mark sharp, protruding objects. Be aware of pinch points. 6. Faulty or unsafe equipment shall be so marked and not used until repaired. Use power tools in conjunction with GFCIs. Power tools shall have a ground prong or be double insulated. Use proper lock out/tag out procedures for de-energized systems. 7. Take appropriate rest breaks to allow personnel to cool down or warm up. Drink plenty of non-caffeinated beverages. Maintain a healthy diet. Wear clothing appropriate for the weather. 8. Personnel will not work or stand beneath suspended loads. 9. Personnel will insure that they do not place themselves between two moving objects or a moving object and a fixed object. 10. Lighting shall be sufficient to allow personnel to perform work in a safe and efficient manner. If lighting is not sufficient, work will stop until the situation is corrected. All electrical lighting shall be used in conjunction with GFCIs. 11. Personnel shall wear high visibility vests while working within 25 feet of vehicular traffic areas or moving equipment.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<p>Various hand tools/power tools</p>	<ol style="list-style-type: none"> 1. Visual inspection by competent person prior to use. 	<ol style="list-style-type: none"> 1. Review activity hazard analysis with personnel performing the set up. Use tools only in accordance with manufacturer's intended use. Tools shall be used only by person's properly trained in their use.

ACTIVITY HAZARD ANALYSIS

ACTIVITY Light Ballast/Tube Removal **ANALYZED BY/DATE** G. Brown/06/01 **REVIEWED BY/DATE** R. Barcum/07/01

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Removal of ballasts, fluorescent light tubes, circuit boards, mercury switches, thermostats, gages.	<ol style="list-style-type: none"> 1. Electrical shock. 2. Falling off scaffolds, ladders or manlifts. 3. Broken glass and sharps. 4. An overhead hazard can result from material, tools, or equipment. 5. Contact with oils if equipment is in poor condition. 6. Mercury and PCBs. 7. Inadequate lighting. 	<ol style="list-style-type: none"> 1. Isolate utilities prior to work start and verify isolation. 2. Use caution while working on ladders and scaffolding and if over 6 foot, appropriate full-body harnesses with safety lanyards will be worn. Personnel working on ladders shall maintain 3 points of contact at all times. Only qualified persons shall operate manlifts. Maintain good housekeeping and keep moving equipment away. 3. Attempt to remove light tubes intact, wear appropriate PPE (gloves, safety glasses, hard hat, etc.). Eliminate or mark sharp protruding objects. Be cognizant of pinch points. 4. Wear hardhat to prevent accidental collision/contact with light fixtures. 5. Wear appropriate gloves; deposit equipment in appropriate containment. Take appropriate corrective action for spills. Report to NTR. 6. Personnel shall take care to not break bulbs, ballasts, switches, or other like equipment during removal and placement into the drums or crates. 7. Lighting shall be sufficient to allow personnel to perform work in a safe and efficient manner. If lighting is not sufficient, work will stop until the situation is corrected. All electrical lighting shall be used in conjunction with GFCIs.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Scaffolds/ladders/manlifts	1. Competent person shall inspect scaffolds/ladders/manlifts daily.	1. Appropriate use of scaffolding/ladders and fall protection. Only qualified operators shall operate manlifts.

ACTIVITY HAZARD ANALYSIS

ACTIVITY All site activities ANALYZED BY/DATE G. Brown/06/01 REVIEWED BY/DATE R. Barcum/07/01

The following controls are applicable to all site activities:

Potential Hazards	Controls
Housekeeping	<ul style="list-style-type: none"> Housekeeping will be maintained as the project progresses.
Hand Tools	<ul style="list-style-type: none"> A competent person will inspect all hand tools prior to use. Hand tools will only be used as intended by the manufacturer.
Power Tools	<ul style="list-style-type: none"> A competent person shall inspect all power tools prior to use. Power tools shall be equipped with a ground prong or be double insulated. Power tools shall be used in conjunction with a GFCI. Damaged power tools shall be immediately removed from service. All power tools shall have the appropriate guards in place prior to use.
Slips, Trips and Falls	<ul style="list-style-type: none"> Maintain good housekeeping at all times Ensure adequate lighting Remove, mark or barricade hazards
Inadequate lighting	<ul style="list-style-type: none"> Lighting shall be sufficient to allow personnel to perform work in a safe and efficient manner. If lighting is not sufficient, work will stop until the situation is corrected. All electrical lighting shall be used in conjunction with GFCIs.
Cuts and Abrasions	<ul style="list-style-type: none"> Personnel shall wear gloves when manually handling material with sharp edges. Eliminate or mark sharp protruding objects Personnel shall be cognizant of pinch points and shall not allow themselves to get into a position between a stationary object and a moving piece of equipment.
Manual Lifting Hazards/ Back Injuries	<ul style="list-style-type: none"> Personnel shall ensure that they observe proper lifting techniques and shall minimize movements such as over reaching, bending and twisting. Personnel shall not lift more than 50 lbs. without help from a co-worker(s) or mechanical assistance
Pinch Points	<ul style="list-style-type: none"> Personnel will ensure that they do not place themselves between a fixed and a moving object or between two moving objects.
Traffic	<ul style="list-style-type: none"> Personnel shall wear high visibility vests when working within 25 feet of vehicular traffic or moving equipment. Vehicle drivers shall obey posted site speed limits, stop signs, wear seat belts, and utilize common sense driving practices. Personnel shall stay only on designated routes at the facility unless an emergency arises.

