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NSA CRANE  
5090.3a

WORK PLAN FOR INTERIM MEASURES CLEANUP SOLID WASTE MANAGEMENT UNITS  
14/00 AND 17/04 NSWC CRANE IN  
5/26/1995  
MORRISON KNUDSEN CORPORATION

27

**WORK PLAN  
FOR  
INTERIM MEASURES CLEANUP  
AT  
SOLID WASTE MANAGEMENT UNITS  
#14/00 and #17/04**

**NSWC CRANE  
Crane, Indiana**

CONTRACT N62467-93-D-1106  
DELIVERY ORDER 0009  
STATEMENT OF WORK 007

ISSUED FOR CONSTRUCTION

May 26, 1995  
Revision 0

Prepared for:

**SOUTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
2155 EAGLE DRIVE  
P. O. BOX 190010  
NORTH CHARLESTON, SOUTH CAROLINA 29419-9010**

Prepared by:

**MORRISON KNUDSEN CORPORATION  
2420 MALL DRIVE  
CORPORATE SQUARE 1 - SUITE 211  
NORTH CHARLESTON, SOUTH CAROLINA 29406**

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FOR  
INTERIM MEASURES CLEANUP  
AT  
SOLID WASTE MANAGEMENT UNITS  
#14/00 and #17/04**

**NSWC CRANE  
Crane, Indiana**

CONTRACT #N62467-93-D-1106  
DELIVERY ORDER #0009  
STATEMENT OF WORK #0007

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SET ID NO:

12

NAVAL SURFACE WARFARE CENTER  
CRANE WORK PLAN

SOLID WASTE MANAGEMENT UNITS  
#14/00 AND #17/04

NSWC CRANE  
CRANE, INDIANA

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May 26, 1995  
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Prepared by:

MORRISON KNUDSEN CORPORATION  
2420 MALL DRIVE  
CORPORATE SQUARE 1 - SUITE 211  
NORTH CHARLESTON, SOUTH CAROLINA 29406

APPROVALS:

<u>William Piespaner</u>	<u>6/6/95</u>
MK Safety and Health Program Manager	Date
<u>[Signature]</u>	<u>6/6/95</u>
MK Quality Program Manager	Date
<u>[Signature]</u>	<u>06 June 95</u>
MK Sr. Project Manager	Date
<u>[Signature]</u>	<u>6 June 95</u>
MK Program Manager	Date

ACCEPTANCE

<u>[Signature]</u>	<u>13 JUN 95</u>
U.S. Navy Responsible Authority	Date

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## 1.0 INTRODUCTION

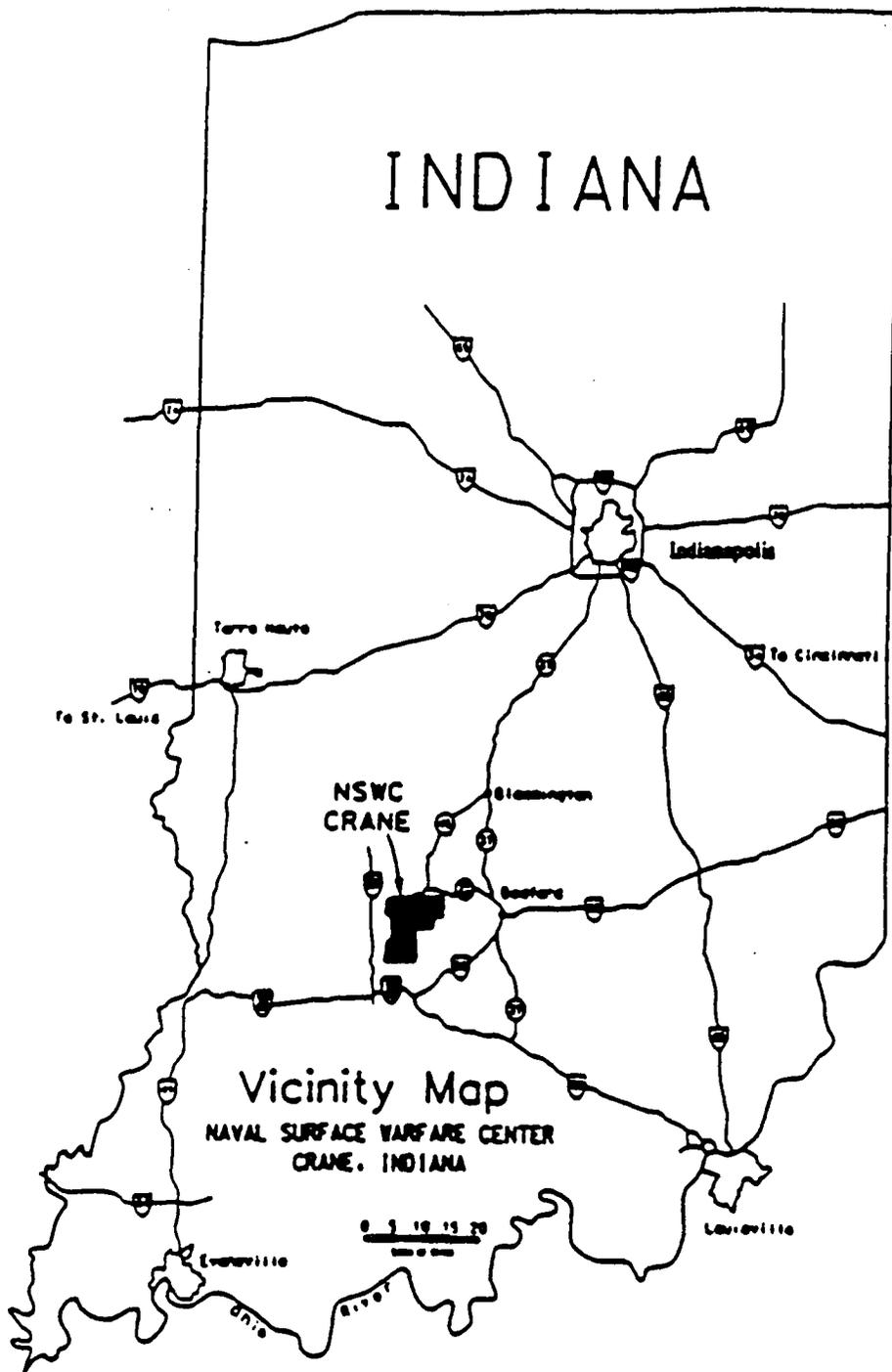
The Naval Surface Warfare Center (NSWC) Crane is located in southwestern Indiana, as shown in Figure 1-1, and provides support for equipment, shipboard weapons systems, and ordnance. In addition, NSWC supports the Crane Army Ammunition Activity (CAAA) including production and renovation of conventional ammunition, storage, shipment, and demilitarization and disposal of conventional ammunition.

This Work Plan has been prepared by Morrison Knudsen (MK) for the Naval Facilities Engineering Command (NAVFACENGCOM), Southern Division pursuant to the scope of work defined in Delivery Order #0009, under Contract #N62467-93-D-1106. This Work Plan describes the methods to be used to perform interim measures cleanup activities required at two Solid Waste Management Units (SWMUs). The two SWMUs are known as the Sanitary Landfill and Lithium Battery Disposal Area (SWMU #14/00) and as the PCB Capacitor Burial/Pole Yard (SWMU #17/04).

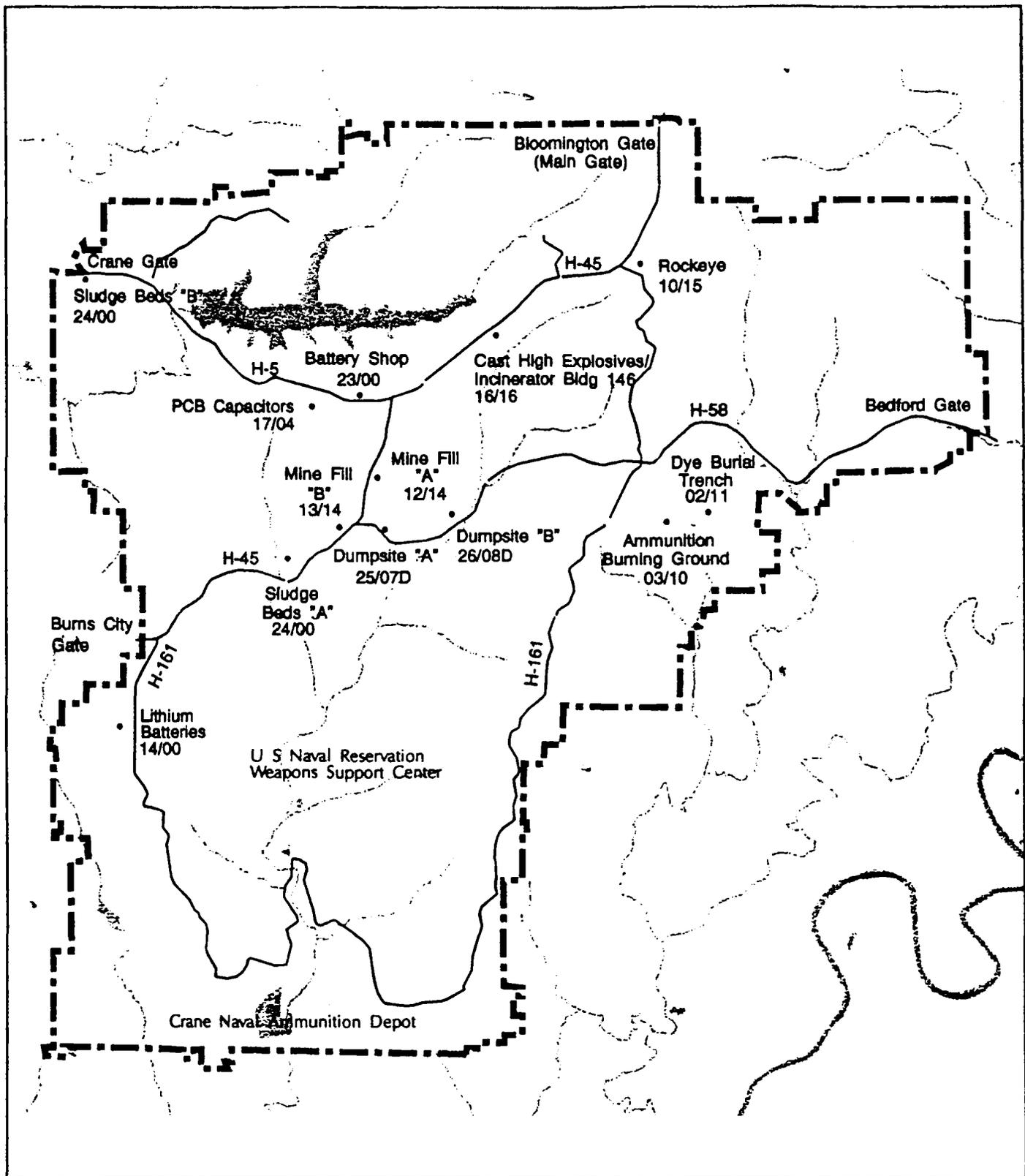
The SWMUs are located in NSWC Crane and are shown in Figure 1-2. The Sanitary Landfill and Lithium Battery Disposal Area is located near the western boundary of NSWC. The Sanitary Landfill is an active 65-acre landfill which began operations in 1972 and currently receives materials from site operations, residences, and food preparation areas. The Indiana State Bureau of Health (ISBH) granted approval in 1981-82 to bury neutralized lithium batteries in the landfill (Halliburton 1992). The PCB Capacitor Burial/Pole Yard is located in the north-central area of NSWC. In 1977, three sealed PCB capacitors were buried at the pole yard (NEESA 1983).

