

**Health and Safety Plan  
Fire Fighting Training Unit  
Naval Training Center  
Great Lakes, Illinois**

**VOLUME I**

**Northern Division  
Naval Facilities Engineering Command  
Contract No. 3N68950-95-D9021  
Beling File #29646**

**June 1996  
REVISED JUNE 1997**

FINAL  
HEALTH AND SAFETY PLAN  
REMEDIAL INVESTIGATION  
FIRE FIGHTING TRAINING UNIT  
NAVAL TRAINING CENTER  
GREAT LAKES, ILLINOIS

Submitted to:  
Naval Facilities Engineering Command  
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Submitted by:  
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Contract No. 3N68950-95-D-9021

June 1997

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HEALTH AND SAFETY PLAN  
REMEDIAL INVESTIGATION  
FFTU  
NAVAL TRAINING CENTER  
GREAT LAKES, ILLINOIS

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## LIST OF ACRONYMS/ABBREVIATIONS

|        |   |
|--------|---|
| ACBM   | Asbestos Containing Building Material                     |
| ACGIH  | American Conference of Governmental Industrial Hygienists |
| AST    | Aboveground Storage Tank                                  |
| BZ     | Breathing Zone  |
| CFR    | Code of Federal Regulations                               |
| CGI    | Combustible Gas Indicator                                 |
| CHSM   | Corporate Health and Safety Manager                       |
| CLEAN  | Comprehensive Long-Term Environmental Action Navy         |
| CPR    | Cardiopulmonary Resuscitation                             |
| CPTU   | Cone Penetrometer Testing Unit                            |
| CRZ    | Contamination Reduction Zone                              |
| CTO    | Contract Task Order                                       |
| CZ     | Control Zone  |
| EPA    | Environmental Protection Agency                           |
| EZ     | Exclusion Zone  |
| FAR    | Federal Acquisition Regulation                            |
| FFTU   | Fire Fighting Training Unit (previously known as Site 4)  |
| FID    | Flame Ionization Detector                                 |
| FS     | Feasibility Study   |
| HEPA   | High Efficiency Particulate Air (Filter)                  |
| HSM    | Health and Safety Manager                                 |
| HASP   | Health and Safety Plan                                    |
| HR     | Heart Rate  |
| IAS    | Initial Assessment Study                                  |
| IP     | Ionization Potential                                      |
| MCE    | Mixed Cellulose Ester                                     |
| MSDS   | Material Safety Data Sheets                               |
| MSHA   | Mining Safety and Health Administration                   |
| NESHAP | National Emissions Standards for Hazardous Air Pollutants |
| NIOSH  | National Institute for Occupational Safety and Health     |
| NTC    | Naval Training Center                                     |
| OSHA   | Occupational Safety and Health Administration             |
| OVA    | Organic Vapor Analyzer                                    |
| PAMs   | Personal Air Monitors                                     |
| PAPR   | Powered Air Purifying Respirator                          |
| PEL    | Permissible Exposure Limit                                |
| PID    | Photoionization Detector                                  |
| PPE    | Personal Protective Equipment                             |
| PPM    | Parts Per Million   |
| QA/QC  | Quality Assurance/Quality Control                         |
| REL    | Recommended Exposure Limit                                |
| RI     | Remedial Investigation                                    |
| SCBA   | Self-Contained Breathing Apparatus                        |
| SOP    | Standard Operating Procedure                              |

## LIST OF ACRONYMS/ABBREVIATIONS - Con't.

|       |   |
|-------|---|
| SSO   | Site Health and Safety Officer (Site Emergency Coordinator) |
| STEL  | Short-term Exposure Limit                                   |
| SZ    | Support Zone  |
| TLV   | Threshold Limit Value                                       |
| TWA   | Time Weighted Average                                       |
| USACE | U.S. Army Corps of Engineers                                |
| USCG  | U.S. Coast Guard  |
| UST   | Underground Storage Tank                                    |
| WBGT  | Wet Bulb Globe Temperature (Index)                          |
| WZ    | Work Zone   |

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- B. RESPIRATORY PROTECTION PROGRAM
- C. HEALTH AND SAFETY PLAN FIELD MODIFICATION FORM

**VOLUME II**

Hazardous Substances Data  
For Contaminants of Potential Concern  
Health & Safety Plan  
Fire-Fighting Training Unit  
Naval Training Center  
Great Lakes, Illinois  
Information obtained from the National Library of Medicine

## 1.0 GENERAL

This Site-Specific Health and Safety Plan (HASP) was prepared for the Fire Fighting Training Unit (FFTU) at the Naval Training Center (NTC) in Great Lakes, Illinois, under Contract No. 3N68950-95-D-9021 to Beling Consultants (Beling) for the U.S. Navy, in accordance with the regulatory requirements of 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response." In addition, the scope of work will comply with and reflect the following applicable regulations and appropriate guidance publications, as a minimum:

- Federal Acquisition Regulation, F.A.R. Clause 52.236-13: Accident Prevention.
- U.S. Army Corps of Engineers (USACE), Safety and Health Requirements Manual, EM 385-1-1 (latest revision, 1987).
- Occupational Safety and Health Administration (OSHA), Construction Industry Standards, 29 CFR 1926, and General Industry Standards, 29 CFR 1910.
- NIOSH/OSHA/USCG/EPA, "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," October 1985.
- Environmental Protection Agency (EPA) 40 CFR, Part 61, "National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision; Final Rule," November 20, 1990.
- Other applicable Federal, State, and local safety and health requirements.

The purpose of this HASP is to summarize the project organization and responsibilities; establish standard operating procedures (SOPs) for preventing accidents, injuries, and illnesses; identify hazards; discuss the personal protective equipment that may be used; identify personnel health and safety training requirements; summarize the monitoring techniques; establish emergency procedures; describe the medical surveillance program; provide appropriate first aid equipment for site activities; provide for accident recordkeeping; and establish a schedule for safety inspections.

This HASP addresses those activities associated with remedial investigation activities to be conducted at the NTC located in Shields Township, Lake County, Illinois, near the shore of Lake Michigan. Specifically, field investigation activities will be conducted at the Fire Fighting Training Unit (Figure 1).

This project is being performed in accordance with Federal and State Requirements. The engineering firm referenced by the Navy as the "Prime Contractor" is Beling Consultants (Beling).

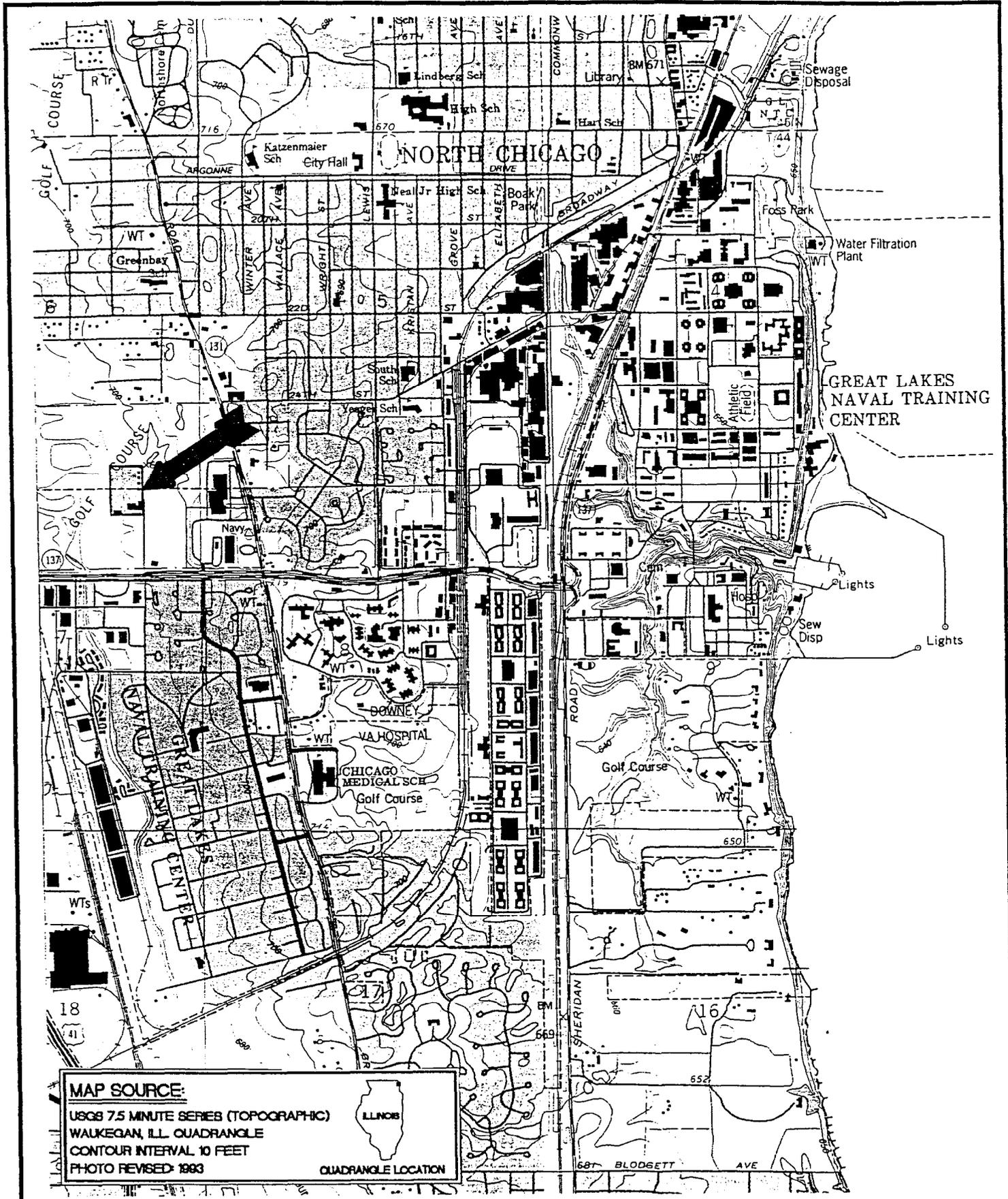
This HASP will be implemented by Beling's Project Manager in accordance with requirements of Beling's Corporate Health and Safety Manager (CHSM).

Compliance with this HASP is required of all Beling personnel who enter the site. Assistance in implementing this HASP can be obtained from the CHSM and the Project Manager.

The content of this HASP may change or undergo revision based upon additional information made available to health and safety personnel through monitoring results or due to changes in the technical scope of work. Any changes proposed must be approved by the CHSM and the Project Manager. The Navy's Engineer in Charge will also approve all increases and/or decreases in safety protocols. A HASP Field Modification Form is presented in Appendix C.

## **1.1 SCOPE OF WORK**

- Geophysical Survey (optional)
- Soil Borings/Subsurface Soil Sampling
- Hand Augering/Subsurface Soil Sampling
- Surface Soil Sampling
- Soil Sampling from Trenching and Pipe Removal Activities
- Surface Water/Sediment Sampling
- Monitoring Well Installation
- Monitoring Well Development/Groundwater Sampling
- Asbestos Survey and Sampling (optional)
- Liquid Waste Sampling
- Solid Waste Sampling



**MAP SOURCE:**

USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)  
 WAUKEGAN, ILL. QUADRANGLE  
 CONTOUR INTERVAL 10 FEET  
 PHOTO REVISED: 1993



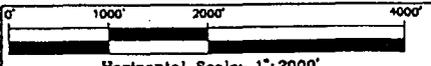
QUADRANGLE LOCATION

**BELING  
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|           |        |
|-----------|--------|
| DESIGNED: | C.A.B. |
| DRAWN:    | A.A.B. |
| CHECKED:  | C.A.B. |



**SITE LOCATION MAP**

**ENVIRONMENTAL REMEDIATION OF THE  
 FIREFIGHTING TRAINING UNIT  
 NAVAL TRAINING CENTER  
 GREAT LAKES, ILLINOIS**

**SITE SAFETY AND HEALTH PLAN**

**SHEET,  
 FIGURE 1**

**JOB NUMBER,  
 29879**

**DATE,  
 JUNE 1997**

## 1.2 PROJECT PERSONNEL

| <u>Name/Firm</u> | <u>Title</u>                                | <u>Work Phone</u> | <u>Home Phone</u> |
|------------------|---|-------------------|-------------------|
| Molly Arp        | Project Manager<br>PG, CHMM                 | 309-757-9849      | 319-322-5927      |
| Henry Mayer      | Professional Engineer<br>QA/QC Officer      | 309-757-9826      | 319-359-4711      |
| Julie Sommers    | Corporate H&S Manager<br>(CHSM)             | 309-757-9843      | 309-523-2118      |
| Cindy Baldwin    | Industrial Hygienist, CIH                   | 309-757-9828      | 319-338-5134      |
| Karl Meier       | Sr. Environmental Engineer                  | 312-986-0390      | 847-973-1425      |
| Phil Ramos       | Field Coordinator,<br>CHMM                  | 312-986-0390      | 312-622-0129      |
| Fred Lawrence    | Sr. Environmental Engineer<br>PG            | 309-757-9831      | 319-386-4273      |
| James King       | Staff Environmental Engineer<br>CHMM        | 309-757-9817      | 319-289-4123      |
| Mark Painter     | Professional Engineer<br>Sr. Civil Engineer | 608-362-8333      | 815-229-8507      |
| Paul McNamee     | Professional Engineer<br>Principal QC       | 309-757-9841      | 309-797-8321      |

NOTE: The on-site Health & Safety Officer (SSO) will be one of the above depending on the phase of field activity.