APPENDIX L

Hospital Directions

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MAPS

DRIVING DIRECTIONS

ROAD TRIP PLANNER

YELLOW PAGES

maps

- Address
- Airport
- ZIP Code
- City
- Area Code
- Lat / Long
- Road Atlas Key
- Saved Maps

Glenview, IL
60025, US

STREET MAP

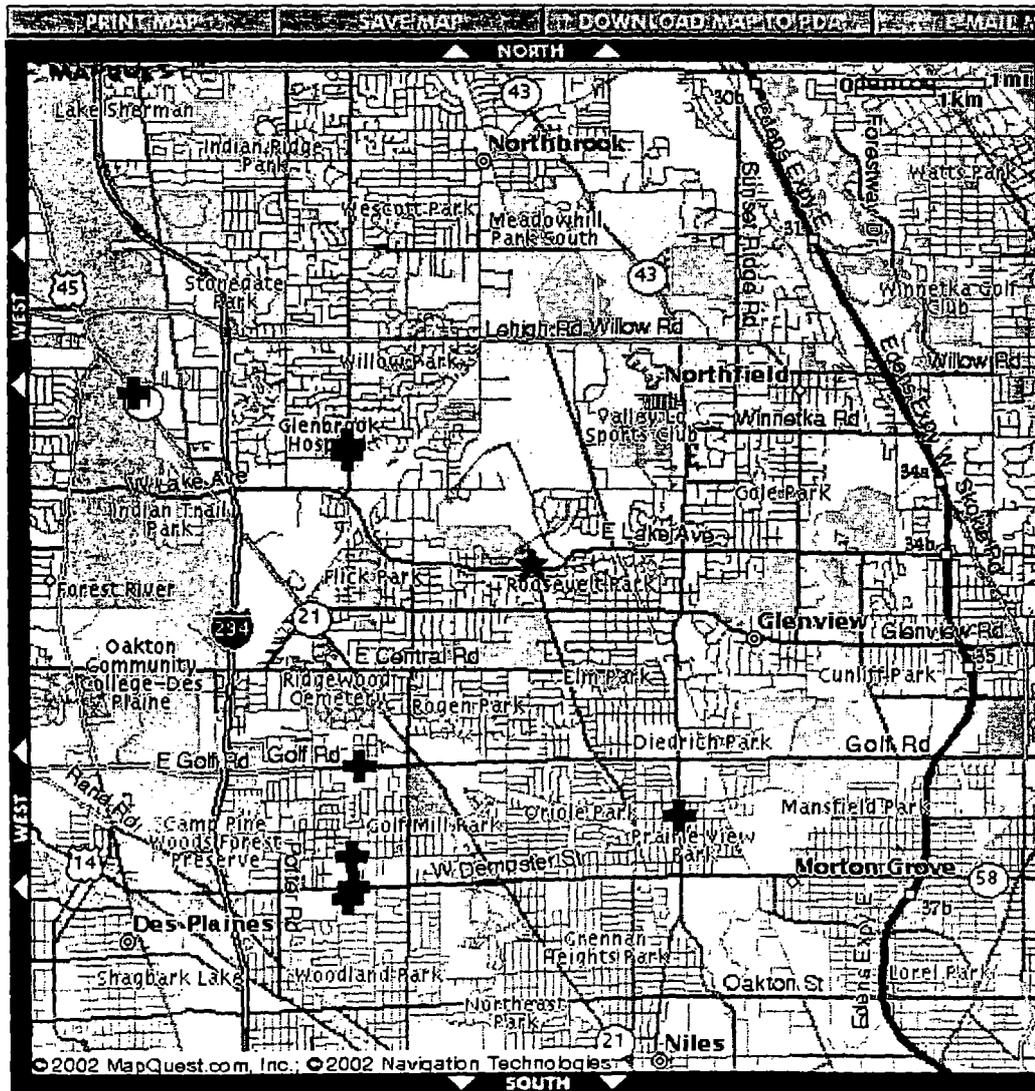
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CLICKING ON MAP WILL: Zoom In Re-center Identify Icon