MK's goal is to cost-effectively and efficiently execute the work in accordance with the Delivery Order requirements, while meeting or exceeding all site-specific, local, state, and federal requirements. The primary work objectives are:

- Perform all work in a manner that maximizes worker safety and minimizes environmental impacts.
- Excavate approximately 20 lithium batteries (anticipated to be 4 feet by 2 feet by 2 feet) and package and transport them off-site for disposal. Soil will be sampled for contamination and disposed of either on-site or off-site, depending on the levels and types of contamination.
- Excavate three PCB-filled capacitors and package and transport them off-site for disposal. Contaminated soil will be packaged for off-site disposal.



**FIGURE 1-1  
VICINITY MAP OF NSWCRANE, INDIANA**



- 02/11 Dye Burial Ground
- 03/10 Ammunition Burning Ground Area
- 10/15 Rockeye
- 12/14 Mine Fill A
- 13/14 Mine Fill B
- 14/00 Sanitary Landfill and Lithium Battery
- 16/16 Cast High Explosives Fill/Incineration complex
- 17/04 PCB Capacitor Burial/Pole Yard
- 23/00 Battery Shop
- 24/00 Sludge Drying Bed A
- 24/00 Sludge Drying Bed B
- 25/07D Highway 58 Dump Site A
- 26/08D Highway 58 Dump Site B



**Figure 1-2  
Location of Solid Waste  
Management Units**

0.5 1 1.5 2 2.5 MILE



**MORRISON KNUDSEN CORPORATION**  
Engineering, Construction  
& Environmental Group

## 2.0 ENVIRONMENTAL COMPLIANCE

Promulgation of the Environmental Protection Agency's (EPA's) regulatory program under the Resource Conservation and Recovery Act (RCRA) provided the impetus to identify and control environmental contamination from past practices at NSWC Crane. On December 23, 1989 the EPA issued the federal portion of the final RCRA permit for NSWC Crane to the U.S. Navy. This permit established the Hazardous and Solid Waste Amendment (HSWA) Corrective Action Requirements and Compliance Schedules obligating the U.S. Navy to perform Remedial Field Investigations (RFIs) at 30 SWMUs, to conduct Corrective Measures Studies, and implement corrective measures if needed.

### 2.1 REGULATORY COMPLIANCE

The following regulations, guidance, and procedures may affect the work at SWMU #14/00 and SWMU #17/04:

- U.S. Navy or NSWC Crane guidance
- U.S. Occupational Safety and Health Administration  
29 CFR 1910, Occupational Safety and Health Standards  
29 CFR 1926, Safety and Health Regulations for Construction
- U.S. Army Corps of Engineers  
EM-385-1-1, Safety and Health Manual
- U.S. Environmental Protection Agency  
40 CFR 261, Identification and Listing of Hazardous Waste. Compliance will be required to characterize the waste.

40 CFR 262, Regulations for Hazardous Waste Generators. Compliance may be required with Subpart C for accumulation, packaging, labeling, marking, and placarding requirements and with Subpart B for manifest requirements.

40 CFR 264, Regulations for Owners and Operators of Permitted Hazardous Waste Facilities. Compliance with the following Subpart may be required:

Subpart I, Use and Management of Containers. Compliance with this subpart may be required for management of all hazardous waste containers.

40 CFR 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions. Compliance will be required for any PCB-contaminated soils and capacitors. In particular, Subpart C, Marking, and Subpart D, Storage and Disposal, must be followed in handling the PCB soils and capacitors.

Indiana Department of Environmental Management

329 IAC 3.1-6, Identification and Listing of Hazardous Waste. This regulation incorporates by reference the federal regulations with a few additions.

329 IAC 3.1-7, Standards Applicable to Generators of Hazardous Waste. This regulation incorporates by reference the federal regulations with a few changes and additions.

329 IAC 3.1-9, Final Permit Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities. This regulation incorporates by reference the federal regulations with a few changes and additions.

U. S. Department of Transportation

49 CFR 172, Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements. This part describes requirements for completing shipping papers; marking, labeling, and placarding; training; and emergency response.

49 CFR 173, General Requirements for Shipments and Packaging. This part describes classification and packaging of hazardous materials.

All waste products from the activities in this Work Plan will be disposed of as described in the Waste Management Plan (WMP) in compliance with federal and state hazardous waste regulations. The state regulations incorporate the federal regulations with few exceptions. However, particular attention should be paid to the state manifesting requirements.

The PCB-contaminated capacitors and soils must be characterized and managed in accordance with the EPA's PCB regulations.

Off-site transportation of any hazardous waste or material requires compliance with the DOT hazardous material transportation rules. The particular requirements are listed in the WMP. The Site Shipping Officer (SSO) will coordinate the shipping effort. MK will not sign any manifests.

All excavations must comply with the NSWC Crane site requirements. MK subcontractors will notify MK, and MK will in turn notify the NSWC Crane Site Representative of all construction activities as outlined in Section 2.2 below.

## **2.2 PERMITS, APPROVALS, AND NOTIFICATIONS**

Several permits, approvals, and notifications will be required for implementing the Work Plan interim measures cleanup activities and are summarized in the following sections.

### **2.2.1 Construction Permits**

The NSWC Crane facility requires issuance of construction permits before construction initiation. An Excavation and Trenching Permit will be required for each area. The MK Project Manager (PM) will be responsible for obtaining this permit through the Public Works Department, Building 2516. Preparation of the application and associated drawings should be started as soon as possible to allow time for review and approval.

### **2.2.2 Notifications**

All federal, state, and local agency notifications will be performed by the NSWC Crane Site Representative. All MK subcontractors will notify the PM and the PM will in turn notify the NSWC Crane Environmental Protection Department of all interim measures cleanup activities. These notifications include, but are not limited to:

- Clearing and grubbing.
- Trenching and excavation.
- Backfilling and compaction.
- Storage and handling of hazardous materials.
- Inspection, manifesting, and shipping of hazardous materials.
- Construction activities.

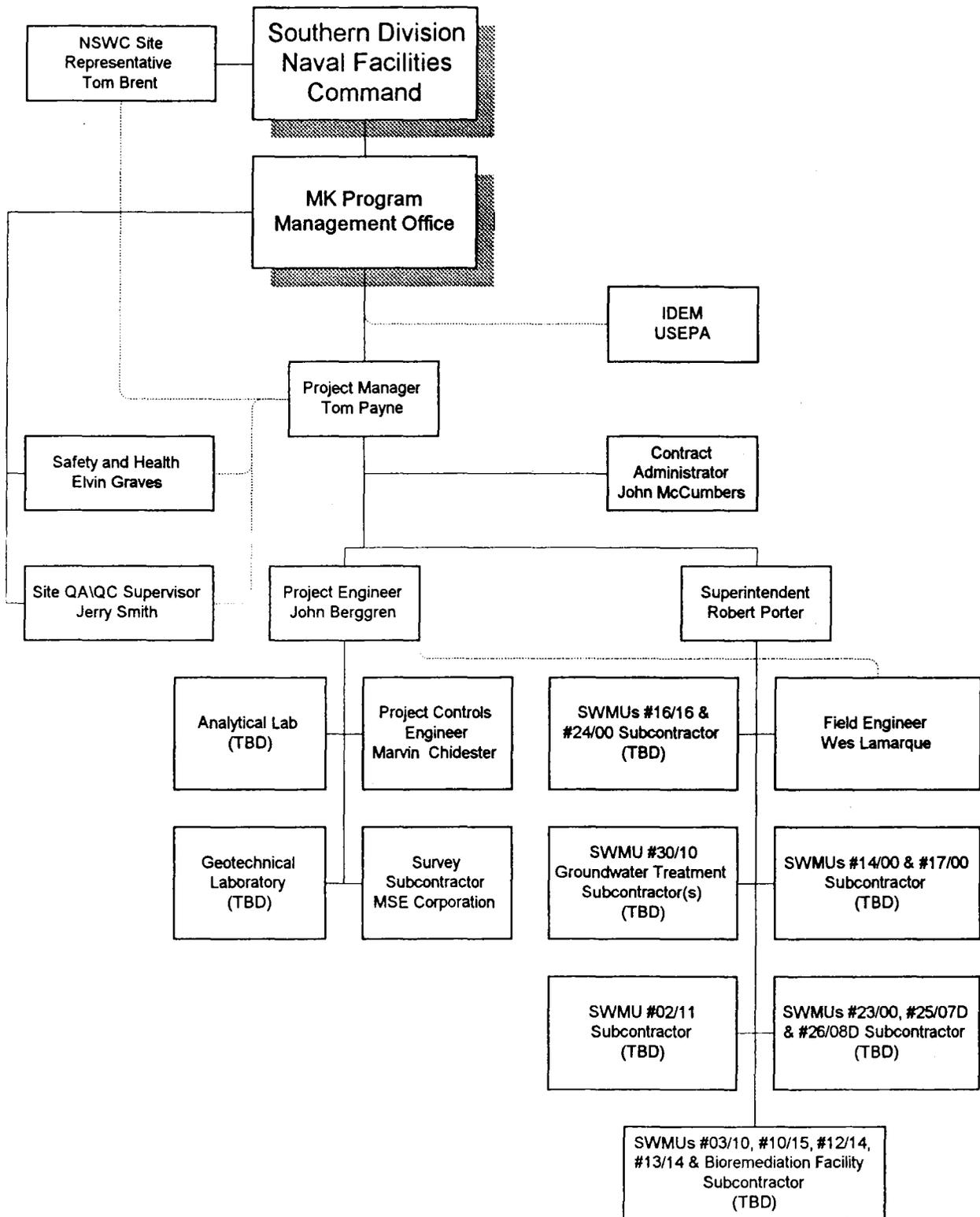
If Corrective Action Management Units (CAMUs) are not available, or not accessible, the MK Project Manager will ask the NSWC Crane Environmental Protection Department to request permission from the EPA to temporarily stockpile soils as described in this Work Plan. If permission is denied, the soils must be sampled before they are excavated.