During initial phases and pipe demolition activities, Phil Ramos will be the SSO. The Project Manager will designate otherwise as the project progresses. Beling is responsible only for Beling personnel.

## **2.0 ASSIGNMENT OF HASP RESPONSIBILITY**

The following describes the health and safety designations and general responsibilities which will be implemented for field activities associated with the pipe demolition, remedial investigation (RI), and remediation activities at the FFTU.

### **2.1 CORPORATE HEALTH AND SAFETY MANAGER (CHSM)**

The CHSM and the CLEAN HSM have overall responsibility for development and implementation of this HASP. The HSMs will approve any changes to this HASP due to modification of procedures or newly proposed site activities.

The HSMs will be responsible for the development of new safety protocols and procedures necessary for field operations and will also be responsible for the resolution of any outstanding safety issues which arise during the site work. Health and safety-related duties and responsibilities will be assigned only to qualified individuals by the HSMs. Before personnel may work on-site, a current medical examination and acceptable health and safety training must be approved by the HSMs.

### **2.2 SITE HEALTH AND SAFETY OFFICER**

The HSMs will direct the site health and safety efforts through an Assistant SSO as needed. The SSO will be responsible for implementing the HASP. The SSO may direct or participate in on-site activities as appropriate when this does not interfere with primary SSO responsibilities. The SSO has stop-work authorization which he/she will execute upon determination of an imminent safety hazard, emergency situation, or other potentially dangerous situations, such as detrimental weather conditions. Authorization to proceed with work will be issued by the HSMs in conjunction with the Project Manager.

### **2.3 SUBCONTRACTORS**

Subcontracts will be issued for various tasks including drilling and use of a backhoe to remove subsurface structures. Other subcontracts may be issued for additional tasks for the RI at the NTC, however, none are anticipated. Subcontracts will comply with the requirements outlined in this HASP and in accordance with OSHA 29 CFR 1919 and 29 CFR 1926; but, in all cases, subcontractors will be responsible for site safety related to or affected by their own field operations (i.e., heavy equipment operations and personal protective equipment).

### 3.0 SITE LOCATION AND DESCRIPTION

#### 3.1 LOCATION

The NTC is located in Shields Township, Lake County, Illinois, near the shore of Lake Michigan. It is bounded on the west by Route 41, on the north by the City of North Chicago, and on the south by the Veterans Administration and Golf Course.

#### 3.2 FIRE FIGHTING TRAINING UNIT DESCRIPTION

The Fire Fighting Training Unit (FFTU), is located about 0.5 mile northeast of the intersection of U.S. 41 and Buckley Road. The FFTU is approximately 10 acres, partially paved and surrounded on all sides by the Willow Glen Golf Course. The FFTU was in operation between 1942 and October 1990.

The primary features of the FFTU are discussed below. The discussion is based on information gathered during two site visits, a review of historical engineering drawings, and conversation with Navy personnel. Refer to Plan View Map provided as Figure 3.1.

1. Building 3304 - This building was used primarily for classrooms. Possible asbestos-containing building materials (ACBMs) are present in this building (not presently included in field activity).
2. Buildings 3305A, 3305B, 3305C and 3305D - These four buildings are referred to as the carrier compartments or burn buildings. Certain rooms of these buildings were filled with diesel fuel and ignited with gasoline. Recruits would enter the buildings and extinguish the diesel fires. Buildings have been demolished as of June 18, 1997.
3. Two existing 5,000 Gallon Underground Storage Tanks (USTs) Southeast of Buildings 3305 - According to Navy personnel, only one of these tanks containing diesel, is still there to be removed July 1997.
4. Three existing 2,500 Gallon Diesel USTs - USTs supplied diesel via underground piping to the Christmas Tree Vaults, etc. If confirmed as present, these tanks will be removed August or September 1997.
5. Three existing 1,500 Gallon Gasoline USTs - USTs supplied gasoline via underground piping to Christmas Tree Vaults, etc. Locations unknown/unconfirmed.
6. Fire Fighting Rings FF1, FF2, FF3, FF4, FF5, FF6 - The Fire Fighting Rings (rings) were typically filled with diesel fuel and ignited with gasoline. Diesel fuel was transferred to the rings via underground piping. Recruits would

then extinguish the fires. Surface equipment was removed, April through June 1997.

7. Christmas Tree Vaults FC1, FC2, FC3, FC4, FC5 - Based on research including Yards and Docks Drawing No. 286,493, dated March 20, 1946, each of these square structures housed either a real or artificial tree which was ignited with gasoline. The gasoline was transferred to these vaults via underground piping. It is assumed that recruits would enter the vaults and extinguish the fires. Subsurface investigation will be conducted adjacent to the vaults. Entry into the vaults is not anticipated. Removed April 1997.
8. Decant Ponds a/k/a lagoons - Once fires had been successfully extinguished in the burn buildings, rings, or Christmas Tree Vaults, the remaining liquids in these structures (unburned petroleum product, water, foam) were drained from the structures and transported via underground piping to the Decant Ponds where the liquid was discharged. This direct discharge to the Decant Ponds occurred through 1979, at which time an oil/water separator was installed. The site visit team found no evidence that would indicate the these decant ponds were constructed with an engineered liner. According to Navy personnel, each pond contains a drain in its bottom which allows the accumulated liquid in the pond to drain to an underground pipeline. This pipeline ultimately discharges to Skokie Ditch about 250 feet west of the ponds. The Skokie Ditch is a minor tributary to the Chicago River.
9. Oil/Water Separator - In 1979, an oil/water separator was installed at the FFTU. All drainage from the burn buildings, the rings and the Christmas Tree Vaults passed through this separator. After petroleum product was recovered and containerized in drums, the remaining liquid was discharged to the Decant Ponds. The oil/water separator consists of three subsurface pits (the smothering pit, the separator pit and the overflow pit), two pumps (located in the smothering pit), and two oil/water separators. These subsurface structures to be removed July 1997.
10. Former Drum Storage Area - Petroleum product recovered from the oil/water separator was containerized in 55-gallon drums and stored along the west fence line of the FFTU in the Drum Storage Area. In addition, reportedly between 1942 and 1979, this area of the FFTU was used for storage of drums containing waste Solvent 144, turpentine, gasoline, crankcase motor oil and antifreeze. The source(s) of these other materials is unknown. Up to 300 55-gallon drums of such material were accumulated in this area by 1983. All are gone now.
11. Existing Gasoline AST Located North of the Decant Ponds - This AST is surrounded by a concrete dike. According to Chief Pleasant, gasoline was dispensed from this AST into 5-gallon cans and carried by hand to the burn

buildings and rings where it was used to ignite diesel fuel in these structures. To be removed July 1997.

12. Suction Sumps - These sumps were filled with water and used as an emergency source of fire fighting water. These have yet to be identified.
13. Drainage Ditch - This ditch contained water during each site visit in 1995, 1996, and 1997. Oil sheening or staining of the water or ditch shore was not observed. Dames & Moore previously reported the water in this ditch to have an oily sheen in December 1987.
14. Pad-Mounted Transformers - Four transformers are mounted on a concrete pad in the southeast corner of the site. Polychlorinated biphenyl (PCB) dielectric fluid may be present in the equipment.
15. Monitoring Wells MW4-1, MW4-2, MW4-3A and MW-4-4 - These four monitoring wells were installed by Dames & Moore in 1988. They are dry or unusable for other reasons (1997).

The yellow building (3311) is actively being used by the Willow Glen Golf Course as a maintenance shed and is not included as part of the FFTU.



TABLE 4-1 (continued)  
CONTAMINANTS OF POTENTIAL CONCERN

| Contaminant                  | Identified Range of Contaminant Concentrations in Water, Ground-water, Diesel (ppb) | Identified Range of Contaminant Concentrations in Solids/Soils (ppb) | Exposure Limits (in ppm unless noted) |                           |   |                         | Odor Threshold (ppm)        | Vapor Pressure (in mm Hg) @ °F | Ionization Potential (in eV) |
|------------------------------|---|--|---------------------------------------|---------------------------|---|-------------------------|-----------------------------|--------------------------------|------------------------------|
|                              |   |  | TLV                                   | PEL                       | REL   | IDLH                    |                             |                                |                              |
| 1,2-Dibromo-3-chloropropane  |   | 3  | —                                     | 0.001                     | —   | —                       | 0.10-0.29 mg/M <sup>3</sup> | 0.8 @ 68                       | —                            |
| Di-n-butylphthalate          |   | 23,000   | 5 mg/M <sup>3</sup>                   | 5 mg/M <sup>3</sup>       | 5 mg/M <sup>3</sup>                           | 4,000 mg/M <sup>3</sup> | —                           | 0.00007 @ 68                   | —                            |
| Dichloropropene              |   | 770  | 1-S                                   | —                         | 1-S   | —                       | —                           | 28 @ 68                        | —                            |
| Dieldrin                     |   | 76-120   | 0.25 mg/M <sup>3</sup> -S             | 0.25 mg/M <sup>3</sup> -S | 0.25 mg/M <sup>3</sup> -S                     | 50 mg/M <sup>3</sup>    | 0.041                       | 8 x 10 <sup>-7</sup> @ 77      | —                            |
| Diethyl phthalate            | 10-210  |  | 5 mg/M <sup>3</sup>                   | —                         | 5 mg/M <sup>3</sup>                           | —                       | —                           | 0.002 @ 77                     | —                            |
| 2,4-Dimethylphenol           |   | 460  | —                                     | —                         | —   | —                       | 0.005-0.4 mg/M <sup>3</sup> | —                              | —                            |
| Dinoseb                      |   | 72   | —                                     | —                         | —   | —                       | —                           | —                              | —                            |
| Di-n-octylphthalate          | 0.2   | 83-2,200   | —                                     | —                         | —   | —                       | —                           | —                              | —                            |
| Ethylbenzene                 | 28-120,000  | 310  | 100<br>125-ST                         | 100                       | 100<br>125-ST                                 | 800                     | 0.092-0.60                  | 7 @ 68                         | 8.76                         |
| Fluoranthene                 |   | 3,500-84,000   | —                                     | —                         | —   | —                       | —                           | —                              | —                            |
| Fluorene                     | 16-350  |  | 3,600-19,000                          | —                         | —   | —                       | —                           | —                              | —                            |
| Heptachlor                   |   | 27   | 0.5 mg/M <sup>3</sup> -S              | 0.5 mg/M <sup>3</sup> -S  | 0.5 mg/M <sup>3</sup> -S                      | 35 mg/M <sup>3</sup>    | 0.02                        | 0.0003 @ 77                    | —                            |
| Indeno(1,2,3-cd)pyrene       |   | 790-21,000   | —                                     | —                         | —   | —                       | —                           | —                              | —                            |
| Iron                         | 366-1,500   |  | 5 mg/M <sup>3</sup>                   | 10 mg/M <sup>3</sup>      | 5 mg/M <sup>3</sup>                           | 2,500 mg/M <sup>3</sup> | —                           | —                              | —                            |
| Isopropyl benzene            | 9-120,000   | 220  | 50-S                                  | 50-S                      | 50-S  | 900                     | 0.008-0.047                 | 8 @ 68                         | 8.75                         |
| p-Isopropyl toluene          | 12-500,000  |  | —                                     | —                         | —   | —                       | —                           | —                              | —                            |
| Lead                         | 3.12-3.3  |  | 0.05 mg/M <sup>3</sup>                | 0.05 mg/M <sup>3</sup>    | <0.1 mg/M <sup>3</sup>                        | 100 mg/M <sup>3</sup>   | —                           | —                              | —                            |
| Lindane (gamma and beta-BHC) | 0.070   | 2.7-390  | 0.5 mg/M <sup>3</sup> -S              | 0.5 mg/M <sup>3</sup> -S  | 0.5 mg/M <sup>3</sup> -S                      | 50 mg/M <sup>3</sup>    | —                           | 0.00001 @ 68                   | —                            |
| Manganese                    | 37-224  |  | 0.2 mg/M <sup>3</sup>                 | 5 mg/M <sup>3</sup> -C    | 1 mg/M <sup>3</sup><br>3 mg/M <sup>3</sup> -C | 500 mg/M <sup>3</sup>   | —                           | —                              | —                            |
| 4-Methyl phenol              |   | 1,500  | 5-S                                   | 5-S                       | 2.3   | 250                     | 0.2                         | 0.11 @ 77                      | 8.97                         |
| Methylene chloride           | 1-13  | 3-2,500  | 50                                    | 25<br>125-ST              | —   | 2,300                   | 160                         | 350                            | 11.32                        |