ADDITIONAL MAP FEATURES: [Customize Map](#) [Add A Location](#)



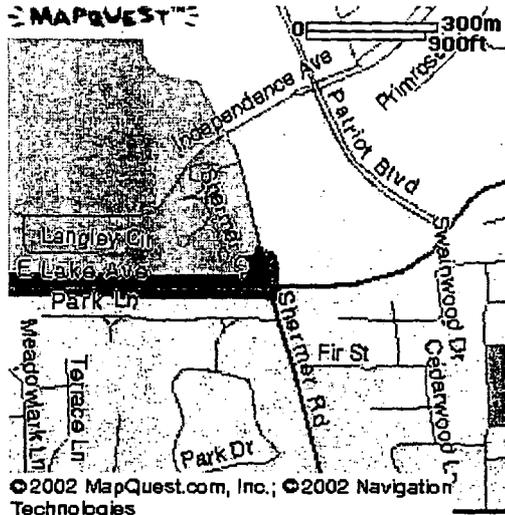
CLICKING ON MAP WILL: Zoom In Re-center

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DESTINATION :

Glenview, IL
60025 US



Re-display Directions with:

- Overview Map with Text
- Text Only
- Turn-by-Turn Maps with Text

RE-DISPLAY ROUTE

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MAPQUEST

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[ROAD TRIP PLANNER](#)
[YELLOW PAGES](#)

driving directions

- North America
- Europe
- Saved Routes

FROM: **Glenbrook Hospital**
 2100 Pfingsten Rd
 Glenview, IL
 60025-1393 US

TO: **Glenview, IL**
 60025 US



City Guide

- Chicago Dining
- Chicago News
- Chicago Movies
- Chicago Entertainment

Yellow Pages

Search **Glenview** for:

Total Distance: 2.15 miles **Total Estimated Time: 6 minutes**

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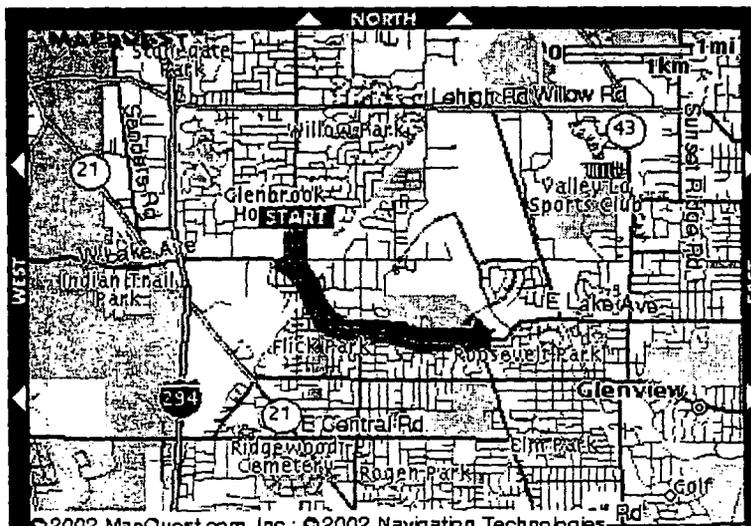
[REVERSE DIRECTIONS](#)
[FIND LOCATIONS ALONG THE WAY](#)

FASTEST ROUTE	SHORTEST ROUTE	AVOID HIGHWAYS
<p>DIRECTIONS</p> <p>1: Start out going South on PFINGSTEN RD towards GLENLAKE DR by turning right. 0.34 miles</p> <p>2: Turn LEFT onto E LAKE AVE. 1.78 miles</p> <p>3: Turn LEFT onto SHERMER RD. 0.03 miles</p> <p>Total Estimated Time: Total Distance: 2.15 miles</p> <p>6 minutes</p>		
<p> Action canceled</p>		



 Act

ROUTE OVERVIEW:



ZOOM IN







ZOOM OUT