During interim measures cleanup activities, as described in this Work Plan, emergency notifications will be required in case of fire, explosion, or spills. Notifications shall be made according to the Emergency Response Plan as described in the Task-Specific Site Safety and Health Plan (SSHP) for this Work Plan.

### 3.0 PROJECT ORGANIZATION

The project team organization for this Delivery Order is shown in Figure 3-1. The responsibilities of each team member are listed in Table 3-1.

The team is structured to provide the maximum flexibility and efficiency in the execution of this Delivery Order. This flexibility and efficiency will facilitate changes that may occur in the related scope of work.



**FIGURE 3-1  
ORGANIZATION CHART**

**TABLE 3-1  
PROJECT RESPONSIBILITIES**

TEAM MEMBERS	RESPONSIBILITIES
NAVFACENGCOM Southern Division	Overview of project execution and coordination between Contractor, NSWC Crane, and other agencies.
Program Management Office (PMO)	Overall responsibility for all cleanup measures at all sites in the Southern Division of the Naval Facilities Engineering Command under Contract No. N62467-93-D-1106. The PMO is the point of contact for NAVFACENGCOM.
NSWC Site Representative	NAVFAC's on-site representative and is the liaison between NSWC officials and the Project Manager for the SWMUs at NSWC Crane.
Project Manager (PM)	<p>Overall responsibility for implementing this Work Plan and all other project activities. The PM will control all on-site forces to ensure completion of project tasks.</p> <ul style="list-style-type: none"> <li>· Single point of contact for NAVFACENGCOM liaison.</li> <li>· Coordinates the project resources to ensure compliance with the appropriate plans, procedures, and regulatory requirements,</li> <li>· Oversees all personnel on-site and coordinates with the Program Management Office (PMO).</li> </ul>
Project Engineer (PE)	<p>Reports to the PM and will act as the Assistant Project Manager. Specific responsibilities include:</p> <ul style="list-style-type: none"> <li>· Supervises the activities of the project field staff (regulatory specialists, geologists, field engineers, etc.).</li> <li>· Coordinates with the Site Superintendent to ensure that activities are properly coordinated between subcontractors.</li> <li>· Coordinates the activities of the support staff and provides project status reports to the PM.</li> <li>· Maintains project records and prepares technical scopes of work for subcontractors.</li> <li>· Directs the efforts of technical subcontractors (i.e., surveying, sampling and testing).</li> </ul>
Cost and Schedule Engineer	<p>Reports to the PE and has primary responsibility for the maintenance of the cost and schedule control systems, including regular assessments of performance.</p> <ul style="list-style-type: none"> <li>· Provides administrative support services.</li> <li>· Evaluates cost and schedule information and provides status reports.</li> <li>· Prepares monthly progress reports.</li> <li>· Reviews cost/schedule submissions by subcontractors.</li> <li>· Verifies progress against payment requests.</li> <li>· Maintains the document control system.</li> <li>· Maintains contract change notice log and trend logs.</li> </ul>
Contract Administrator	<p>Provides administrative support to the technical staff for contractual and procurement activities.</p> <ul style="list-style-type: none"> <li>· Prepares subcontract bid packages.</li> <li>· Issues and provides support in the administration of subcontracts.</li> <li>· Monitors SB/SDB compliance.</li> <li>· Monitors purchase orders.</li> </ul>

**TABLE 3-1  
PROJECT RESPONSIBILITIES**

TEAM MEMBERS	RESPONSIBILITIES
Site Safety and Health Officer (SSHO)	<p>Reports to the PMO. Implements and ensures compliance with the Task-Specific Site Safety and Health Plan (SSHP). Tracks and reports on safety-related matters.</p> <ul style="list-style-type: none"> <li>· Responsible for the control and elimination of existing and potential industrial hazards.</li> <li>· Implements and executes personnel monitoring program to ensure proper monitoring of internal and external exposures.</li> <li>· Provides site-specific training to personnel as required by the SSHP.</li> <li>· Tracks all personnel training requirements, survey data, certifications, and records to ensure compliance with plans and regulations.</li> <li>· Assists in developing and implementing the SSHP.</li> <li>· Reviews and approves subcontractor Safety and Health Plans and Programs. Conducts audits as appropriate to ensure compliance.</li> <li>· Reviews and approves work permits for appropriate industrial hygiene and safety controls.</li> <li>· Provides monitoring to ensure the protection of project personnel, the public, and the environment,</li> <li>· Maintains an inventory of industrial hygiene and safety supplies as appropriate.</li> <li>· Maintains monitoring equipment and calibration records.</li> <li>· Stops work when necessary to ensure the safety of personnel and to prevent damage to the environment.</li> </ul>
Site Superintendent	<p>Reports to the PM and has primary responsibility for the coordination and control of all field activities to ensure that all tasks included in this Work Plan are completed.</p> <ul style="list-style-type: none"> <li>· Coordinates the activities of all subcontractors. Directs all subcontractors together with the PE.</li> <li>· Provides daily reports to the PM and PE on the status of field activities.</li> </ul>
Site Quality Control Officer (SQCO)	<p>Reports to the PMO and has primary responsibility for verifying a consistently high level of quality for the project.</p> <ul style="list-style-type: none"> <li>· Reviews and checks all documents, reports, and testing results.</li> <li>· Coordinates with procurement, engineering, and cost/schedule departments.</li> <li>· Observes all field activities to ensure compliance with this Work Plan and the QAPP and completes Field Inspection Checklists (Appendix A).</li> <li>· Keeps minutes of the periodic quality meetings.</li> <li>· Implements the three phases of quality control: Preparatory, Initial, and Follow-up inspections.</li> <li>· Ensures tracking and resolution of nonconformance/rework items.</li> </ul>

Note: See Section 3 of the Task-Specific Site Safety and Health Plan for names and contact.

## 4.0 PROJECT EXECUTION

This section details the work for the two SWMUs covered by this Work Plan. Unexploded Ordnance (UXO) clearances, excavation permits, hot work permits, and other required approvals will be obtained before performance of any field work beyond visual survey and walk arounds. All activities will also be coordinated with operations activities near the work areas. These clearances, permits, and approvals will be obtained from the NSWC Site Representative.

### **4.1 SWMU #14/00 - SANITARY LANDFILL AND LITHIUM BATTERY DISPOSAL AREA**

#### **4.1.1 Work Scope**

The scope of work includes unearthing, packaging, transporting, and disposing of 20 lithium batteries; stockpiling (see Section 2.2.2), sampling, and disposal of contaminated soils; backfilling the excavation; and restoring the work area. Figure 4-1 shows the general layout of the site.

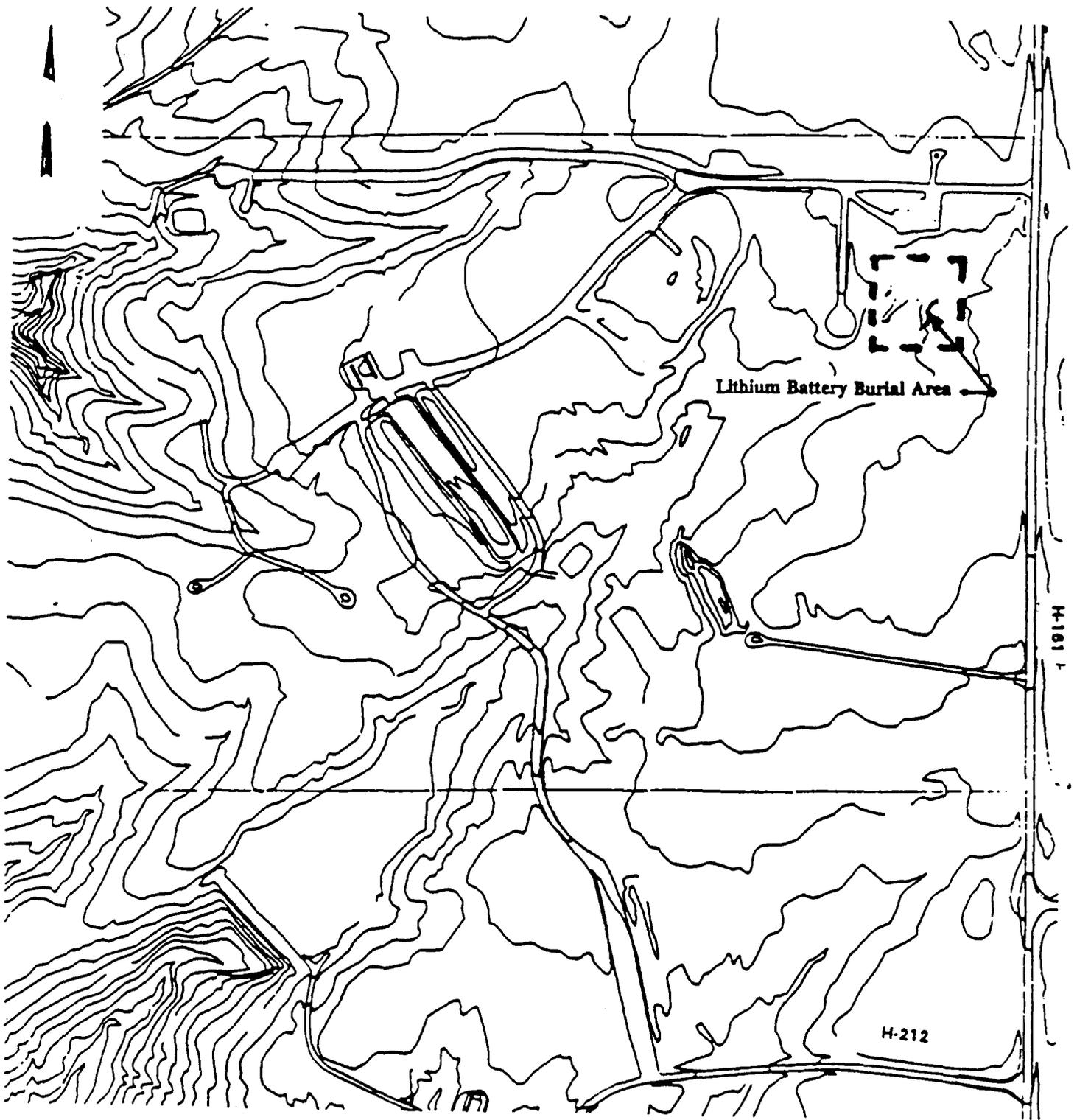
#### **4.1.2 Site Assessment**

A non-intrusive geophysical survey of the burial site has been conducted by the Army Corp of Engineers-Waterways Experiment Station (ACOE-WES) to locate the batteries. The burial site will be surveyed and located in relation to existing survey monuments. Survey data will be collected to create a topographical map of the burial site. This data will also be used to verify the quantities of materials excavated. Permits will be obtained for all site activities and mobilization will begin. Preliminary information indicates that twenty 4-foot by 2-foot by 2-foot, 600-pound batteries are buried at the site (MK 1994).