TABLE 4-1 (continued)  
CONTAMINANTS OF POTENTIAL CONCERN

| Contaminant            | Identified Range of Contaminant Concentrations in Water, Ground-water, Diesel (ppb) | Identified Range of Contaminant Concentrations in Solids/Soils (ppb) | Exposure Limits (in ppm unless noted) |                          |  |                       | Odor Threshold (ppm)       | Vapor Pressure (in mm Hg) @ °F | Ionization Potential (in eV) |
|------------------------|---|--|---------------------------------------|--------------------------|--|-----------------------|----------------------------|--------------------------------|------------------------------|
|                        |   |  | TLV                                   | PEL                      | REL  | IDLH                  |                            |                                |                              |
| 2-Methylnaphthalene    | 1,900-6,200   | 47,000-100,000   | —                                     | —                        | —  | —                     | 0.01-0.02                  | —                              | —                            |
| Napthalene             | 2-410,000   | 2-11,000   | 10<br>15-ST                           | 10                       | 10<br>15-ST                                    | 250                   | 0.038                      | 0.08 @ 68                      | 8.12                         |
| 4-Nitroaniline         | 2   | —  | 3 mg/M <sup>3</sup> -S                | 6 mg/M <sup>3</sup> -S   | 3 mg/M <sup>3</sup> -S                         | 300 mg/M <sup>3</sup> | —                          | 2 x 10 <sup>-5</sup> @ 68      | 8.85                         |
| 4-Nitrophenol          | —   | 16,000   | —                                     | —                        | —  | —                     | 2.3 mg/M <sup>3</sup>      | —                              | —                            |
| Pentachlorophenol      | —   | 26-300   | 0.5 mg/M <sup>3</sup> -S              | 0.5 mg/M <sup>3</sup> -S | 0.5 mg/M <sup>3</sup> -S                       | 2.5 mg/M <sup>3</sup> | 1.6 mg/L                   | 0.0001 @ 68                    | —                            |
| Phenanthrene           | 310   | 3,400-41,000   | —                                     | —                        | —  | —                     | —                          | 1                              | —                            |
| n-Propyl benzene       | 9-90,000  | 670  | —                                     | —                        | —  | —                     | —                          | —                              | —                            |
| Pyrene                 | 0.4-120,000   | 4,600-68,000   | —                                     | —                        | —  | —                     | —                          | —                              | —                            |
| Selenium               | —   | 3.22   | 0.2 mg/M <sup>3</sup>                 | 0.2 mg/M <sup>3</sup>    | 0.2 mg/M <sup>3</sup>                          | 1 mg/M <sup>3</sup>   | —                          | —                              | —                            |
| 2,4,5-T (Silvex)       | —   | 35-690   | 10 mg/M <sup>3</sup>                  | 10 mg/M <sup>3</sup>     | 10 mg/M <sup>3</sup>                           | 250 mg/M <sup>3</sup> | —                          | <1 x 10 <sup>-7</sup> @ 68     | —                            |
| Thallium               | —   | 0.641-2.35   | 0.1 mg/M <sup>3</sup> -S              | 0.1 mg/M <sup>3</sup> -S | 0.1 mg/M <sup>3</sup> -S                       | 15 mg/M <sup>3</sup>  | —                          | —                              | —                            |
| Toluene                | 66-110,000  | 0.9-7  | 50-S                                  | 200<br>300-ST            | 100<br>150-ST                                  | 500                   | 0.16-37                    | 21 @ 68                        | 8.82                         |
| 1,2-Trichlorobenzene   | —   | 2-3  | 5-C                                   | —                        | 5-C  | —                     | 3                          | 1 @ 68                         | —                            |
| Trichlorofluoromethane | —   | 2-12   | 1,000-C                               | 1,000                    | 1,000-C  | 2,000                 | 28-1,170 mg/M <sup>3</sup> | 690 @ 68                       | —                            |
| 1,2,4-Trimethylbenzene | 34-630,000  | 2-8,600  | 25                                    | —                        | 25   | —                     | —                          | 1 @ 56                         | 8.27                         |
| 1,3,5-Trimethylbenzene | 9-150,000   | —  | 25                                    | —                        | 25   | —                     | —                          | 2 mm @ 68                      | 8.39                         |
| Xylene                 | 94-3,400,000  | 11-2,500   | 100<br>150-ST                         | 100                      | 100<br>150-ST                                  | 900                   | 20                         | 7-9 @ 68                       | 8.56                         |
| Zinc                   | 62.6-278  | —  | 10 mg/M <sup>3</sup>                  | 15 mg/M <sup>3</sup>     | 5 mg/M <sup>3</sup><br>15 mg/M <sup>3</sup> -C | 500 mg/M <sup>3</sup> | —                          | —                              | —                            |

**Abbreviations**

ppm - parts per million      ppb - parts per billion      TLV - Threshold Limit Value, American Conference of Governmental Industrial Hygienists (ACGIH)  
 PEL - Permissible Exposure Limit, Occupational Health and Safety Administration (OSHA)  
 REL - Recommended Exposure Limit, National Institute for Occupational Safety and Health (NIOSH)      IDLH - Immediately Dangerous to Life or Health  
 mm Hg - millimeters mercury      eV - electron volts      — Indicates no information available      mg/M<sup>3</sup> - milligrams per cubic meter  
 S - skin absorption      C - ceiling limit      ST - short term exposure limit

## 4.2 DEGREE OF HAZARD

On-site hazards include physical and chemical hazards. No radiological, biological, or laboratory wastes are suspected on-site.

**TABLE 4-2  
TASK SPECIFIC HAZARD ASSESSMENT TABLE  
NAVAL TRAINING CENTER REMEDIAL INVESTIGATION (FFTU)  
GREAT LAKES, ILLINOIS  
JUNE 1997**

| TASK   | HAZARD  | CONTROL MEASURES  |
|--|---|---|
| Geophysical Survey or Surveying                              | Vehicular Traffic<br>Slip, Trip, Fall<br>Thermal Stress   | Flagging, Access Controls<br>Flagging, Mark Hazards<br>Work/Rest Cycles, Fluids   |
| Surface Water/Sediment Sampling                              | Slip, Trip, Fall<br>Dermal Contact  | Flagging, Mark Hazards<br>PPE, Harness, and Rope  |
| Soil Sampling  | Slip, Trip, Fall<br><br>Dermal Contact<br>Inhalation<br>Thermal Stress<br>Toxic/Explosive Atmosphere            | General Awareness<br>Flagging, Mark Hazards<br>PPE for dermal and respiratory protection >50 ppm VOCs<br>Work/Rest Cycles, Fluids<br>Continuous Monitoring    |
| Liquid/Solid Waste Sampling                                  | Slip, Trip, Fall<br><br>Dermal Contact<br>Inhalation<br>Thermal Stress  | General Awareness<br>Flagging, Access Controls<br>PPE for dermal and respiratory protection >50 ppm VOCs<br>Work/Rest Cycles, Fluids                          |
| Soil Borings/Well Installation/Groundwater Sample Collection | Drill Rig (heavy equipment)<br><br>Dermal Contact<br>Inhalation<br>Thermal Stress<br>Toxic/Explosive Atmosphere | Hard Hat, General Awareness<br>Access Controls<br>PPE for dermal and respiratory protection >50 ppm VOCs<br>Work/Rest Cycles, Fluids<br>Continuous Monitoring |
| Asbestos Survey and Sampling, if added to the project scope  | Clothing Contamination<br>Inhalation<br>Thermal Stress  | Double Tyvek, PPE, Controls<br>Respiratory Protection at all times<br>Work/Rest Cycles, Fluids  |
| Equipment Decontamination                                    | Dermal Contact<br>Inhalation<br>Thermal Stress<br>Slip, Trip, Fall  | PPE<br>Respiratory Protection >50 ppm VOCs<br>Work/Rest Cycles, Fluids<br>Flagging, Mark Hazards  |
| Soil Sampling from Trenches                                  | Slip, Trip, Fall<br>Dermal Contact - soil<br>Inhalation Vapors<br>Toxic/Explosive/Atmosphere                    | Level D & splash wear for eyes<br>PPE for dermal contact and upgrade respiratory protection to full-face Level C if >50 ppm VOCs                              |

#### **4.2.1        Chemical Hazards**

The potential contaminants of concern at the FFTU can affect the body if they are inhaled, come in contact with the eyes or skin, or are ingested. These materials may be released during intrusive sampling, trenching, and water sampling. The primary concern is for skin exposure and inhalation exposure to contaminated soils and water, and potential inhalation of organic vapors or dust released during soil intrusive activities or during and after building demolition activities.

Exposure to hazardous substances by inhalation (in the breathing zone [BZ]) is not anticipated. Atmospheric monitoring in the worker's BZ, however, will be conducted during on-site activities to determine the need for upgrading to appropriate levels of respiratory protection. A photoionization detector (PID) or equivalent will be utilized to determine if VOCs in the BZ exceed the action level of 50 ppm. Sustained odors accompanied by readings in excess of 50 ppm in the breathing zone will trigger the need to upgrade to Level C - full-face respirators with "Volatile" cartridges. Dusty conditions, if noted, will warrant the use of a HEPA dust filter or cartridges.

Atmospheric monitoring will be conducted during sampling of asbestos containing building material (ACBM) if abatement of ACBM is performed. Personal air monitors (PAMs) using separate monitors for each contaminant will be utilized if deemed appropriate due to dusty or high vapor conditions. Exposure by skin absorption is a low to moderate possibility, but will be prevented by use of proper protective equipment and good hygiene practices.

Well installation, trenching, and soil boring activities provide potential for encountering buried hazards such as utilities. It will be the subcontractor's responsibility to obtain "clearance" from the local utilities prior to initiating intrusive activities. The Navy has indicated overhead electrical lines will be removed early in the demolition/remediation schedule. If buried hazards other than piping and fuel oil tanks are encountered, soil intrusive activities will be halted and the HSMs will be notified.

If dusty conditions exist during soil boring activities, the work zone area will be kept wet by spraying the work zone (WZ) with water to provide dust control.

#### **4.2.2        Physical Hazards**

Primary physical hazards at the site are those associated with drilling and backhoe operations. Hazards that could be encountered during subsurface activities include falls and trips, injury from lifting heavy objects, falling objects, eye injuries, head injuries, and pinched or crushed hands and feet. Fire hazards may also be present due to the use of gasoline-powered heavy equipment, and the potential for explosive concentrations of vapors from flammable liquids in subsurface soils or volatile organic compounds associated with exposed wastes. During drilling operations, matting and planking may be needed around the drill rig to provide stability for the drill rig. The drilling contractor will make this decision. Also see Section 11.3 Safe Work Practices.

Depending on seasonal weather conditions, there is potential for workers on-site to be affected by heat stress or cold exposure. The SSO will monitor for heat stress or cold exposure in accordance with Section 12.7 of this HASP.

Noise related to soil boring operations during soil boring and monitoring well installations is expected to be minimal; however as a precaution, hearing protection will be available.

During soil, sediment, and surface water sampling activities in the two decant ponds, (the south pond which is dry and the north pond which has approximately 6 inches of water), there is a potential for slips and falls associated with wet surfaces and soft unstable sediment surfaces. The sampling does not represent any significant drowning hazard, however, a lifebelt and lanyard may be worn by the sampler as determined by the SSO.

#### **4.2.3 Natural Hazards**

Natural hazards such as weather, poisonous plants, bites from poisonous or disease-carrying animals and insects (i.e. snakes, ticks), cannot always be avoided. Refer to Section 12.0 for precautions and emergency procedures.

#### **4.2.4 Confined Space Entry**

Confined space entry is not anticipated for demolition and RI field activities and is, therefore, not addressed in this HASP. Permitted confined spaces will be part of UST and AST closure activities, however, Beling personnel may or may not be on-site for these activities. If confined space entry is necessary, work will be halted and the HSMs will be notified to prepare a plan before work continues.

#### **4.2.5 Spill Containment**

Pipe demolition and RI field activities may require spill containment from pipes slated for removal. Accumulated materials and liquids, other than stormwater if released from piping, will be collected, containerized, and managed by a third party remediation contractor.

## **5.0 TRAINING REQUIREMENTS**

### **5.1 BASIC TRAINING REQUIRED**

Personnel who are required to work in areas where the potential for toxic exposure exists will complete training and have site experience conforming to the requirements of 29 CFR 1910.120(e), 40 CFR Part 61, and 29 CFR 1926.58. In keeping with 20 CFR 1910.20, medical records and exposure records will be available to workers or his/her designated representative upon request.

Training includes a 40-hour course which describes procedures for working at hazardous waste sites. The procedures include a safety and health program, medical surveillance, decontamination, site characterization and analysis, protective clothing and monitoring equipment, site control work documentation, emergency response, engineering and administrative control to reduce exposure, and site safety evacuation procedures.

Contractors/subcontractors will provide written documentation that these training/experience requirements have been met. An example of a training documentation form is presented on Figure 5-1. Personnel will also be trained in the contents of Appendix B, "Respiratory Protection Program."

### **5.2 SITE-SPECIFIC TRAINING**

Site-specific training will be conducted by the SSO for on-site personnel, subcontractors, and visitors to minimize exposure to potential on-site hazards. Site-specific training will address the activities, procedures, monitoring, and equipment for the field operations at the FFTU. This training will include identifying the names of personnel and alternate personnel responsible for site safety.

Site specific training will include the following:

1. Site description and history.
2. Project activities, including coordination with other contractors.
3. Hazard evaluation.
4. On-site safety responsibilities.
5. Site control and work zones.
6. Personnel training.
7. Medical monitoring.
8. Atmospheric monitoring.
9. Personal protection, clothing, and equipment.
10. Decontamination procedures.
11. Emergency procedures.
12. Review of site-specific material safety data sheets (MSDSs).
13. Safe work practices.
14. Other elements covered in this site-specific HASP.

This training will also allow field workers to clarify anything they do not understand and to reinforce their responsibilities regarding safe operations. Training must include emergency preparedness, location of assembly areas, proper entry and exit procedures for the exclusion zone (EZ), warning systems, location of emergency equipment, and route to the hospital.

### **5.3 SAFETY BRIEFING**

Project personnel will be given briefings by the SSO on a daily or as-needed basis to further assist site personnel in conducting their activities safely. Briefings will be provided when new activities are to be conducted, changes in work practices must be implemented due to new information made available, or if site or environmental conditions change. Briefings will also be given to facilitate conformance with prescribed safety practices when performance deficiencies are identified during routine daily activities or as a result of safety audits.

### **5.4 SAFETY AUDITS**

The CHSM, as necessary, will conduct regular safety audits of field operations and subcontractor performance to review for compliance with health and safety policies and procedures. Health and safety audit findings will be documented and corrective action taken.

### **5.5 FIRST AID**

A first aid kit will be provided for use in the field as necessary. The third party, remediation contractor will be responsible to provide and maintain an eye wash station.

## **6.0 MEDICAL SURVEILLANCE PROGRAM**

All Beling personnel and subcontractors performing field work at the FFTU will be required to have passed a pre-assignment and/or periodic medical examination that is consistent with 29 CFR 1910.120(f) and 29 CFR 1926.58. Medical examinations will be performed by or under the supervision of a licensed physician, preferably one knowledgeable in occupational medicine. A release for work will be confirmed by the CHSM before an employee can begin hazardous site activities.

Additional medical testing may be required by the CHSM in consultation with the company physician if an overt exposure or accident occurs, or if other site conditions warrant further medical surveillance.

Contractors/subcontractors will maintain the medical records for their own employees, but will also provide the SSO with written documentation certifying that each employee at the site has met the requirements of the Medical Surveillance Program. This documentation will be provided before the first day of work for each employee assigned to the site. An example of a medical documentation form is presented on Figure 6-1. The pre-assignment and annual examinations are essentially the same in content and are the examining physician's discretion but generally include:

- An updated medical and occupational history
- A screening physical examination
- Blood and urine laboratory tests
- Chest X-ray
- Electrocardiogram
- Pulmonary function tests
- Audiometry
- Visual acuity test

At the end of employment, or if deemed necessary after an employee's involvement in project-specific site work, he/she will complete a medical examination. This examination may be limited to obtaining an internal medical history of the period since the last full examination (consisting of medical history, physical examination, and laboratory tests).

### **6.1 EMERGENCY MEDICAL TREATMENT**

Provisions for emergency medical treatment are integrated with the overall Site Emergency Plan (see Section 12.0) and include the following:

- First aid kits in compliance with OSHA requirements and emergency first aid stations in the immediate work vicinity.

- Conspicuously posted phone numbers and procedures for contacting ambulance services, fire department, police, and medical facilities.
- Maps and directions to medical facilities.

**FIGURE 6-1  
MEDICAL SURVEILLANCE LETTER**

Note: The following statements must be typed on company letterhead and signed by an officer of the company.

LOGO  
XYZ CORPORATION  
555 E. 5th Street  
Nowheresville, Kansas 55555

Month, day, year

(Project Manager)  
Beling Consultants, Inc.  
1001 16th Street  
Moline, Illinois 61265

Subject: Medical Surveillance

Dear (Project Manager):

As an officer of XYZ Corporation, I hereby state that the persons listed below participate in a medical surveillance program meeting the requirements contained in paragraph (f) of Title 29 of the Code of Federal Regulations, Part 1910.120 entitled "Hazardous Waste Operations and Emergency Response: Final Rule." Employees involved in asbestos activities must also meet medical requirements contained in 29 CFR 1926.58 Subpart D. I further state that the persons listed below have had physical examinations under this program with in the last 12 months and that they have been cleared, by a licensed physician, to perform hazardous waste site work and to wear respiratory protection. I also state that, to my knowledge, no person listed below has any medical restrictions that would preclude him/her from performing their assigned activities at the \_\_\_\_\_ site.

LIST EMPLOYEE NAMES AND DATES OF MOST RECENT PHYSICAL EXAMS HERE

Should you have any questions, please contact me at 555/555-5555.

Sincerely,

(Name of Company Officer)  
Title

## **7.0 SITE CONTROL MEASURES**

The purposes of the site control measures discussed in this section are to maintain order at the sites and to minimize chemical and physical hazards to on-site personnel, visitors, and the public. Site control zones will include an exclusion zone (EZ), a contamination reduction zone (CRZ), and a support zone (SZ). In addition, temporary, activity-specific WZs will be established at specific locations.

### **7.1 SITE ACCESS**

Access to the FFTU is controlled by a locked gate. Beling's Project Manager and team personnel will work directly with the Navy Personnel to maintain restricted access.

### **7.2 EXCLUSION ZONE**

The EZ is the area containing, or suspected of containing, contaminated materials. Since investigation activities will be conducted throughout the site, each investigative area boundary will be managed as an EZ.

#### **7.2.1 Work Zones**

Temporary, activity-specific WZs will be established for each sampling activity. While completing soil borings and monitoring well installations the WZ will be established and marked by safety rope or tape. The WZ will have a radius large enough to encompass the drill rig and allow sufficient space for safe work practices. A contamination reduction zone (CRZ) will be placed at the WZ perimeter at an upwind location. A portable eye wash unit, fire extinguisher, towels, plastic garbage bags, decontamination supplies, and a first aid kit (sufficient to accommodate the field team) will be placed in this CRZ. These supplies may be located in the vehicle parked adjacent to the WZ.

A temporary WZ will be established at each sampling location where surface soil samples are to be collected. These WZ areas will be established by laying plastic sheeting of adequate size next to the sampling location for the placement of equipment and supplies. A portable eye wash, first aid kit (sufficient to accommodate the field team), towels, plastic garbage bags, fire extinguisher, and decontamination supplies are also required in this area, which may be located in the truck.

### **7.3 PERSONNEL DECONTAMINATION**

Personnel decontamination areas will be established on-site. Personnel will decontaminate and/or dispose of soiled protective clothing (i.e., disposable boots and gloves, etc.) in the CRZ established next to the temporary WZ. A fixed personnel decontamination area will be established where, after equipment decontamination, personnel can decontaminate and dispose of protective clothing and equipment before exiting the base. Refer to Section 10.0 for further decontamination procedures.

#### **7.4 EQUIPMENT DECONTAMINATION PAD**

To prevent off-site transport of contamination, the backhoe, drill rig and associated equipment and vehicles will be decontaminated at a decontamination pad prior to exiting the EZ. This location will be selected by the SSO and Field Team Leader prior to start-up of field activities at the NTC. The decontamination pad will be located downwind of the FFTU. Drilling equipment (augers, rods, etc.) and the backhoe bucket will be steam-cleaned at the decontamination pad as necessary. Decontamination liquids will **not** be allowed to infiltrate into the soil. Refer to Section 10.0 for further decontamination procedures.

Sampling equipment such as stainless steel hand augers, bowls, and spoons may be decontaminated at each sampling location. During decontamination, fluids will be collected for later discharge to the NTC sanitary sewer system, with prior permission. Refer to Section 10.0 for further decontamination procedures.

#### **7.5 SUPPORT ZONE**

The SZ is considered the uncontaminated area and will be identified by the SSO before field activities begin. It will contain the Command Post which will provide for team communications and emergency response. A mobile telephone will be located in this area. Appropriate sanitary facilities, safety, medical, and support equipment will be identified. No potentially contaminated personnel or materials are allowed in the SZ except for appropriately packaged/decontaminated and labelled samples.

#### **7.6 SITE VISITORS**

Visitors are required to report to the Field Team Leader and the SSO prior to accessing the sites, although none are anticipated. The SSO will document decisions regarding access to the sites. If granted limited access, visitors must provide the SSO with documented compliance with Section 5.0 of this HASP, comply with other applicable sections, and satisfy additional conditions placed on them as deemed appropriate by the SSO to ensure visitor safety. Visitors must sign in and out daily under the SSO's direction for the duration of the approved visit. Under no circumstances will visitors be allowed to interfere with, or participate in, operations within the scope of the field investigation. All visitors will be escorted throughout the sites by appropriately trained personnel.

As needed, the SSO will establish a designated Level D area as an observation point during intrusive activities. This designated area will be located to offer proximate viewing of site operations, and positioned such that visitors in no way may inhibit site access, logistics, or general operations. Further, the SSO will locate the viewing areas such that visitors present are at minimal risk of exposure to site hazards.

## 8.0 PERSONAL PROTECTIVE EQUIPMENT

### 8.1 GENERAL

The level of protection to be worn by field personnel will be defined and controlled by the SSO. Personal protective equipment for general operations will be consistent with the requirements of 29 CFR 1910 Subpart I, "Personal Protective Equipment." Basic levels of protection for hazardous waste operations will be selected in accordance with the provisions of 20 CFR 1926.58(i), 29 CFR 1910.120(g)(3), "Personal Protective Equipment Selection," and Appendix A, "General Description and Discussion of the Levels of Protection and Protective Gear." Modification to basic protective equipment ensembles may be necessary for specific operations. In these cases, further definition will be provided by review of specific hazards, conditions, and proposed operational requirements, and by conducting air monitoring at the particular operation. Protection may be upgraded or downgraded, as deemed appropriate by the SSO and verified by the CHSM.

### 8.2 ANTICIPATED LEVELS OF PROTECTION FOR SITE OPERATIONS

- |  |           |
|--|-----------|
| • Asbestos Sampling - if added to scope            | Level C   |
| • Geophysical Survey                               | Level D   |
| • Soil Boring/Subsurface Soil Sampling             | Level D/C |
| • Hand Augering/Subsurface Soil Sampling           | Level D/C |
| • Surface Soil Sampling/Trenching                  | Level D/C |
| • Monitoring Well Installation                     | Level D   |
| • Monitoring Well Development/Groundwater Sampling | Level D/C |

Level D/C means Level D with potential to be upgraded to Level C.

Action levels used to determine the need to upgrade or downgrade the levels of protection are described in Section 9.2 of this HASP.

Level D personal protective clothing and equipment includes:

- Disposable Tyvek® coveralls. (Polyethylene Coated Tyvek® required for soil sampling adjacent to transformers.)
- Hardhat (when overhead hazards exist).
- Safety glasses or goggles.
- Steel toe, steel shank boots.
- Disposable latex gloves - required when handling and collecting soil, water and sediment samples.

## 9.0 AIR MONITORING

### 9.1 GENERAL

It will be necessary to monitor the atmospheric conditions during on-site field sampling activities to determine the possible need to upgrade the personal protection of on-site workers. The atmosphere at the sample extraction point, soil cuttings, and fluids produced during drilling will be monitored. In addition, air monitoring will be performed in the worker's BZ.

#### 9.1.1 Soil Boring Operations/Monitoring Well Installations/Trenches

Soil boring, well installation and trenching activities will be initiated in Level D personal protection with the contingency to upgrade the level of protection based on the action levels.

Air monitoring will be performed continuously throughout soil boring and well installation activities. A photoionization detector (PID) will be used to monitor the worker's BZ and the geologic samples upon retrieval. Drill cuttings and fluids produced during drilling will also be monitored. A combustible gas indicator (CGI) equipped with an oxygen alarm may be used to monitor the borehole and trenches for the presence of combustible gases. Any soil cuttings or fluids produced during drilling will also be monitored using the CGI. Radiological hazards and unexploded ordinances are not anticipated to be encountered in the testing areas.

#### 9.1.2 Monitoring Well Development and Groundwater Sample Collection

Monitoring well development and groundwater sample collection activities will be initiated in Level D personal protection with the contingency to upgrade the level of protection based on the action levels.