#### **4.1.3 Mobilization**

The first step in mobilization will be to define the work area configuration. The work area configuration is composed of the Exclusion Zone (EZ) boundary, the Contamination Reduction Zone (CRZ) with appropriate decontamination stations, the Support Zone (SZ), and access routes. After the work area configuration is defined, the work zones and access routes will be established. Tools, equipment, and supplies will be delivered to the site and the personnel mobilized.

All equipment to be mobilized will be steam cleaned and inspected before shipment to the site by the subcontractor. Upon arrival at the site, the contractor will inspect the equipment for the presence of dirt, oils, and grease. The general condition of the equipment will be inspected and tested to ensure that all safety systems and alarms are functional. The performance of the equipment will be tested to determine if the equipment can perform the required tasks.



**FIGURE 4-1  
SWMU #14/00 SANITARY LANDFILL  
AND LITHIUM BATTERY EXCAVATION AREA**

Storm water and erosion control measures shall be implemented as necessary to control storm water runoff and to prevent erosion. These measures are explained further in the Environmental Protection Plan (EPP).

#### **4.1.4 Unearthing the Batteries**

Initial excavation will be conducted in a manner that will preclude damage to the batteries by excavation equipment. Therefore, initial unearthing (potholing) will be performed by hand. Once the potholing has reached a depth of approximately 2 feet, excavation equipment will be used to remove the remaining soil to a similar depth. Potholing will then be performed again, followed by mass excavation until the batteries are found. Once the extent of the area occupied by the batteries is defined, the excavation equipment can be used to remove the remaining soil to fully expose the batteries. All excavated soils will be stockpiled in a bermed area, covered with plastic sheeting to control water run-on/runoff, and sampled to determine contamination levels. Any soil found to be contaminated will be containerized in roll-offs for off-site disposal. A representative of the High-Energy Battery System Branch should be on-site to witness the unearthing, packaging, and loading of the batteries for transport to the disposal facility.

Storm water that may collect in the area of the excavation will be collected and sampled. All clean water will be disposed of by using it as dust control on the stockpile or by placing it in a small solar evaporation pond. Potentially contaminated water will be sampled for disposition. Contaminated water will be disposed of as a hazardous waste or in the site's sewage treatment system if it meets the system's treatment criteria.

#### **4.1.5 Packaging and Disposal of the Batteries**

After the batteries have been fully exposed, any soils remaining on the batteries will be brushed off with a stiff broom. The batteries will then be removed from the excavation, double-wrapped in plastic, placed in shipping crates, and blocked in place. The shipping crates will be placed on plastic sheets, rather than directly on the ground. Once the batteries are placed into the crates and properly braced, the crates will be closed. Following closure, the crates will be moved from the EZ to the CRZ for final inspection, labeling, and preparation for shipment to the waste disposal site, as described in the WMP.

#### **4.1.6 Sampling and Analysis**

Before starting cleanup work, background contamination levels for lithium and metals will be established by sampling and analyzing soils in the area of the battery burial site.

After unearthing the batteries, the excavation and the stockpiled soils will be sampled and analyzed for lithium and metals contamination levels. Sampling will be performed in accordance with the Data Quality Objectives in Table 2-6 of the Quality Assurance

Project Plan (QAPP). The following number of samples will be taken: four from the walls of the excavation (one per wall), one from the floor of the excavation, and one composite sample from the stockpile. The composite sample will be composed of four samples, one from each quadrant of the stockpile. The samples will be taken either at random locations or at the locations of visible staining. Samples, if required, will also be taken in the area of ruptured or punctured batteries. If the analytical tests of the stockpile sample prove negative, the soil will be used to backfill the excavation. If the stockpile is contaminated (that is, levels above the background levels) and the excavation is clean, the stockpile will be containerized for disposal. The excavation will be backfilled with suitable material from other sources. If both the stockpile and the excavation are contaminated, further excavation and sampling will be performed until all cleanup levels have been achieved. Confirmation samples will be taken to ensure cleanup objectives have been met.

Decontamination water and any collected stormwater runoff will be sampled and analyzed to determine the method of disposal.

#### **4.1.7 Soil Packaging, Transportation, and Disposal**

Contaminated soils will be packaged, labeled, and placed in temporary storage for no greater than 90 days. Temporary storage areas are discussed in the WMP. An estimated 100 cubic yards of soil are potentially affected (MK 1994). A licensed hazardous waste transporter will be contracted to ship the materials to a waste disposal site permitted for the type of material, as determined by the analytical results of the sampling. Manifests shall be prepared and presented to NSWC Site Representative for signature. Hazardous wastes will be packaged, labeled, and transported in accordance with the WMP.

#### **4.1.8 Site Cleanup**

Equipment no longer required in the EZ will be decontaminated and moved to the SZ. After all contaminated materials are containerized, the remaining equipment will be decontaminated and moved to the SZ. The decontamination equipment will then be cleaned and the work zone barriers removed. All decontamination fluids will be collected, sampled, and either disposed of at the sewage treatment plant or at an off-site facility.

#### **4.1.9 Backfilling and Site Restoration**

The extent of any excavation and the points at which confirmation samples were taken will be surveyed to determine the volume of the excavation, record the extent of the excavation, and record the location of the samples. The excavation will then be backfilled to grade with clean material. Backfill must be clean, noncontaminated earth fill from on-site or off-site borrow sources. The backfill will be placed in 12-inch lifts and compacted to the requirements of the Testing Plan and Log found in the Quality Control Plan (QCP). Excavated areas will be covered with 3 inches of topsoil (defined as

having a minimum of 5 percent organic matter), seeded with native grasses, and fertilized. Erosion control measures will be maintained until the growth of grasses is sufficient to prevent erosion.

## **4.2 SWMU #17/04 - PCB CAPACITORS / POLE YARD**

### **4.2.1 Work Scope**

The scope of work includes unearthing, packaging, transporting, and disposing of three PCB capacitors buried in a trench at the Pole Yard; stockpiling (see Section 2.2.2), sampling, and disposal of contaminated soils; backfilling the excavation; and restoring the work area. Figure 4-2 shows the general layout of the site.

### **4.2.2 Site Assessment**

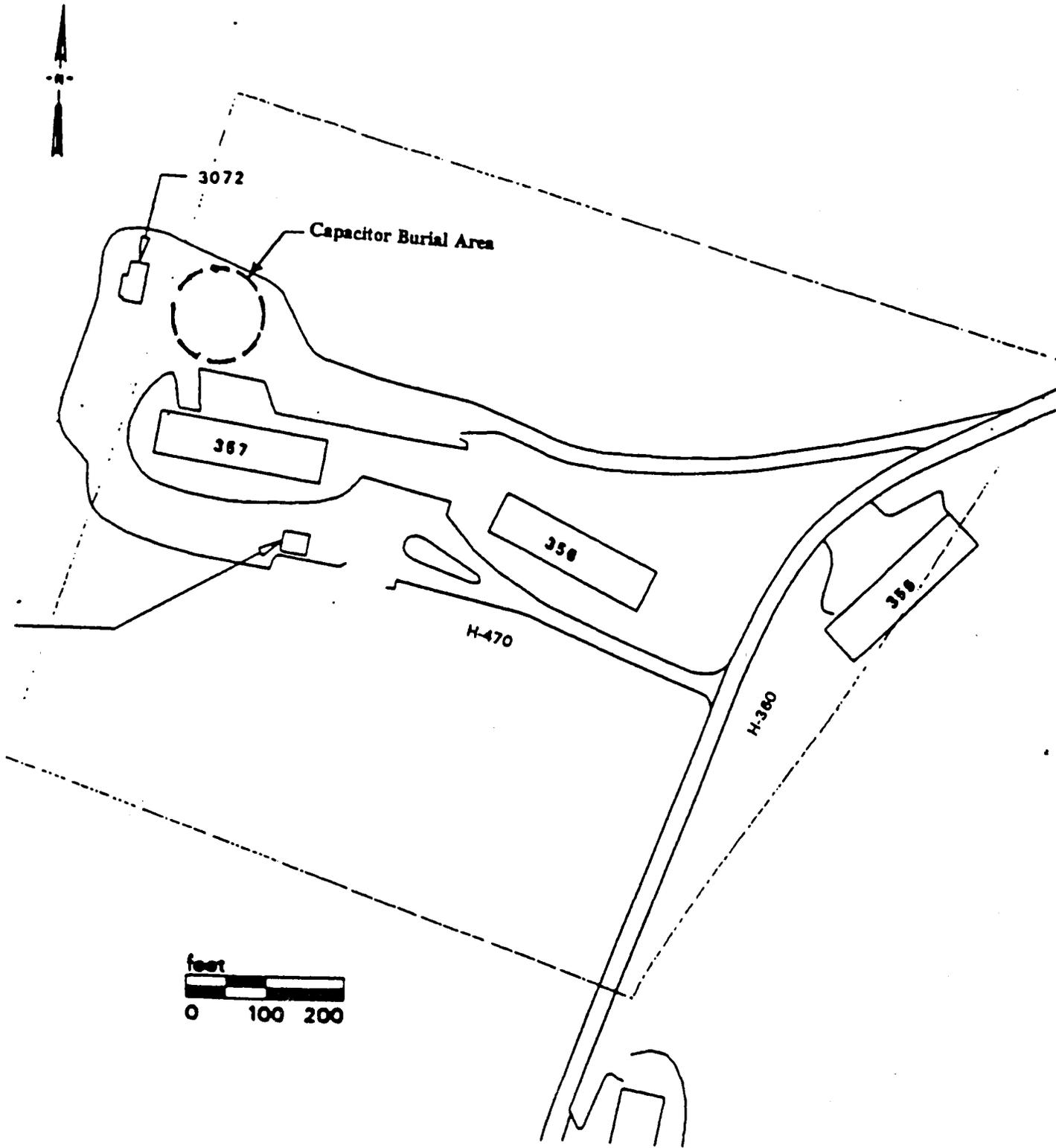
A non-intrusive geophysical survey of the burial area has been conducted by ACOE-WES to locate the capacitors. The burial site will be surveyed and located in relation to existing survey monuments. Survey data will be used to create a topographical map of the burial area. This data will also be used to verify the quantities of materials excavated. Permits will be obtained for all site activities, and mobilization will begin.