The PID will be used to continuously monitor the worker's BZ and the well casing. Prior to initiating development, testing, or sampling activities, the field team will stand upwind of the well casing and remove the well cap, stand back, and allow the well casing to vent for about 5 minutes. If action levels are not exceeded in the worker's BZ, development, testing, and/or sampling activities may proceed.

#### 9.1.3 Geophysical Survey/Hand Augering and Subsurface Soil Sampling

Hand augering/subsurface soil sampling and magnetometry survey activities will be initiated in Level D personal protection with the contingency to upgrade the level of protection based on the action levels.

The PID will be used to monitor the sample extraction point and the worker's BZ during hand augering/subsurface soil sampling activities. The PID will be on-site but is not

anticipated to be needed during the geophysical survey due to the lack of soil intrusive activities.

#### 9.1.4 Surface Water/Sediment Sample Collection

Surface water/sediment sampling activities will be conducted in Level D protection. Atmospheric monitoring will be unnecessary because organic emissions are not anticipated due to the wet nature of the samples to be collected.

### 9.2 ACTION LEVELS

Instrumentation will include a PID equipped with a 10.2 eV lamp. A CGI will be used to monitor for combustibles. The action levels in this HASP will apply to site work during the duration of activities at the FFTU. If ACBM abatement activities are added to the Scope of Work, the asbestos-related action level is 0.1 fiber per cubic centimeter (f/cc) TWA, and the excursion limit is 1.0 f/cc averaged over 30 minutes. Action levels for direct-reading instruments in the worker's general BZ are as follows:

| <u>Instrument</u> | <u>Action Level</u>   | <u>Level of Respiratory Protection/Action</u>               |
|-------------------|---|---|
| PID               | Slight inconsistent odors; PID readings fluctuating between background and 50 ppm; good ventilation; no free phase fuel oil             | Level D   |
| PID               | Continuous sustained odors combined with PID readings $\geq 50$ ppm above background in BZ  | Level C   |
| PID               | Continuous sustained readings of 1 ppm to 5 ppm above background in the BZ in the presence of free phase fuel oil; lack of ventilation. | Level C<br>(based on identification of contaminant)         |
| CGI               | 10% LEL   | Cease work, vent, begin work only after levels return to 0% |
| NA                | Asbestos (0.1 f/cc)   | Level C   |

If visible dust is detected while working in Level D, upgrade to Level C respiratory protection is required. However, engineering controls, such as wetting the WZ area with water to control dust, will be implemented when feasible.

## **10.0 DECONTAMINATION PROCEDURES**

The SSO will determine the level of decontamination necessary based on the evaluation of specific work activities and the potential degree of contamination. Temporary CRZs will be established at each sampling location.

### **10.0 EQUIPMENT**

The backhoe, drill rig, associated equipment, and vehicles will be decontaminated at a location on-site selected by the SSO prior to start-up of field activities in the EZ. Drilling equipment (augers, rods, etc.) will be steam-cleaned between sampling locations. These decontaminations will be performed on the ground away from the drilling location.

Non-disposable sampling equipment will be decontaminated before use, between samples, and before leaving the sampling location.

Equipment that cannot be immersed in soap solution and water will be wiped clean and rinsed with distilled water.

### **10.2 PERSONNEL**

Personnel will perform decontamination in the personal decontamination area. Decontamination of personnel in Level D will consist of removal and disposal of coveralls (when worn) disposable boots, and gloves. Decontamination of personnel using Level C protective equipment will consist of:

- Washing boots, waders, or other non-disposable protective equipment, (i.e., hard hat, safety glasses/goggles, etc.) suspected of being contaminated using soap solution followed by potable or distilled water rinse.
- Removal and disposal of boot covers and waders if worn.
- Removal and disposal of coveralls.
- Removal and disposal of gloves.
- Removal, cleaning, and storage of respiratory equipment.
- Removal and disposal of inner gloves.

### **10.3 CONTAMINATION PREVENTION**

One of the most important aspects of decontamination is the prevention of contamination. Good contamination prevention should minimize worker exposure and help ensure valid

sample results by precluding cross-contamination. Procedures for contamination avoidance include:

### Personnel

- Know the limitation of all personal protective equipment being used.
- Do not walk through areas of obvious or known contamination.
- Do not handle or touch contaminated materials directly. Do not sit or lean on potentially contaminated surfaces.
- Make sure all personal protective equipment has no cuts or tears prior to donning.
- Fasten all closures on suits, covering with tape, if necessary.
- Particular care should be taken to protect any skin injuries.
- Stay upwind of airborne contaminants.
- Do not carry cigarettes, gum, food, or candy into contaminated areas.
- On-site personnel are encouraged to shower at the end of their work day.

### Sampling/Monitoring

- Cover instruments with clear plastic, leaving openings for sampling ports, and sensor points.
- Bag sample containers prior to placement of sample material into containers.

### Heavy Equipment

- Care should be taken to limit the surface area of equipment that comes into contact with contamination.

### General

- If contaminated tools are to be placed on non-contaminated equipment for transport to the decontamination pad, plastic should be used to keep the equipment clean.
- Spoils from sampling work should be placed so as not to be in the expected paths of individuals.

#### **10.4 DISPOSAL PROCEDURES**

Waste materials and other field equipment/supplies will be handled in such a way as to preclude the potential for spreading contamination, creating a sanitary hazard, or causing litter to be left on-site. Potentially contaminated materials, e.g., clothing, gloves, etc., will be bagged or drummed as necessary and segregated for disposal. All bags and drums generated during the RI will be labeled with date of waste generation, contents, and activity which generated the waste. Wash and rinse waters from decontamination activities and monitoring well development water will be containerized for disposal to the NTC sanitary sewer system, with prior permission. Cuttings will be spread on the ground away from the soil boring location unless there is evidence of contamination. Cuttings that show evidence of contamination based on visual or instrumental observations will be contained in drums. Disposal of drummed cuttings and other potentially contaminated materials will be coordinated by Beling or another designated party pursuant to direction by the Navy Engineer in Charge. The Navy is the generator of record. Non-contaminated materials will be collected, bagged, and placed in an on-site dumpster for appropriate disposal as normal domestic waste.

## 11.0 GENERAL SAFE WORK PRACTICES AND COMMUNICATIONS

### 11.1 TAILGATE TRAINING SESSIONS AND SAFETY MEETINGS

Beling will participate in tailgate safety meetings with Navy personnel and contractors appointed by the Navy to assist with site remediation activities.

### 11.2 SAFETY EQUIPMENT

Basic emergency and first aid equipment will be available at the SZ and/or the CRZ, as appropriate. This will include communications equipment, first aid kit (sufficient to accommodate field team), and an emergency eye wash. Fire extinguishers will be provided, inspected, and available on-site.

### 11.3 COMMUNICATIONS

Walkie-Talkies - Hand-held units may be used by field teams for communication between downrange operations and the Command Post base-station, especially if the level of PPE protection is upgraded to Level C.

Telephones - A mobile telephone will be located in the Command Post area in the SZ for communication with emergency support services/facilities.

Hand Signals - Hand signals will be used by downrange field teams in conjunction with the buddy system. These signals are very important when working with heavy equipment. They will be known by the entire field team before operations commence and reviewed during site-specific training.

| <u>Signal</u>          | <u>Meaning</u>                    |
|------------------------|-----------------------------------|
| • Hand gripping throat | Out of air; can't breathe         |
| • Grip partner's wrist | Leave area immediately; no debate |
| • Hands on top of head | Need assistance                   |
| • Thumbs up            | OK; I'm all right; I understand   |
| • Thumbs down          | No; negative                      |

### 11.4 SAFE WORK PRACTICES

The following safe work practices will be implemented during site operations:

- Only properly trained and equipped personnel will be allowed to work in potentially contaminated areas.
- The number of personnel and equipment in the sampling areas will be kept to a minimum, consistent with safe site operations.
- Workers will adhere to the "buddy system" while working downrange and in designated EZs. Radio contact will be maintained between pairs on-site in order to assist each other in case of emergencies.
- Workers will not exit EZs until soiled equipment and clothing have been removed and decontaminated or properly disposed of.
- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer, ingestion, and inhalation of potentially contaminated materials is prohibited.
- Personnel will thoroughly wash their hands and faces upon leaving the investigation areas.
- Contact with potentially contaminated materials and surfaces will be avoided. Personnel will comply with contamination control measures.
- Personnel with facial hair or other facepiece seal obstructions will not be permitted to work where respirators are required.
- Work will only be conducted if adequate illumination is provided, i.e., visual observation is not impaired due to loss of daylight conditions.

#### **11.4.1 Drilling**

While the drilling subcontractor is responsible for safe means and methods of operating their drill rigs, (refer to Section 2.3 of this HASP), personnel working near drill rig operations will be aware of the following safe work practices:

- Drillers will inform personnel working with drill rig activities, (i.e., soil boring operations) as to the location of the emergency stop device.
- No drilling within 20 feet in any direction of overhead power lines will be permitted. The locations of all underground utilities must be identified and marked prior to initiating any subsurface activities.
- In the event the drill rig would come in contact with an electrical source, do not touch any part of the equipment or attempt to enter or leave it. Do not touch any person who may be in contact with electrical current. If rescue is attempted, only use a dry, clean rope or unpainted wooden pole.

- Personnel must develop hand signals with equipment operators.
- A remote sampling device must be used to sample the drill cutting if the tools are rotating or if the tools are readily capable of rotating. Samplers must not reach into or near the rotating equipment. If personnel must work near any tools which could rotate, the driller must shut down the rig prior to initiating such work.
- Drillers, helpers, and samplers must secure all loose clothing when in the vicinity of drilling operations.
- Compressed gas cylinders must be stored and used in an upright position, properly secured and protected from damage, and segregated and labeled as "full", "in use," or "empty."

#### **11.4.2 Asphalt and Concrete Removal**

A backhoe contractor will be responsible for the safe means and methods of operations associated with asphalt removal activities and concrete pad removal activities. Appropriate safety procedures are to be followed during operation of heavy equipment.

#### **11.4.3 Trenching**

A backhoe and endloader will probably be used to move soil from excavations parallel with piping.

Piping Types:

- water pipes;
- cast iron drain pipes;
- non-metallic clay tile drain pipes;
- gas supply pipes;
- oil supply pipes;
- vent pipes.

Contractors are to communicate consistently with soil sampling personnel on the ground.

#### **11.4.4 Free Product**

Spill response activities are the responsibility of contractor personnel and are described in the Work Plan for field activities and pipe removals.

**11.4.5**      **Containerized Waste**

- Liquid
- Solid
- Refuse

## 12.0 EMERGENCY PREPAREDNESS

### 12.1 EMERGENCY COORDINATOR

The Site Emergency Coordinator will be the SSO. The SSO will implement the emergency action plan as outlined in 29 CFR 1910.38. Although the following six items are typically more applicable to operating facilities, they will be implemented to the extent possible when applicable.

- Emergency escape procedures and routes.
- Procedures for those remaining for critical operations (this will not apply).
- Procedures to account for employees after evacuation.
- Rescue and medical duties.
- Preferred means of reporting fires and emergencies.
- Names, job titles, or departments to contact for additional information of duties outlined in the HASP.

### 12.2 EMERGENCY SERVICES CONTACTS

The Site Emergency Coordinator (SSO) will verify appropriate emergency contacts and will make contact with them before beginning work on-site. The Site Emergency Coordinator (SSO) will inform the emergency contacts about the nature and duration of work expected on the base and the type of contaminants and possible health or safety effects of emergencies involving these contaminants. Also at this time, the Site Emergency Coordinator (SSO) and the emergency response units will make arrangements to handle any emergencies that might be anticipated.

#### EMERGENCY PHONE NUMBERS:

|                           |  |
|---------------------------|--|
| Police Department:        | 911  |
| Fire Department:          | 911  |
| Hospital:                 | Great Lakes Naval Hospital 708/688-5618                  |
| Hospital Address:         | Sheridan Road and South Gate entrance of Navel Base      |
| National Response Center: | 1-800-424-8802   |
| Poison Control Center:    | 1-800-942-5969   |
| CHSM:                     | Julie Sommers 309-757-9800 (work)<br>309-523-2118 (home) |
| SSO:                      | To be determined for each phase of field activity        |

## HOSPITAL ROUTE:

A hospital route map and written description depicting the route to the hospital from the investigation area is presented on Figure 12-1.

Once the SZ is established, and before field activity start-up, the Site Emergency Coordinator (SSO) will drive the route to the hospital, post directions and/or a map to the hospital, and set up the first aid station including a 10-pound Type A/B/C fire extinguisher.

### **12.3 IMPLEMENTATION**

The Site Emergency Coordinator (SSO) will implement the emergency action procedures whenever conditions at the site warrant such action. The Site Emergency Coordinator (SSO) will be responsible for coordinating the evacuation, emergency treatment, and emergency transport of site personnel as necessary, and for notification of emergency response units and the appropriate management staff. In the event an evacuation is necessary, the SSO will take a role count at the designated gathering location with the use of the daily sign in and out sheet. The following conditions may require implementation of emergency action procedures:

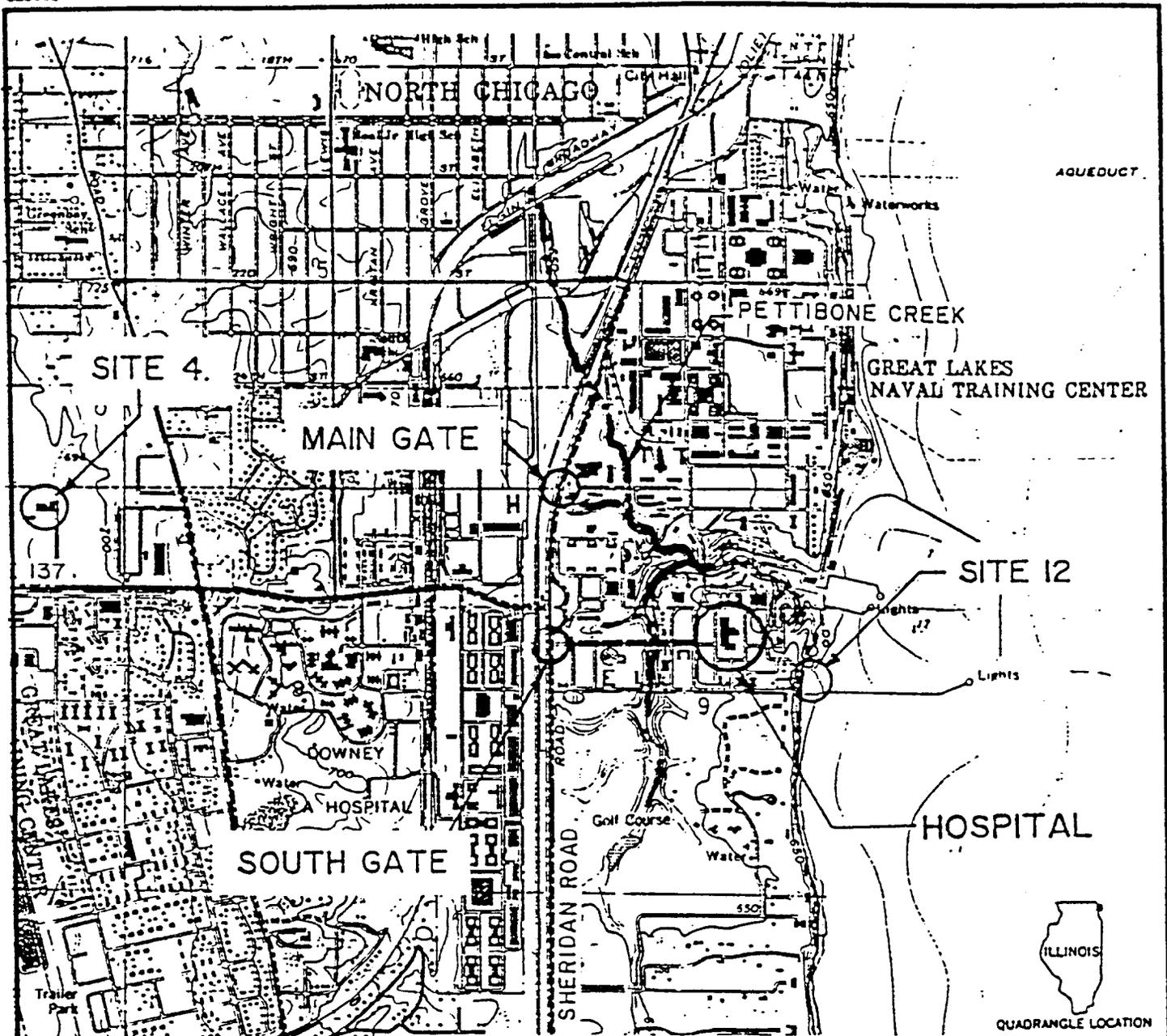
- Fire or explosion on-site.
- Serious personal injury.
- Release of hazardous materials, including gases or vapors at levels greater than the maximum use concentrations of respirators.
- Unsafe working conditions, such as inclement weather.

### **12.4 FIRE OR EXPLOSION**

If an actual fire or explosion has taken place, emergency steps will include 1) evacuation of work area and venting, and 2) notification of the fire department and other appropriate emergency response groups if necessary.

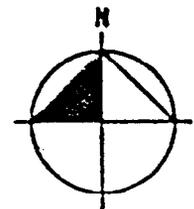
### **12.5 PERSONAL INJURY**

Emergency first aid will be administered on-site as appropriate. Then the individual will be decontaminated if possible, depending on the severity of the injury, and transported to the nearest medical facility if needed.



From FFTU Site 4,  
 travel east on  
 Buckley Road, south  
 on 41, east on 137,  
 south on Sheridan to  
 hospital entrance

Great Lakes Naval Hospital  
 Ambulance: 847-688-3333  
 Emergency Room: 847-688-6855 or 6856



0 2000 4000  
 SCALE: FEET  
 SCALE IS APPROXIMATE

SOURCE:  
 USGS 7.5 MINUTE QUADRANGLE  
 WAUKEGAN, ILLINOIS 1960  
 PHOTOREVISED 1972 AND 1980

NOTE: This map excerpted  
 from report previously prepared  
 by SEC Donohue.

FIGURE 12-1.  
 HOSPITAL ROUTE MAP

CTO #0071  
 20611

NAVAL TRAINING CENTER  
 GREAT LAKES, ILLINOIS

## 12.6 OVERT CHEMICAL EXPOSURE

Typical response procedures include:

|                                     |   |
|-------------------------------------|---|
| SKIN/EYE CONTACT:                   | Use copious amounts of soap and water. Wash/rinse affected area thoroughly, then provide appropriate medical attention. An eye wash will be provided on-site at the CRZ and/or SZ. Eyes should be rinsed for 15 minutes if chemical contact occurs. |
| INHALATION:                         | Move to fresh air and/or, if necessary, decontaminate/transport to hospital.  |
| INGESTION:                          | Decontaminate and transport to emergency medical facility.  |
| PUNCTURE<br>WOUND OR<br>LACERATION: | Decontaminate and transport to emergency medical facility.  |

The SSO will provide medical data sheets to medical personnel as requested.

## 12.7 ADVERSE WEATHER CONDITIONS

In the event of adverse weather conditions, the SSO will determine if work can continue without endangering the health and safety of field workers. Some items to be considered before determining if work should continue are:

- Potential for heat stress and heat-related injuries.
- Potential for cold stress and cold-related injuries.
- Treacherous weather-related working conditions.
- Limited visibility.
- Potential for electrical storms.

### 12.7.1 Heat Stress

Workplace risk factors for heat stress are hot environments, high work demands, and protective clothing requirements.

The SSO will visually monitor personnel to note for signs of heat stress. Field personnel will also be instructed to observe for symptoms of heat stress and methods on how to control it. Table 12-1 is a list of heat-related disorders, signs and symptoms, first aid, and preventive measures.

TABLE 12-1  
HEAT-RELATED DISORDERS INCLUDING THE SYMPTOMS, SIGNS, AND STEPS FOR  
FIRST AID AND PREVENTION

| Disorder                 | Symptoms  | Signs  | First Aid   | Prevention  |
|--------------------------|---|--|---|---|
| Heat Stroke              | Chills<br>Restlessness<br>Irritability  | Euphoria<br>Red face<br>Disorientation<br>Hot, dry skin<br>(usually, but not always)<br>Erratic behavior<br>Collapse<br>Shivering<br>Unconsciousness<br>Convulsions<br>Body temperature $\geq 104$ F | Immediate, aggressive, effective cooling.<br>Transport to hospital.<br>Take body temperature. | Self-determination of heat stress exposure.<br>Maintain a healthy life-style.<br>Acclimation. |
| Heat exhaustion          | Fatigue<br>Weakness<br>Blurred vision<br>Dizziness<br>headache                | High pulse rate<br>Profuse sweating<br>Low blood pressure<br>Insecure gait<br>Pale face<br>Collapse<br>Body temperature - normal to slightly increased   | Lie down flat on back in cool environment.<br>Drink water.<br>Loosen clothing.                | Drink water or other fluids frequently. Add salt to food.<br>Acclimation.                     |
| Dehydration              | No early symptoms<br>Fatigue/weakness<br>Dry mouth                            | Loss of work capacity<br>Increased response time   | Fluid and salt replacement.   | Drink water or other fluids frequently.<br>Add salt to food.                                  |
| Heat syncope             | Blurred vision (grey out)<br>Fainting (brief black-out)<br>Normal temperature | Brief fainting or near-fainting behavior   | Lie on back in cool environment.<br>Drink water.  | Flex leg muscles several times before moving.<br>Stand or sit up slowly.                      |
| Heat cramps              | Painful muscle cramps, especially in abdominal or fatigued muscles.           | Incapacitating pain in muscle  | Rest in cool environment.<br>Drink salted water (0.5% salt solution).<br>Massage muscles.     | If hard physical work is part of the job, workers should add extra salt to their food.        |
| Heat rash (prickly heat) | Itching skin<br>Reduced sweating  | Skin eruptions   | Keep skin clean and dry.<br>Reduce heat exposure.   | Keep skin clean and periodically allow the skin to dry.                                       |

One or more of the following control measures can be used to help control heat stress:

- Provide adequate liquids to replace lost body fluids. Personnel must replace water and salt lost from sweating. Personnel must be encouraged to drink more than the amount required to satisfy thirst. Thirst satisfaction is not an accurate indicator of adequate salt and fluid replacement.
- Replacement fluids can be commercial mixes such as Gatorade®.
- Establish a work regime that will provide adequate rest periods for cooling down. This may require additional shifts of workers.
- Cooling devices such as vortex tubes or cooling vests can be worn beneath protective garments.
- Breaks are to be taken in a cool rest area (77°F is best).
- Personnel will remove impermeable protective garments during rest periods.
- Personnel will not be assigned other tasks during rest periods.
- Personnel will be informed of the importance of adequate rest, acclimatization, and proper diet in the prevention of heat stress.

### **12.2.2 Cold Exposure**

If field activities occur during a period when temperatures average below freezing, the following guidelines will be followed.

Persons working outdoors in temperatures at or below freezing may be subject to frostbite. Extreme cold for a short time may cause severe injury to the surface of the body, or result in profound generalized cooling of the body core, resulting in coma and death. Areas of the body which have high surface area-to-volume ratio such as fingers, toes, and ears are the most susceptible.

Two factors influence the development of a cold injury; ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10°F with a 15-mile per hour (mph) wind is equivalent to chilling still air to minus 18°F.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increased to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration-soaked.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

- Frost nip or incipient frostbite: Characterized by sudden blanching or whitening of skin.
- Superficial frostbite: Skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- Deep frostbite: Tissue is cold, pale, and solid; extremely serious injury.

Prevention of frostbite is vital. Keep the extremities warm. Wear insulated clothing as part of one's protective gear during extremely cold conditions. Check for symptoms of frostbite at every break. The onset is painless and gradual--you may never know you have been injured until it is too late.

To administer first aid for frostbite, bring the victim indoors and rewarm the areas quickly in water between 39°C and 41°C (102° to 105°F). Give a warm drink--not coffee, tea, or alcohol. The victim should not smoke. Keep the frozen parts in warm water or covered with warm clothes for 30 minutes, even though the tissue will be very painful as it thaws. Then elevate the injured area and protect it from injury. Do not allow blisters to be broken. Use sterile, soft, dry material to cover the injured areas. Keep victim warm and get immediate medical care.

After thawing, the victim should try to move the injured areas a little, but no more than can be done alone (without help).

- Do not rub the frostbitten part (this may cause gangrene).
- Do not use ice, snow, gasoline, or anything cold on frostbite.
- Do not use heat lamps or hot water bottles to rewarm the frostbitten area.
- Do not place the body part near a hot stove.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature. Its symptoms are usually exhibited in five stages: 1) shivering; 2) apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body to less than 95°F; 3) unconsciousness, glassy stare, slow pulse, and slow respiratory rate; 4) freezing of the extremities; and, finally, 5) death.

Effects arising from cold exposure will be minimized by providing workers with insulated clothing when the equivalent chill temperature is less than 30°F as defined and presented in the ACGIH booklet in Table 5. Furthermore, field activities will generally be curtailed or halted if the equivalent chill temperature is below -20°F. The ultimate responsibility for delaying work at a site due to inclement weather rests with the SSO.

## **12.8 POISON IVY**

If personnel come in contact with poison ivy, the individual should immediately wash the affected area with Ivy Cleaner provided in the first aid kit. If a rash develops, it should be treated at a medical facility as soon as possible.