### **4.2.3 Mobilization**

The first step in mobilization will be to define the work area configuration. The work area configuration is composed of the Exclusion Zone (EZ) boundary, the Contamination Reduction Zone (CRZ) with appropriate decontamination stations, the Support Zone (SZ), and access routes. After the work area configuration is defined, the work zones and access routes will be established. Tools, equipment, and supplies will be delivered to the site, and the personnel mobilized.

The subcontractor will steam clean and inspect all equipment before shipment to the site. Upon arrival at the site, the contractor will inspect the equipment for the presence of dirt, oils, and grease. The general condition of the equipment will be inspected and tested to ensure that all safety systems and alarms are functional. The performance of the equipment will be tested to determine if the equipment can perform the required tasks.

Storm water and erosion control measures shall be implemented as necessary to control storm water runoff and to prevent erosion. These measures are explained further in the EPP.



**FIGURE 4-2**  
**SWMU #17/04 PCB CAPACITOR EXCAVATION AREA**

#### **4.2.4 Unearthing the Capacitors**

Initial excavation will be conducted in a manner that will preclude damage to the capacitors by excavation equipment. Therefore, initial unearthing (potholing) will be performed by hand. Once the potholing has reached a depth of approximately 2 feet, excavation equipment will be used to remove the remaining soil to a similar depth. Potholing will then be performed again, followed by mass excavation until the capacitors are found. Once the extent of the area occupied by the capacitors is defined, the equipment can be used to remove the remaining soil to fully expose the capacitors. All excavated soils will be stockpiled in a bermed area, covered with plastic sheeting to control water run-on/runoff, and sampled to determine contamination levels. Any soil found to be contaminated will be containerized in roll-offs for off-site disposal.

Storm water that may collect in the area of the excavation will be collected and sampled. All clean water will be disposed of by using it as dust control on the stockpile or by placing it in a small solar evaporation pond. Potentially contaminated water will be sampled for disposition. Contaminated water will be disposed of as a hazardous waste or in the site's sewage treatment system if it meets the system's treatment criteria.

#### **4.2.5 Packaging and Disposal of the Capacitors**

After the capacitors have been fully exposed, any soils remaining on the capacitors will be brushed off with a stiff broom. The capacitors will then be removed from the excavation and placed in appropriate overpacks. The overpacks will be placed on plastic sheets, rather than directly on the ground. After the capacitors are placed in the overpacks, the overpacks will be closed and moved to the CRZ for final inspection, labeling, and preparation for shipment to the waste disposal site, as described in the WMP.

#### **4.2.6 Sampling and Analysis**

Before starting cleanup work, field screening will be used to detect the presence and extent of PCB contamination at the burial area. If the field screens indicate that an area greater than 4 feet by 4 feet is contaminated, one additional sample will be taken for each additional 20 square feet.

After unearthing the capacitors, the excavation and the stockpiled soils will be sampled and analyzed in accordance with the Data Quality Objectives in Table 2-8 of the QAPP. The following number of samples will be taken: four from the walls (one per wall), three from the base of the excavation, and one composite from the stockpiled soil. The composite sample will be composed of four samples, one from each quadrant of the stockpile. The samples will be taken either at random locations or at the locations of visible staining. If the analytical tests of the stockpile soil prove negative, the soil will be used to backfill the excavation. If the stockpile is contaminated and the excavation is clean, the stockpile will be containerized for disposal. The excavation will be

backfilled with suitable material from other sources. If both the excavation and stockpile are contaminated, further excavation and soil sampling will be done until all cleanup levels are achieved. Confirmation samples will be taken to ensure cleanup objectives have been met.

Decontamination water and any collected stormwater runoff will be sampled and analyzed to decide the method of disposal.

#### **4.2.7 Soil Packaging, Transportation, and Disposal**

Contaminated soil will be packaged, labeled and placed in temporary storage for no greater than 30 days. Temporary storage areas are discussed in the WMP. An estimated 50 cubic yards of soil are potentially affected (MK 1994). A licensed hazardous waste transporter will be contracted to ship the materials to a waste disposal site permitted for the type of material, as determined by the analytical results of the sampling. Manifests shall be prepared and presented to NWSC Site Representative for signature. Hazardous wastes will be packaged, labeled, and transported in accordance with the WMP.

#### **4.2.8 Site Cleanup**

Equipment no longer required in the EZ will be decontaminated and moved to the SZ. After all contaminated materials are containerized, the remaining equipment will be decontaminated and moved to the SZ. The decontamination equipment will then be cleaned and the work zones barriers removed. All decontamination fluids will be collected, sampled and either disposed of at the sewage treatment plant or at an off-site facility.

#### **4.2.9 Backfilling and Site Restoration**

The extent of any excavation and the points at which confirmation samples were taken will be surveyed to determine the volume of the excavation, record the extent of the excavation, and record the location of the samples. The excavation will then be backfilled to grade with clean material. Backfill must be clean, noncontaminated earth fill from on-site or off-site borrow sources. The backfill will be placed in 12-inch lifts and compacted to the requirements of the Testing Plan and Log found in the QCP. Excavated areas will be covered with 3 inches of topsoil (defined as having a minimum of 5 percent organic matter), seeded with native grasses, and fertilized. Erosion control measures will be maintained until the growth of grasses is sufficient to prevent erosion.

## 5.0 QUALITY CONTROL

As prime contractor, MK will implement and retain full authority of the Quality Control Plan (QCP) for this project. The QCP is bound under separate cover and is to be used in conjunction with this Work Plan. MK will manage all matters involving Quality Control performed in the execution of NAVFAC Delivery Orders. This approach provides the Navy with a quality management system having clear lines of authority and responsibility, and a consistent approach and application of quality requirements.

The QCP identifies quality testing and inspection requirements for the scope of work to be performed. To supplement the information contained therein, Appendix A of this Work Plan provides Field Inspection Checklists for general and specific items when performing inspections.

## **6.0 SAFETY AND HEALTH**

The Task-Specific Site Safety and Health Plan (SSHP) for this Work Plan is specific to interim measures cleanup activities for SWMUs #14/00 and #17/04. The SSHP is a supplement to this Work Plan. All details in the SSHP are to be strictly followed during the execution of the work.

## 7.0 DECONTAMINATION ACTIVITIES

### 7.1 MINIMIZATION OF CONTAMINATION

During site activities, all personnel shall minimize contact with contaminated materials to keep "clean" during site activities. All personnel should minimize kneeling, splashing, and inadvertent physical contact with contaminated materials. Field procedures will be developed to control overspray and runoff and to ensure that unprotected personnel working nearby are not affected.

Entrance to the exclusion zones will be limited to personnel trained in accordance with 29 CFR Part 1910.120. The level of protection worn within each exclusion zone will be specified by the Site Safety and Health Officer (SSHO). Selection of personal protective equipment and anticipated levels of protection are summarized in Tables 5 and 6 of the SSHP. All personnel leaving the exclusion zone will pass through a decontamination zone and follow personnel decontamination procedures as specified in the SSHP.

### 7.2 DECONTAMINATION FACILITIES

Because of the distances between the different work areas, each SWMU shall have a designated decontamination facility. Before construction of each decontamination facility, soil samples shall be taken at the proposed location of the decontamination pad to establish the environmental conditions before interim measures cleanup activities.

Temporary personnel decontamination and shower/change room trailers will be provided in those areas designated by the SSHO. Each equipment decontamination facility shall be constructed of a 60-mil high-density polyethylene (HDPE) liner draped over sandbags and sloped to a sump or equal containment system. The liner will be visually inspected before use on a daily basis to detect possible failures of the liner material. The inspection process will consist of checking for the following:

- Evidence of tears and holes.
- Evidence of seepage.
- The sheeting is adequately fastened to the side walls.
- The liner adequately covers the sandbags at the end section.

If the liner is damaged, it will be repaired or replaced before further use of the facility. Soil beneath the liner in the area of the breach will be sampled.

Records will be maintained specifying facility construction material and methods, disposition of liquids and solids, daily inspections, and any repairs and/or breaches of liner integrity.

All decontamination fluids collected in the sump will be containerized at the end of each shift and sampled to determine disposal requirements. If precipitation is predicted, the decontamination pad will be covered to prevent accumulation of storm water.

After interim measures cleanup of a specific SWMU is completed, the decontamination facility will be dismantled. The materials from the facility are anticipated to be reused at another SWMU. If there is no indication of seepage, tears or holes, the HDPE liner will be thoroughly cleaned before being transported to another SWMU. Any decontamination facility materials that have been dispositioned as waste and are not reusable will be characterized and properly disposed of.

After the decontamination facility has been dismantled and removed, the underlying surface will be visually inspected. Visibly contaminated material will be removed and managed as a potentially hazardous material.

### **7.3 PERSONNEL DECONTAMINATION**

Personnel will be required to pass through a decontamination area before exiting the exclusion zone. The personnel decontamination area will be located adjacent to the exclusion zone. The area will include, as required, a protective clothing removal area and container, respirator removal area and containers, storage for clean personnel protection equipment and clothing, wash station supplies for hands and face, and emergency showers for whole body cleaning.

Before changing into street clothes, whole-body cleaning will be mandatory for personnel exiting areas as designated in the SSHP. The whole body shower and change trailer will be provided in a central location.

All contaminated personal protective equipment and clothing shall be properly disposed of or cleaned and inspected for reuse. Field personnel decontamination procedures will be generated for these actions and will be monitored by the SSHO.

### **7.4 DECONTAMINATION OF HEAVY EQUIPMENT**

Portions of construction and field equipment that have come into contact with any potentially contaminated material will be decontaminated. Heavy equipment, such as trucks and backhoes, will be cleaned by high-pressure water or steam. The equipment will be visually inspected for signs of contamination. If signs of contamination are still present, the cleaning procedures will be repeated until the criteria for cleanliness has been met. A detailed written field procedure will be prepared for this action.

### **7.5 DECONTAMINATION OF SAMPLING EQUIPMENT**

Sampling equipment will be decontaminated per the manufacturer's instructions or as described in the Sampling and Analysis Plan.