## **12.9 SNAKES AND TICKS**

### **12.9.1 Snake Bite Prevention and First Aid**

On project sites, precautions against the possible presence of snakes should be taken when walking through overgrown vegetation and when moving debris (i.e. lumber, scrap metal, etc.). If someone is bitten by a snake, and the snake bite occurs in a location that is within a 1-hour drive of a medical facility, a conservative approach is safest. He/she should be transported safely (no speeding) to the nearest medical facility. For the reassurance of both the victim and the first aider, a snake bite is not nearly as dangerous as popular mythology would suggest. In North America, death from snake bite to healthy adults is very rare. Many bites, even from known poisonous snakes, do not result in significant amount of venom being injected. Even when significant envenom occurs, symptoms develop slowly over many hours and can be controlled with appropriate treatment. Field treatments advised against include ice, cutting and suction around the wound, and tourniquets. Studies indicate that ice leads to increased tissue destruction. Cutting and sucking out the wound can be shown to offer some help if it is done with the correct technique and equipment and if the victim has received a large dose of venom. In light of the damage that can be done, the risk of such a procedure is too high. It is best to transport the person immediately to a medical facility.

### **12.9.2 Tick Bite Prevention and First Aid**

Routinely check for ticks after being outdoors. Remove ticks as soon as possible before they embed. To minimize exposure, wear light-colored clothing so ticks can be detected. Tuck pants into boots or socks and wear longsleeved shirts. Apply tick/insect repellent to clothing.

When a tick is found embedded, remove it by grasping it with a tweezers as close to the skin as possible and gently pull it straight out. Do not twist or jerk the tick because the head may remain embedded. Once the tick is removed, wash the bite area and your hands with soap and water and apply an antiseptic to the bite. Save the tick in a jar labeled with the date and the place where the tick was acquired. A physician may find this information and the tick specimen helpful in diagnosis if an infection results.

### **12.9.3      Wasps and Bees**

Individuals who are allergic to wasp and/or bee stings should notify the SSO of the response actions to be taken in the event of a sting. Honey bees leave a venom sac and stinger attached to the skin. It is best to remove stinger by scraping surface of skin with a credit card or other sharp blade. Application of a paste made with meat tenderizer digests venom. If hives spread rapidly due to allergy over face and neck, transport promptly to emergency room.

### **12.10      ACCIDENT/INJURY REPORTING AND RECORDKEEPING**

The SSO will maintain logs and reports covering health and safety aspects of the project throughout the duration of work activities. In the event of an on-site accident resulting in an exposure or injury, the SSO will immediately complete an Accident/Injury Report form and send a copy to the Beling CHSM. In the event of an accident or injury, the Beling CHSM and Project Manager will notify the Navy. The SSO will be responsible for maintaining on-site, the routinely completed records and forms listed in Section 14.0 of this HASP.

## **13.0 AUTHORIZATIONS AND FIELD TEAM**

### **13.1 AUTHORIZED PERSONNEL**

Personnel entering the NTC investigation areas while field activities are being conducted must be authorized by the HSMs. Authorization will involve completion of appropriate training courses and medical examination requirements as required by OSHA 29 CFR 1910.120 and 1926.58, current fit-testing and review and sign-off of this HASP. All personnel must be escorted by appropriately trained personnel, and check in with the Field Team Leader at the Command Post.

#### **PERSONNEL AUTHORIZED TO PERFORM WORK ON-SITE:**

1. Molly Arp
2. Henry Mayer
3. Cindy Baldwin
4. Dale Duffala
5. Karl Meier
6. Phil Ramos
7. Fred Lawrence
8. James King
9. Mark Painter
10. Paul McNamee

#### **OTHER PERSONNEL AUTHORIZED TO ENTER SITE:**

1. U.S. Navy Representatives
2. Beiling Personnel
3. Subcontractor Personnel, as authorized

**13.2 FIELD TEAM REVIEW**

Each field team member will sign this section after site-specific training is completed and before being permitted to work on site.

**I have read and understand this Health and Safety Plan. I will comply with the provisions contained therein.**

**Site/Project:            NAVAL TRAINING CENTER  
                                 FIRE FIGHTING TRAINING UNIT  
                                 GREAT LAKES, ILLINOIS**

| <u>          Name Printed          </u> | <u>          Signature          </u> | <u>          Date          </u> |
|---|--------------------------------------|---------------------------------|
| Molly Arp                               |                                      |                                 |
| Henry Mayer                             |                                      |                                 |
| Cindy Baldwin                           |                                      |                                 |
| Dale Duffala                            |                                      |                                 |
| Karl Meier                              |                                      |                                 |
| Phil Ramos                              |                                      |                                 |
| Fred Lawrence                           |                                      |                                 |
| Jim King                                |                                      |                                 |
| Mark Painter                            |                                      |                                 |
| Paul McNamee                            |                                      |                                 |
|   |                                      |                                 |
|   |                                      |                                 |
|   |                                      |                                 |
|   |                                      |                                 |
|   |                                      |                                 |
|   |                                      |                                 |

**MEDICAL DATA SHEET**

Project Name/Location: Fire Fighting Training Unit, Naval Training Center,  
Great Lakes, IL

Employee Name: Molly E. Arp Home Telephone: 319-322-5927

Address: 2312 E. 11th Street, Davenport, IA

Drug and Other Allergies: None

Notable Medical Conditions/Medical Restriction:

None

Do You Wear Contact Lenses?  Yes  No  
Dentures?  Yes  No

Are you using any medications?  Yes  No Please list:

Emergency Contact: M.J. Newell Relationship: Husband

Address: Same as above Phone: ( ) Same as above

Personal Physician: Dr. L.C. Arp Phone: (309 ) 762-4203  
Address: 2504-32rd Ave. Ct.  
Moline, IL 61265

**MEDICAL DATA SHEET**

Project Name/Location: Fire Fighting Training Unit, Naval Training Center,  
Great Lakes, IL

Employee Name: Cindy A. Baldwin Home Telephone: 319-338-5134

Address: 1828 Northridge Dr., Coralville, IA

Drug and Other Allergies: None

Notable Medical Conditions/Medical Restriction:

None

Do You Wear Contact Lenses?  Yes  No  
Dentures?  Yes  No

Are you using any medications?  Yes  No Please list:

Emergency Contact: Dee Hill Relationship: Mother

Address: 9115 W. Cedar Dr., #1 Phone: (303 ) 274-8295  
Lakewood, CO

Personal Physician: Dr. Skaugstat Phone: (319 ) 351-3196

Address: Coralville, IA

**MEDICAL DATA SHEET**

Project Name/Location: Fire Fighting Training Unit, Naval Training Center,  
Great Lakes, IL

Employee Name: Dale S. Duffala Home Telephone: 319-225-2605

Address: 6822 N. Northwest Hwy.

Drug and Other Allergies: \_\_\_\_\_

Notable Medical Conditions/Medical Restriction:

Do You Wear Contact Lenses?  Yes  No  
Dentures?  Yes  No

Are you using any medications?  Yes  No Please list:

Emergency Contact: \_\_\_\_\_ Relationship: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Personal Physician: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_

## MEDICAL DATA SHEET

Project Name/Location: Fire Fighting Training Unit, Naval Training Center,  
Great Lakes, IL

Employee Name: Karl E. Meier Home Telephone: 847-973-1425

Address: 111 Manor Ave., Fox Lake, IL

Drug and Other Allergies: \_\_\_\_\_

Notable Medical Conditions/Medical Restriction:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Do You Wear Contact Lenses?  Yes  No  
Dentures?  Yes  No

Are you using any medications?  Yes  No Please list:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Emergency Contact: \_\_\_\_\_ Relationship: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Personal Physician: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_

**MEDICAL DATA SHEET**

Project Name/Location: Fire Fighting Training Unit, Naval Training Center,  
Great Lakes, IL

Employee Name: Phil A. Ramos Home Telephone: 312-622-0129

Address: 2344 N. McVicker, Chicago, IL

Drug and Other Allergies: \_\_\_\_\_

Notable Medical Conditions/Medical Restriction:

Do You Wear Contact Lenses?  Yes  No  
Dentures?  Yes  No

Are you using any medications?  Yes  No Please list:

Emergency Contact: \_\_\_\_\_ Relationship: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Personal Physician: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_

**MEDICAL DATA SHEET**

Project Name/Location: Fire Fighting Training Unit, Naval Training Center,  
Great Lakes, IL

Employee Name: Fred W. Lawrence Home Telephone: 319-386-4273

Address: 4116 Kelling Ct., Davenport, IA

Drug and Other Allergies: \_\_\_\_\_

Notable Medical Conditions/Medical Restriction:

Do You Wear Contact Lenses?  Yes  No  
Dentures?  Yes  No

Are you using any medications?  Yes  No Please list:

Emergency Contact: \_\_\_\_\_ Relationship: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Personal Physician: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_

**MEDICAL DATA SHEET**

Project Name/Location: Fire Fighting Training Unit, Naval Training Center,  
Great Lakes, IL

Employee Name: James R. King Home Telephone: 319-289-4123

Address: 3206 W. 63rd Street, Davenport, IA

Drug and Other Allergies: \_\_\_\_\_

Notable Medical Conditions/Medical Restriction:

Do You Wear Contact Lenses?  Yes  No  
Dentures?  Yes  No

Are you using any medications?  Yes  No Please list:

Emergency Contact: \_\_\_\_\_ Relationship: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Personal Physician: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_

**MEDICAL DATA SHEET**

Project Name/Location: Fire Fighting Training Unit, Naval Training Center,  
Great Lakes, IL

Employee Name: Mark E. Painter Home Telephone: 815-229-8507

Address: 7291 Laurel Cherry Dr., Rockford, IL 61108

Drug and Other Allergies: \_\_\_\_\_

Notable Medical Conditions/Medical Restriction:

Do You Wear Contact Lenses?  Yes  No  
Dentures?  Yes  No

Are you using any medications?  Yes  No Please list:

Emergency Contact: \_\_\_\_\_ Relationship: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Personal Physician: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_

**MEDICAL DATA SHEET**

Project Name/Location: Fire Fighting Training Unit, Naval Training Center,  
Great Lakes, IL

Employee Name: Paul E. McNamee Home Telephone: 309-797-8321

Address: #5 Red Oak Court, Moline, IL  
\_\_\_\_\_  
\_\_\_\_\_

Drug and Other Allergies: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Notable Medical Conditions/Medical Restriction:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Do You Wear Contact Lenses?  Yes  No  
Dentures?  Yes  No

Are you using any medications?  Yes  No Please list:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Emergency Contact: \_\_\_\_\_ Relationship: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_  
\_\_\_\_\_

Personal Physician: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

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**APPENDIX A**

**CONTAMINANTS OF  
POTENTIAL CONCERN**

**APPENDIX A  
CONTAMINANTS OF POTENTIAL CONCERN  
HAZARD SUMMARY**

| <b>CONTAMINANT</b>          | <b>HAZARD SUMMARY</b>   | <b>PPE</b>   |
|-----------------------------|---|--|
| Acenaphthene                | Irritating to eyes, skin, and mucous membranes  | Impervious clothing and gloves; safety glasses or goggles.                 |
| Aldrin                      | Highly toxic, may be fatal if inhaled, swallowed, or absorbed through skin  | Rubber or PVC gloves, rubber boots, impervious clothing.                   |
| Arsenic                     | Highly toxic, may be fatal if inhaled, swallowed, or absorbed through skin. Arsenical dusts are irritating to upper respiratory tract and eyes. Human carcinogen. | Protective clothing and boots; safety glasses or goggles.                  |
| Barium                      | Inhalation or contact with vapors, substance, or decomposition products may cause severe injury or death.   | Rubber gloves, rubber protective clothing, goggles.                        |
| Benz(a)anthracene           | Probable human carcinogen   | Protective clothing, gloves, and boots.                                    |
| Benz(g,h,i)perylene         | Unknown   |  |
| Benzene                     | Toxic if inhaled or absorbed through skin. Irritating to eyes, skin, respiratory tract. Human carcinogen.   | Protective clothing, nitrile gloves, and boots; safety glasses or goggles. |
| Benzo(a)pyrene              | Probable human carcinogen.  | Protective clothing, gloves, and boots.                                    |
| Benzo(b)fluoranthene        | Possible human carcinogen.  | Protective clothing, gloves, and boots.                                    |
| bis(2-Ethylhexyl) phthalate | Possible human carcinogen.  | Protective clothing, gloves, and boots.                                    |
| sec-Butylbenzene            | Unknown   |  |
| Butyl benzyl phthalate      | Prolonged contact with liquid causes some irritation of eyes and skin.  | Protective gloves and goggles.   |
| Cadmium                     | Toxic by inhalation and ingestion. Human carcinogen.  | Protective clothing, gloves, and boots.                                    |
| Carbazole                   | Unknown   |  |
| Chlordane                   | Toxic by inhalation, ingestion, or skin absorption. Possible human carcinogen.  | Rubber gloves, impervious clothing.  |

**APPENDIX A  
CONTAMINANTS OF POTENTIAL CONCERN  
HAZARD SUMMARY**

| CONTAMINANT                 | HAZARD SUMMARY   | PPE   |
|-----------------------------|--|---|
| Chromium                    | Upper respiratory tract irritation.  | Impervious clothing, gloves.  |
| Chrysene                    | Possible human carcinogen.   | Protective clothing, gloves, and boots.                                   |
| 2,4-D                       | Highly toxic, may be fatal if inhaled, swallowed, or absorbed through skin. Possible human carcinogen. | Protective clothing, gloves, and boots.                                   |
| 4,4-DDD                     | Toxic by inhalation, ingestion, or dermal contact. Possible human carcinogen.                          | Protective clothing, rubber gloves, and boots.                            |
| 4,4-DDE                     | Toxic by inhalation, ingestion, or dermal contact. Possible human carcinogen.                          | Protective clothing, gloves, and boots.                                   |
| 4,4-DDT                     | Highly toxic by inhalation, ingestion, or skin contact. Possible human carcinogen.                     | Protective clothing, neoprene gloves, and boots.                          |
| Dibenz(a,h)anthracene       | Possible human carcinogen.   | Protective clothing, gloves, and boots.                                   |
| Dibenzofuran                | Unknown  |   |
| 1,2-Dibromo-3-chloropropane | Irritating to skin, mucous membranes. Possible human carcinogen.                                       | Protective clothing, gloves, and boots.                                   |
| Di-n-butylphthalate         | Toxic by inhalation, ingestion, and dermal contact.  | Protective clothing, gloves, and boots.                                   |
| Dichloropropene             | Intensely irritating to eyes, skin, and mucous membranes.  | Protective clothing, gloves, and boots; safety glasses or goggles.        |
| Dieldrin                    | Highly toxic by inhalation, ingestion, or skin absorption.   | Protective clothing, rubber or PVC gloves, and boots.                     |
| Diethyl phthalate           | Irritating to skin, eyes, respiratory tract.   | Protective clothing, rubber gloves, and boots; safety glasses or goggles. |

**APPENDIX A  
CONTAMINANTS OF POTENTIAL CONCERN  
HAZARD SUMMARY**

| CONTAMINANT                  | HAZARD SUMMARY   | PPE  |
|------------------------------|--|--|
| 2,4-Dimethylphenol           | Toxic by inhalation, ingestion, or skin contact.   | Protective clothing, butyl rubber or neoprene gloves, and boots.           |
| Dinoseb                      | Poisonous; may be fatal if inhaled, swallowed, or absorbed through skin.                         | Protective clothing, gloves, and boots.                                    |
| Di-n-octylphthalate          | Irritating to mucous membranes.  | Protective clothing, gloves, and boots.                                    |
| Ethyl benzene                | Toxic by inhalation, ingestion, or skin contact. Irritating to skin, eyes, and mucous membranes. | Protective clothing, nitrile gloves, and boots; safety glasses or goggles. |
| Fluoranthene                 | Toxic by inhalation, ingestion, or skin contact.   | Protective clothing, gloves, and boots.                                    |
| Fluorene                     | Unknown  |  |
| Heptachlor                   | Eye irritant. Possible human carcinogen.   | Protective clothing, rubber gloves, and boots; safety glasses or goggles.  |
| Indeno(1,2,3-cd) pyrene      | Possible human carcinogen.   | Protective clothing, gloves, and boots.                                    |
| Isopropyl benzene            | Toxic by inhalation, ingestion, or skin absorption.  | Protective clothing, gloves, and boots.                                    |
| p-Isopropyl toluene          | Toxic by inhalation or skin absorption.  | Protective clothing, rubber gloves, and boots.                             |
| Lead                         | Toxic by inhalation or ingestion.  | Protective clothing, gloves, and boots.                                    |
| Lindane (gamma and beta-BHC) | Highly toxic by inhalation, ingestion, or skin absorption.                                       | Protective clothing, gloves, and boots.                                    |
| Manganese                    | Toxic by inhalation or ingestion.  | Protective clothing, gloves, and boots.                                    |
| 4-Methyl phenol              | Toxic by inhalation, ingestion, or skin absorption. Fairly severe skin irritant.                 | Protective clothing, rubber gloves, and boots.                             |

**APPENDIX A  
CONTAMINANTS OF POTENTIAL CONCERN  
HAZARD SUMMARY**

| CONTAMINANT         | HAZARD SUMMARY  | PPE   |
|---------------------|---|---|
| Methylene chloride  | Toxic by ingestion, inhalation, and skin contact. Eye, skin irritant. Possible human carcinogen.                | Protective clothing, PVA gloves, and boots; safety glasses or goggles.          |
| 2-Methylnaphthalene | Toxic by ingestion, inhalation, and skin contact. Skin irritant.  | Protective clothing, gloves, and boots.   |
| Naphthalene         | Toxic by ingestion, inhalation, and skin contact. Eye irritant.   | Protective clothing, gloves, and boots; safety glasses or goggles.              |
| 4-Nitroaniline      | Toxic by inhalation, ingestion, and skin contact. Eye, nose, and throat irritant.                               | Impervious clothing, gloves, and boots; safety glasses or goggles.              |
| 4-Nitrophenol       | Toxic by inhalation, ingestion, and skin absorption. Irritating to eyes, nose, and throat.                      | Protective clothing, butyl rubber gloves, and boots; safety glasses or goggles. |
| Pentachlorophenol   | Toxic by inhalation, ingestion, and skin contact. Eye and skin irritant. Possible human carcinogen.             | Protective clothing, rubber gloves, and boots; safety glasses or goggles.       |
| Phenanthrene        | May cause photosensitization of skin.   | Protective clothing, rubber gloves, and boots.                                  |
| n-Propyl benzene    | Toxic by inhalation, ingestion, and skin contact. Irritating to mucous membranes, eyes, nose, throat, and skin. | Protective clothing, gloves, and boots; safety glasses or goggles.              |
| Pyrene              | Skin irritant.  | Protective clothing, gloves, and boots.   |
| Selenium            | Highly toxic by inhalation, ingestion, and skin absorption. Respiratory tract irritant.                         | Protective clothing, gloves, and boots.   |
| 2,4,5-T (Silvex)    | Poisonous; may be fatal if inhaled, swallowed, or absorbed through skin. Possible human carcinogen.             | Protective clothing, gloves, and boots.   |
| Thallium            | Toxic by inhalation, ingestion, and skin contact or absorption.   | Protective clothing, gloves, and boots.   |

**APPENDIX A  
CONTAMINANTS OF POTENTIAL CONCERN  
HAZARD SUMMARY**

| <b>CONTAMINANT</b>     | <b>HAZARD SUMMARY</b>   | <b>PPE</b>  |
|------------------------|---|---|
| Toluene                | Toxic by inhalation, ingestion, and skin contact or absorption.   |   |
| 1,2-Trichlorobenzene   | Poisonous by ingestion or inhalation. Skin and eye irritation.    | Protective clothing, gloves, and boots; safety glasses or goggles.        |
| Trichlorofluoromethane | Immediately irritating to the eye.                                | Protective clothing, rubber gloves, and boots; safety glasses or goggles. |
| 1,2,4-Trimethylbenzene | Toxic by inhalation and skin contact. Skin irritant.              | Protective clothing, gloves, and boots.                                   |
| 1,3,5-Trimethylbenzene | Toxic by inhalation and skin absorption. Skin and eye irritation. | Protective clothing, gloves, and boots; safety glasses or goggles.        |
| Xylene                 | Toxic by inhalation, ingestion, and skin contact.                 | Protective clothing, gloves, and boots.                                   |
| Zinc                   | Skin and eye irritation.  | Protective clothing, gloves, and boots; safety glasses or goggles.        |

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**APPENDIX B**

**RESPIRATORY PROTECTION  
PROGRAM**

## APPENDIX B

### RESPIRATORY PROTECTION PROGRAM FOR FIRE FIGHTING TRAINING UNIT GREAT LAKES, ILLINOIS

The following respirator protection program is in accordance with OSHA 29 CFR 1910.134 and 29 CFR 1926.58 Subpart D Respiratory Protection Program requirements. These govern the selection and use of respirators on the sites.

Respirators for the Beling field sampling team will be provided by Beling. The respiratory protection program will be administered by, and is the responsibility of the Corporate Health and Safety Manager (CHSM) and/or Site Safety Officer (SSO) for the site. Subcontractors, if any, will furnish their own respirators and medical surveillance for their employees. The CHSM and/or SSO will be responsible for determining if they are in compliance with this respirator program before work begins.

The respirators will be selected according to the hazard and level of protection determined by air monitoring, action levels, and the decision of the CHSM and/or the SSO. The respirators and levels are:

| <u>Level</u> | <u>Respirator</u>  |
|--------------|--|
| C            | NIOSH-approved half-face or full-face air purifying respirator with combination dust (HEPA) and organic vapor/acid gas cartridge. The half-face or full-face respirator with combination dust and organic vapor cartridge will be appropriate for the dust conditions that may be encountered. |
| D            | No respirator required. Level D is 0.1 f/cc or less for asbestos.  |

Level C respiratory protection for asbestos sampling activities, if conducted, will be a NIOSH-approved, powered-air purifying respirator equipped with a HEPA cartridge.

The respirator users will be fit-tested with the size, style, and make of the respirator they will be using on-site. The fit-test will be recorded and these fit-test records will be maintained by the CHSM.

Employee respirator training is provided on an annual basis or at six-month intervals for those working with asbestos and at site-specific training sessions. This training includes:

- A discussion of the nature of the respiratory hazards and the dangers if the respirator is not used properly.

- The reasons that respirators are required for protection, along with any engineering controls that may be used.
- Instruction in the selection, use, sanitary care, maintenance, proper storage, and limitation of the respirator.
- Practice in proper fitting, wearing, adjusting, and checking the face-to-facepiece seal of the respirator.
- An opportunity to handle the respirator.
- Instruction on how to recognize and cope with emergency situations requiring respiratory protection.
- Explanation of the medical surveillance program and how it relates to respirator use.
- Explanation of the requirements for maintaining a tight seal, why beard and facial hair, chewing gum, or tobacco or smoking is prohibited, and why use of contact lenses while wearing respirators is prohibited.

Respirators will be assigned to individual workers. Each individual will be responsible for cleaning and maintaining their assigned respirator. They will be cleaned and disinfected before being reassigned. Respirators will be cleaned after each day of work according to manufacturer's instruction or more frequently as needed. The cleaning will be done at the Command Post. Used cartridges will be properly disposed of and replaced with new ones.

After cleaning, the respirators will be inspected and checked for defects such as excessive dirt, cracks or other distortions, scratches, incorrectly mounted lens, broken or worn cartridge holders on the facepiece, breaks, loss of elasticity, broken buckles, and excessively worn serration on head harness that may cause slippage on the headstraps or head harness.

Further checks include:

- A check of the tightness of the connections.
- A check of the facepiece, valves, connecting tube, and canisters.
- Check the exhalation valve after removing its cover for:
  - Foreign material, such as detergent residue, dust particles, or human hair under the valve seat.

- Cracks, tears, or distortion in the valve material.
  - Improper insertion of the valve body in the facepiece.
  - Cracks, breaks, or chips in the valve body, particularly in the sealing surface.
  - Missing or defective valve cover.
  - Improper installation of the valve in the valve body.
- Check the air purifying elements for:
    - Incorrect cartridges, canister, or filter for the hazard.
    - Incorrect installation, loose connections, missing or worn gaskets, or cross threading in holder.
    - Expired shelf life of cartridge or canister.
    - Cracks, dents, or breaks in the cartridge or canisters case.
    - Evidence of prior use of cartridge or canister, such as broken seal tape foil or other sealing material.
  - Check the breathing tube on supplied air units for:
    - Broken or missing end connectors, gaskets, or O-rings.
    - Missing or loose hose clamp.
    - Deterioration (done by stretching hose and looking for cracks).

Air monitoring of the work zone will be performed and the results will be used to select the appropriate level of protection. Refer to the air monitoring section of the Health and Safety Plan (HASP, Section 9.0).

The respiratory protection program will be re-evaluated and revisions and updates added regularly.

Persons will not be assigned to tasks requiring the use of respirators unless it has been determined by a physician that they are physically able to perform the work and use the equipment.

Only those respirators jointly approved by NIOSH/MSHA shall be used. All component parts (i.e., canister, replacement straps, etc.) will be of the same manufacturer.

---

**APPENDIX C**

**HEALTH & SAFETY  
MODIFICATION FORM**



# **BELING CONSULTANTS**

Beling Building, 1001 - 16th Street  
Moline, Illinois 61265  
(309) 757-9800  
Fax: (309) 757-9812

Offices in Chicago, Joliet and Peoria, Illinois;  
Davenport, Iowa; Beloit, Wisconsin; Hammond, Indiana; and Columbus, Ohio

*PROVIDING PROFESSIONAL ENGINEERING AND ENVIRONMENTAL SERVICES  
FOR OVER 60 YEARS*