## 8.0 WASTE MANAGEMENT

Waste management, including disposal functions will be conducted in accordance with the project's Waste Management Plan (WMP) and all applicable regulations as specified in this Work Plan. The WMP is bound under separate cover and is to be used in conjunction with this Work Plan. However, NSWCrane retains ownership of all wastes generated and is responsible for signing all waste manifests prepared for this project.

During field activities, various wastes will be generated including contaminated and noncontaminated soil and debris, ground and rain water, decontamination water, disposable personnel protective equipment, and inert wastes.

Initially, wastes will be placed in stockpiles and sampled for contamination. Contaminated soil will be containerized and characterized before off-site disposal. Characterization is necessary for soil excavated from both SWMUs. All contaminated soil will be containerized in 20- or 40-cubic yard roll-offs. Once a roll-off is filled, four discrete samples will be obtained from each quadrant of the roll-off. The quadrants will be determined by visual estimation in the field.

Each sample will be collected from at least 1 foot deep. The four samples collected will be composited according to weight (i.e., an equal weight from each discrete sample is combined into the composite sample). Soil samples will be collected using the procedures contained in the Sampling and Analysis Plan (SAP). The SAP is bound under separate cover and is to be used in conjunction with this Work Plan. Each composite sample will be analyzed for the parameters found in Table 1 of the SAP. Laboratory results of the characterization analysis will be used to classify the materials per the WMP.

## 9.0 ENVIRONMENTAL PROTECTION

During site work, MK will employ measures to ensure protection of the environment. All site work will be performed in a manner that will minimize pollution of the air, water, and land. Environmental protection activities executed at the site will follow the Environmental Protection Plan (EPP) and all applicable regulatory requirements. The EPP is bound under separate cover and is to be used in conjunction with this Work Plan. Care will be exercised to minimize the areas to be disturbed. An Environmental Condition Report (ECR) will be prepared before interim measures cleanup activities at the site. The site will be restored, to the practical extent, to the original conditions documented in the ECR.

**10.0  
SCHEDULE**



## 11.0 REFERENCES

- Halliburton, 1992. RCRA Facility Investigation Phase I Environmental Monitoring Reports: Solid Waste Management Units #15/06, #14/00 and #16/16, Naval Surface Warfare Center, Crane Division, Crane, Indiana. Halliburton NUS Environmental Corp., November 1992.
- MK, 1994. Site Meeting Minutes of August 16-17, 1994. R. Centinaro, Morrison Knudsen Corp., August 1994.
- NEESA, 1983. Initial Assessment Study of Naval Weapons Support Center Crane, Indiana; NEESA 13-0003. Naval Energy and Environmental Support Activity, May 1983.

# APPENDIX A INSPECTION ITEMS



**MORRISON KNUDSEN CORPORATION**  
Engineering, Construction, & Environmental

Procedure Type

**FIELD INSPECTION CHECKLIST**

Checklist Title

**WASTE STORAGE AREA INSPECTION**

Inspection Code

Revision Date

Checklist

**JAN 95**

**Page 1 of 2**

ITEM NO.	ITEM CHECKED	A/R	INSPECTION NUMBER/REMARKS	VERIFIED BY/ DATE
1	Are all containers labeled?			
2	Are any containers bulging or leaking?			
3	Have containers/stockpiles been placed on an impervious pad or area?			
4	Have all containers/stockpiles been sampled?			
5	Are all stockpiles covered?	N/A		
6	Are run-on/run-off measures in place?			
7	Are fluids from the waste storage area being disposed of properly?			
8	Is any waste nearing 90 days of storage in the Waste Storage Area?			
9				
10				

**REMARKS:**

Specific Item Identification or Location, as applicable:

MK Project Number NSWC Crane-Delivery Order 0009	Drawing Number	Work Package Number	Inspection Report Sheet _____ of _____
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**MORRISON KNUDSEN CORPORATION**  
Engineering, Construction, & Environmental

Procedure Type

**FIELD INSPECTION CHECKLIST**

Checklist Title

**DECONTAMINATION FACILITY INSPECTION**

Inspection Code

Revision Date

**JAN 95**

Checklist

**Page 2 of 2**

ITEM NO.	ITEM CHECKED	A/R	INSPECTION NUMBER/REMARKS	VERIFIED BY/ DATE
1	Has a decontamination area been constructed in accordance with the Work Plan?			
2	Are fluids used for decontamination contained at the decontamination area?			
3	Are fluids disposed of properly on a regular basis?			
4	Are run-on/run-off measures in place?			
5	Have any leaks/seepage occurred since the last inspection?			
6	Is the containment system still in good repair (no holes, tears or cracks)?			
7	Is the decontamination area still in good repair?			
8				
9				
10				

REMARKS:

Specific Item Identification or Location, as applicable:

MK Project Number

NSWC Crane-Delivery Order 0009

Drawing Number

Work Package Number

Inspection Report

Sheet \_\_\_\_\_ of \_\_\_\_\_



**MORRISON KNUDSEN CORPORATION**  
Engineering, Construction, & Environmental

Procedure Type

**FIELD INSPECTION CHECKLIST**

Checklist Title

**GENERAL ITEMS-PRIOR TO EXCAVATION INSPECTION**

Inspection Code

Revision Date

Checklist

**JAN 95**

**Page 1 of 3**

ITEM NO.	ITEM CHECKED	A/R	INSPECTION NUMBER/REMARKS	VERIFIED BY/ DATE
1	Has an Environmental Condition Report been prepared for the area?			
2	Have the batteries/capacitors been located?			
3	Has an unexploded ordnance survey been completed?			
4	Have the EZ, CRZ and SZ been defined and laid out?			
5	Have erosion control measures been put in place?			
6	Has the contractor hired to accomplish the work submitted all required reps/certs, training records and insurance certificates?			
7	Have investigative soil samples been taken to define the levels of contamination in the area?			
8	Have photographs been taken of the area?			
9	Is contractor equipment in working order and has it been cleaned?			
10	Has a decontamination area been constructed?			
11	Have necessary permits been obtained and have required notification been made?			

**REMARKS:**

Specific Item Identification or Location, as applicable:

MK Project Number

NSWC Crane-Delivery Order 0009

Drawing Number

Work Package Number

Inspection Report

Sheet \_\_\_\_\_ of \_\_\_\_\_



**MORRISON KNUDSEN CORPORATION**  
Engineering, Construction, & Environmental

Procedure Type

**FIELD INSPECTION CHECKLIST**

Checklist Title

**GENERAL ITEMS-DURING EXCAVATION INSPECTION**

Inspection Code

Revision Date

Checklist

**JAN 95**

**Page 2 of 3**

ITEM NO.	ITEM CHECKED	A/R	INSPECTION NUMBER/REMARKS	VERIFIED BY/ DATE
1	Has proper care been taken to locate the batteries/capacitors so they are not damaged by excavation?			
2	Is storm water or groundwater properly disposed of?			
3	Has soil sampling been accomplished in the excavation and stockpile?			
4	Do the analytical results confirm that the excavation is clean?			
5	Have the batteries/capacitors been properly packaged, labeled and manifested?			
6	Has contaminated soil been properly packaged and labeled?			
7	Have photographs been taken of the remediation activities?			
8	Were daily logs and reports made?			
9	Has the decontamination facility been inspected on a daily basis?			
10	Has all equipment been decontaminated?			

**REMARKS:**

Specific Item Identification or Location, as applicable:

MK Project Number

NSWC Crane-Delivery Order 0009

Drawing Number

Work Package Number

Inspection Report

Sheet \_\_\_\_\_ of \_\_\_\_\_



**MORRISON KNUDSEN CORPORATION**  
Engineering, Construction, & Environmental

Procedure Type

**FIELD INSPECTION CHECKLIST**

Checklist Title

**GENERAL ITEMS-AFTER EXCAVATION INSPECTION**

Inspection Code

Revision Date

**JAN 95**

Checklist

**Page 3 of 3**

ITEM NO.	ITEM CHECKED	A/R	INSPECTION NUMBER/REMARKS	VERIFIED BY/ DATE
1	Has the excavation been backfilled with clean material which has been placed and compacted properly?			
2	Has topsoil been placed in disturbed areas?			
3	Have the disturbed areas been seeded?			
4	Has a general cleanup been done of the affected areas?			
5	Were photographs taken of the affected areas?			
6	Were soil erosion prevention measures left in place until vegetation grew?			
7				
8				
9				
10				

**REMARKS:**

Specific Item Identification or Location, as applicable:

MK Project Number

NSWC Crane-Delivery Order 0009

Drawing Number

Work Package Number

Inspection Report

Sheet \_\_\_\_\_ of \_\_\_\_\_



**TASK-SPECIFIC SITE SAFETY AND HEALTH PLAN**  
**SUPPLEMENT TO**  
**WORK PLAN**  
**FOR**  
**SOLID WASTE MANAGEMENT UNITS #14/00 and #17/04**

**NSWC CRANE**  
**Crane, Indiana**

CONTRACT #N62467-93-D-1106  
DELIVERY ORDER 0009  
STATEMENT OF WORK 007

ISSUED FOR CONSTRUCTION

May 26, 1995  
Revision 0

Prepared for:

**SOUTHERN DIVISION**  
**NAVAL FACILITIES ENGINEERING COMMAND**  
2155 EAGLE DRIVE  
P.O. BOX 190010  
NORTH CHARLESTON, SOUTH CAROLINA 29419-9010

Prepared by:

**MORRISON KNUDSEN CORPORATION**  
2420 MALL DRIVE  
CORPORATE SQUARE 1 - SUITE 211  
NORTH CHARLESTON, SOUTH CAROLINA 29406

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## 1.0 INTRODUCTION

This Task-Specific Site Safety and Health Plan (SSHP) describes safety and health requirements for interim cleanup measures at NSWC Crane, specifically for Solid Waste Management Units (SWMUs) #14/00, Lithium Battery Disposal Area, and #17/04, PCB Capacitor Burial/Pole Yard. This SSHP is consistent with the requirements of the Occupational Safety and Health Administration (OSHA) Hazardous Waste Site Regulations; 29 CFR 1910.120 and 29 CFR 1926.65; and the U.S. Army Corps of Engineers (ACOE) *Safety and Health Requirements Manual* EM 385-1-1, dated October 1992.

This SSHP applies to all personnel who enter work areas described in this SSHP and who are under the control of Morrison Knudsen Corporation (MK) or MK's subcontractors.

### 1.1 WORK TASK SUMMARY

Work tasks are briefly summarized as follows:

**SWMU #14/00 - Sanitary Landfill and Lithium Battery Disposal Area:** The scope of work includes unearthing, packaging, transporting, and disposing of twenty lithium batteries; stockpiling, sampling, and disposal of contaminated soils; backfilling the excavation, and restoring the work area. Figure 4-1 in the Work Plan shows the general layout of the site. The batteries are spent, have the physical dimensions of 4 feet by 2 feet by 2 feet, and weigh approximately 600 pounds each. The excavation and stockpiled soils will be sampled for Appendix IX metals and lithium, according to the Sampling and Analysis Plan (SAP). Table 1 summarizes the site location and description, scope of work, and contaminants.

**SWMU #17/04 - PCB Capacitors Burial/Pole Yard:** The scope of work includes unearthing, packaging, transporting, and disposing of three PCB capacitors buried in a trench at the Pole Yard; stockpiling, sampling, and disposing of contaminated soils; backfilling the excavation, and restoring the work area. Figure 4-2 in the Work Plan shows the general layout of the site. The capacitors were sealed before burial. The excavation and stockpiled soils will be sampled for Appendix IX metals and PCBs, according to the SAP. Table 1 summarizes the site location/description, scope of work, and contaminants.

Detailed task descriptions are provided in Section 4.0 of the Work Plan.

### 1.2 CONTAMINANT CHARACTERISTICS

Potential contaminants in the soils are summarized below for each SWMU. Additional information concerning the potential contaminants can be found in Table 2. Material

Safety Data Sheets (MSDSs) or National Institute for Occupational Safety and Health (NIOSH) Pocket Guides will be used as a source of information to help personnel recognize and control occupational chemical hazards. MSDS and NIOSH information for each of the potential contaminants, process chemicals, or other chemical substances encountered during the interim cleanup process, will be organized into a separate binder, commonly called the "MSDS Binder." These binders will be available to all personnel, at anytime, and will be at appropriate on-site locations such as the MK jobsite trailer, NSWC Medical Building, and each active SWMU work area.

**SWMU #14/00 - Sanitary Landfill and Lithium Battery Disposal Area.** Potential contaminant exposure will be from the spent cell if the battery case is split open. The battery cells were found to be lithium-iron (Li-Fe) disulfide ( $\text{FeS}_2$ ). Asbestos insulation may or may not have been used. After the battery service life, the activated cells turn into a solid material that is relatively benign from a health risk perspective. The burial site will be sampled for Appendix IX metals and lithium according to the SAP.

**SWMU #17/04 - PCB Capacitors Burial/Pole Yard.** Potential contaminant exposure will be to polychlorinated biphenyls (PCBs) found in the soil. Possible types of PCBs include Aroclor 1242, 1254, or 1260. The burial site will be sampled for Appendix IX metals and PCBs.

### 1.3 REFERENCES

American Conference of Governmental Industrial Hygienists (ACGIH), 1993-1994. *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices*. Second Printing.

Halliburton NUS, 1992. *RCRA Facility Investigation Phase I EMR SWMU 15/06, 14/00 and 16/16*. NSWC Crane, Indiana. November.

Morrison Knudsen Corporation (MK), 1994b. *Accident Prevention Plan For Naval Facilities Engineering Command Southern Division*. Rev. 0. Prepared by MK under Contract N62467-93-D-1106, dated May 20, 1994.

National Institute for Occupational Safety and Health (NIOSH), 1990. *Pocket Guide to Chemical Hazards*.

Naval Energy and Environmental Support Activity (NEESA), 1983. *Initial Assessment Study of NSWC, Indiana*. NEESA 13-0003 NSWC Crane, Indiana. May.

NIOSH/OSHA/USCG/EPA, 1985. *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*. DHHS (NIOSH) Publication No. 85-115. October.

OSHA, 1993. *Limits for Air Contaminants*, Title 29 CFR Part 1910 Section 1000, Table Z-1, July 1, 1993 revision.

U.S. Army Corps of Engineers (ACOE), 1992. *Safety and Health Requirements Manual*. EM 385-1-1. October.

### **Supporting MK References**

MK, 1989. *Safety Manual*. MK-Ferguson Group. January 27.

MK, 1994a. *Industrial Hygiene Procedures Manual*. Rev. 0. EC&E Group. April.

MK, 1994c. *Safety and Health Program Description for Hazardous Waste Operations*. Rev. 1. September.

MK, 1994d. NAVFAC SouthDiv Project Procedures:

*PHSP 001.1, Hazardous Energy Control (Lockout/Tagout)*, 11/4/94.

*PHSP 002.1, Emergency Response*, 11/4/94.

*PHSP 003.1, Spill Response*, 11/4/94.

*PHSP 005.1, Excavations*, 11/4/94.

## 2.0 SAFETY AND HEALTH HAZARDS SUMMARY

This section describes the potential safety and health hazards anticipated for SWMUs #14/00 and #17/04.

### 2.1 OVERVIEW

During interim cleanup activities, the potential risk of acute exposure to the chemical contaminants listed in Table 2 is considered low. Engineering controls, administrative controls, and personal protective equipment (PPE) requirements shall be strictly followed to reduce the risk of exposure. Workers must be alert to unexpected objects and unknown substances encountered during the excavations, and the potential for damaged batteries and/or capacitors. Identification and confirmation of the uncovered object or substance will be done before further cleanup continues. Methods of identification and confirmation will be by visual inspection and/or analytical testing.

Other safety and health hazards include physical hazards, noise, adverse weather stress, open excavations, overhead power lines, underground utilities, fire and explosion, hazardous energy control, general safety items, vehicular traffic and site control, and clearing and grubbing activities. Each of these hazards is discussed further in Section 2.4.

### 2.2 ACTIVITY HAZARD ANALYSES

Activity hazard analyses have been prepared for each anticipated task according to EM 385-1-1 (ACOE 1992). These hazard analyses are found in Appendix A. Site activity will be reviewed by the attending superintendent prior to the start of work to determine if the prepared activity hazard analysis adequately addresses the planned work task. If the activity hazard analysis is inadequate, further analysis will be performed, and a revised activity hazard analysis will be prepared. Site workers will receive a pre-entry briefing.

### 2.3 CHEMICAL HAZARDS

The potential chemical contaminants, their exposure limits, sign and symptoms of overexposure, and first aid requirements are presented in Table 2.

### 2.4 CONSTRUCTION SAFETY HAZARDS

#### 2.4.1 Physical Hazards

Physical hazards associated with the project include the use of heavy equipment such as dump trucks, backhoes and excavators; tripping and slipping from walking and working surfaces; and the improper slinging and rigging of the batteries and/or

capacitors. Project personnel will receive site-specific and safety training, discussed later, to orient them to these potential hazards.

### **2.4.2 Noise**

Certain operations may generate noise levels that exceed applicable limits. Hearing protection is required when noise levels exceed 85 dBA steady state or 140 dBA impulse, despite the duration of exposure. Hearing protection will be provided to all field personnel. A comprehensive Hearing Conservation Program will be implemented when noise levels equal or exceed 85 dBA on an 8-hour time weighted average.

### **2.4.3 Adverse Weather Stress**

All employees are to be alert to the signs and symptoms of heat stress. Should any of the following symptoms occur—extreme fatigue, cramps, dizziness, headache, nausea, profuse sweating, pale clammy skin—the employee is to immediately leave the work area, rest, cool off, and drink plenty of cool water. If the symptoms do not subside after a reasonable rest period, the employee shall notify his or her supervisor and the Site Safety and Health Officer (SSHO) to seek medical assistance. The SSHO will observe for the signs of heat stress in site personnel and increase the frequency of breaks and fluid consumption as necessary. Refer to Section 7.2.6 for additional guidance on heat and cold stress management.

### **2.4.4 Excavations**

Open excavations, by their nature, are hazards. Accidental falls into the excavation or side wall collapse while personnel and equipment are near the excavation are potential hazards. Refer to MK project procedure PHSP 005.1 for specific excavation requirements.

An Excavation and Trenching Permit system shall be used whenever excavation, trenching, or penetrations are planned. Figure 1 depicts the MK Excavation and Trenching Permit.

### **2.4.5 Overhead Power Lines**

Overhead high voltage power lines represent an electrocution hazard. Work conducted in proximity of overhead power lines will be performed in accordance with the requirements in EM 385-1-1, Section 11.E.

### **2.4.6 Underground Utilities**

Underground utilities pose hazards such as fire and/or explosion from gaslines, electrocution from power lines, and excavation collapsing and/or filling from water lines. Positive identification of underground utilities and services is required. Underground utilities will be located in accordance with MK procedure PHSP 005.1. If hazardous

energy control is anticipated for underground utilities, the requirements of MK procedure PHSP 001.1 shall be followed.

#### **2.4.7 Fire and Explosion**

No hot work or open flames will be allowed in the work area without a Hot Work Permit. The MK Hot Work Permit is depicted in Figure 2. Hot Work Permitting will be coordinated through the base Fire Department. If fire or explosion hazards exist, all tools will be of the non-sparking type. Electrical pumps and blowers will be bonded or grounded to reduce hazards associated with static discharge. Portable power tools shall be explosion proof in accordance with the National Fire Protection Association (NFPA) 70B and 70E, Class 1, Division 1, Group D or unless approved otherwise.

Fire fighting equipment shall include at least one 40-lb or equivalent "ABC" multi-purpose fire extinguisher maintained at the entrance to the Contamination Reduction Zone (CRZ). All heavy equipment will be fitted with a minimum 10-lb "ABC" fire extinguisher. Job site trailers and temporary structures will have fire extinguishers installed in accordance with NFPA 10.

#### **2.4.8 Hazardous Energy Control (Lockout/Tagout)**

Any system with the potential for unexpected energizing, start-up, or release of potential or kinetic energy during the servicing and maintenance of the system shall be isolated in accordance with MK procedure PHSP 001.1. The Superintendent is responsible for energy control. The on-site Public Works Department (PWD) will provide energy control services. MK will coordinate these services.

#### **2.4.9 General Safety Hazards**

Other potential safety hazards include slipping, falling, head trauma, back strains from lifting heavy objects, insect and snake bites, and similar hazards. All project personnel will wear appropriate PPE for the required work activity. As a minimum, Level D protection (hard hats, steel-toed boots and eye protection) will be required in all work areas. First-aid facilities will be available on-site for minor injuries. Local emergency response organizations will be notified of work activities to deal with emergencies.

#### **2.4.10 Vehicular Traffic and Work Site Control Hazards**

Potential hazards from vehicular traffic around work areas will be controlled by using traffic control items such as traffic cones, flagging, barricades, and signage. Types and placement of traffic control items will be in accordance with EM 385-1-1, Section 8 and 29 CFR 1926.201 and 202.

#### **2.4.11 Clearing and Grubbing**

Clearing and grubbing of work sites will be completed in accordance with EM 385-1-1 Section 31.

#### **2.4.12 Access and Haul Roads**

If special access and haul roads are required and constructed for this project, they will be constructed in accordance with EM 385-1-1 Section 21.I.

## **3.0 RESPONSIBILITIES AND AUTHORITIES SUMMARY**

This section describes the safety and health responsibilities of project personnel. Ultimately, the responsibility for the safety and health lies with the individual. All personnel must be aware of project hazards and the methods of reducing the risk of injury and illness. All personnel will comply with the rules and procedures set forth in this plan and will make project management aware of any conditions that may jeopardize the welfare of project workers and/or the public. Names and telephone numbers of responsible persons are listed in Table 3.

### **3.1 PROJECT MANAGER**

The Project Manager (PM) is responsible for managing all aspects of the project, including safety and health. The PM is responsible for ensuring all project tasks receive appropriate safety and health review and that the necessary equipment and facilities are available to implement the SSHP before commencement of field activities.

### **3.2 SUPERINTENDENT**

The Superintendent is responsible for ensuring that the safety and health aspects for their particular task are addressed. He is responsible for implementing the SSHP in the field and for ensuring that all project personnel comply with provisions of the plan. The Superintendent is also responsible for notifying the SSHO of any changes in work conditions that may affect the safety and health aspects of the task. The Subcontractor Superintendent or designated supervisor is responsible for conducting Plan-of-the-Day meetings, pre-entry and post-entry job briefings, weekly safety meetings, and conducting or ensuring that other training is completed.

The Superintendent must notify the SSHO of all accidents as soon as practical and shall conduct an accident investigation for each accident and record the results of the investigation on a Supervisor Accident Investigation Report form or equivalent form.

### **3.3 CERTIFIED INDUSTRIAL HYGIENIST**

The Certified Industrial Hygienist (CIH) is responsible for preparing the SSHP. The CIH is also responsible for modifying the SSHP and recommending changes to the work tasks if they affect safety and health. The CIH is responsible for ensuring that all required sampling/monitoring is performed and that all required safety and health documentation is maintained. The CIH may assign some job tasks to the SSHO.

### **3.4 SITE SAFETY AND HEALTH OFFICER**

The SSHO is responsible for the day-to-day implementation of the SSHP and verification of compliance with the SSHP and all applicable occupational safety and

health rules and regulations. The SSHO has the authority to suspend work any time if there is an imminent threat to the health and safety of project workers or the public. The SSHO will ensure that the Navy's designated on-site authority is notified immediately of any accident including spills. The SSHO will assist in the accident investigation effort and shall have final approval authority for accident reports.

### **3.5 SUBCONTRACTORS**

All subcontractors are required to abide by the requirements of this SSHP. They are also required to comply with all applicable and appropriate federal, state, and local laws, standards, and regulations. Subcontractors must notify the SSHO of all accidents as soon as practical. Subcontractors must maintain records of all first aid recordable and lost time injuries, and notify the SSHO of any changes in work conditions that may affect the safety and health aspects of the task.

### **3.6 NEAREST EMERGENCY MEDICAL FACILITY**

#### **Directions to the On-Site NSWC Medical Department:**

The NSWC Fire Department coordinates the on-site ambulance service. The Medical Department is located in Building 12, off of road H-2, just north of H-5.

#### **Directions to Bedford Medical Center:**

From the Bloomington Gate, head east on Highway 58 to the city of Bedford, then turn left onto 16th Street. The distance to hospital is approximately 20 miles.

#### **Directions to Bloomington Hospital:**

Exit NSWC on road H5-45 through the Bloomington Gate, then follow Highway 45 North to Bloomington. At the intersection of Highway 45 and Highway 37, continue straight ahead over the bypass (Bloomfield Road), and follow Bloomfield Road north until it becomes 2nd Street. Continue on 2nd Street, and the hospital will be on right-hand side of the road.

**Note: Refer also to Table 3 and Figure 3.**

## 4.0 TRAINING REQUIREMENTS SUMMARY

This section summarizes training requirements for project personnel.

### 4.1 HAZARDOUS WASTE OPERATIONS INITIAL TRAINING

All personnel entering a contamination reduction zone or exclusion zone shall have completed the initial 40-Hour Hazardous Waste Operations Safety and Health Training and three days of supervised experience pursuant to 29 CFR 1910.120(e)(3).

### 4.2 HAZARDOUS WASTE OPERATIONS ANNUAL REFRESHER TRAINING

All personnel shall receive eight hours of refresher training annually, pursuant to 29 CFR 1910.120(e)(8), as necessary.

### 4.3 HAZARDOUS WASTE OPERATIONS SUPERVISOR/MANAGER TRAINING

All on-site supervisors and managers, and subcontractor superintendents and supervisors shall receive an additional eight hours of specialized training pursuant to 29 CFR 1910.120(e)(4).

### 4.4 SITE-SPECIFIC TRAINING

All personnel shall receive site-specific training before entering the site or commencement of work. All site employees and subcontractors, including those working in the support zone, shall receive this training. The SSHO is responsible for this training. Site visitors shall receive site-specific training before entering an exclusion zone. This training will cover the SSHP and will include, but not necessarily be limited to, the following topics:

- Names of site safety and health personnel.
- Safety, health, and other hazards present on the site.
- PPE requirements.
- Safe work practices.
- Engineering controls.
- Medical surveillance requirements including recognition or symptoms, and signs that might suggest overexposure to hazards.
- Decontamination procedures.
- Emergency procedures.
- Spill containment plan.
- Confined Space Entry.
- Hazardous Energy Control.
- Requirements of this SSHP.

#### **4.5 SAFETY MEETING**

A safety meeting for all employees and subcontractors shall be conducted by the SSHO at project kickoff and before each change in operation. A safety meeting for all MK and Subcontractor Supervisors shall be conducted at least once per month. The monthly meeting is chaired by the PM or Superintendent with assistance from the SSHO. This training shall be recorded and document the date, time, personnel attending, topics, and instructor. The Safety Meeting shall be recorded in project field log book or separately on the Meeting Signature Sheet (see Figure 4). This meeting is also discussed in Section 8.2.1.

#### **4.6 CONFINED SPACE ENTRY TRAINING**

Confined space entry is not anticipated on this project. However, if excavations are to be entered that are greater than 5 feet in depth, the excavation shall be treated as a permit confined space. The excavation can be downgraded to nonpermit confined space, if authorized, based on initial and periodic air monitoring and if engineering controls are in place to safeguard the excavation from collapse.

#### **4.7 RESPIRATORY PROTECTION**

All personnel required to use respiratory protection will be trained in respirator use, care, and maintenance pursuant to 29 CFR 1926.103 and 29 CFR 1910.134.

#### **4.8 HAZARD COMMUNICATION**

All personnel will complete hazard communication training pursuant to 29 CFR 1910.1200 and 29 CFR 1926.59 regarding all potentially hazardous chemicals to which they might be exposed.

#### **4.9 CPR/FIRST AID**

The SSHO and at least one other site worker at each work site shall be certified in basic first aid and CPR by the American Red Cross or equivalent organization.

#### **4.10 ASBESTOS TRAINING**

Not anticipated on this project.

#### **4.11 INORGANIC LEAD TRAINING**

Not anticipated on this project.

#### **4.12 CADMIUM TRAINING**

Not anticipated on this project.

#### **4.13 INORGANIC ARSENIC TRAINING**

Not anticipated on this project.

#### **4.14 SUBSTANCE-SPECIFIC TRAINING**

In the event that the OSHA regulations regarding other contaminants or hazards become applicable, substance-specific training pursuant to the subject regulation will be performed as appropriate for project personnel.

#### **4.15 DEPARTMENT OF TRANSPORTATION HAZARDOUS MATERIALS TRAINING**

All personnel required to classify, mark, select packaging, inspect, load, and transport hazardous materials must be trained to U.S. Department of Transportation (DOT) 49 CFR Part 172 Subpart H.

#### **4.16 PLAN-OF-THE-DAY MEETINGS**

Plan-of-the-Day Meetings shall be held at the beginning of each shift to review the planned work and any safety and quality concerns. The date, time, personnel attending, and meeting minutes shall be documented in project field log books or separately on a Meeting Signature Sheet, as shown on Figure 4. The Plan-of-the-Day meeting is also discussed in Section 8.2.1.

#### **4.17 PRE- AND POST-ENTRY BRIEFINGS**

Pre-entry briefings shall be held for employees prior to their initiating any new or differing site activities and at such other times as necessary. These briefings ensure employees are knowledgeable of the plan/activity, hazard analysis, and that the plan/activity and hazard analysis are being followed.

Post-entry briefings shall be held as needed to ensure changes in conditions or work methods are promptly reported and addressed. In addition, all incidents will be promptly evaluated. The results of these evaluations will be communicated to personnel in post-entry briefings and other meetings. Lessons learned from these evaluations shall be communicated to all affected personnel. Pre- and Post-Entry Briefings are also discussed in Section 8.6.

#### **4.18 RECORDKEEPING**

Written records of all required training and briefings shall be maintained on-site by the SSHO. These records shall be made available to U.S. Navy personnel upon request and will be included as part of the project Close-Out Report. Subcontractors to MK shall provide copies of training certification or a letter summarizing each employee training record to the PM or SSHO before mobilization activities on-site.

#### **4.19 TRAINING REQUIREMENTS MATRIX**

A training requirements matrix is shown in Table 4 herein.

## 5.0 MEDICAL SURVEILLANCE PROGRAM REQUIREMENTS

This section describes the medical surveillance program and requirements.

### 5.1 SUMMARY

All project personnel who work within the EZ for more than three days per month or are required to use respiratory protection within the EZ for any length of the time will participate in a medical surveillance program, as described in this section. Clean, new construction activities will not require participation in the medical surveillance program unless special tasks dictate, as determined by the SSHO.

The medical surveillance program consists of a baseline or initial examination, an annual medical examination, a termination examination, and episodic medical examinations as necessary. **Termination or exit physicals shall be required on this project.**

At a minimum, the content of the initial, annual, and termination examinations shall consist of the following medical tests and procedures (or as determined by the examining physician):

- Medical and occupation history.
- Complete physical examination.
- Pulmonary function test (FVC and FEV 1.0).
- Complete blood count.
- Audiometry.
- Complete urinalysis.
- SMAC-22 biochemical profiles.
- Resting electrocardiogram.
- Creatinine clearance.
- SGPT.
- Vision screen.
- Chest X-ray (PA) (at the direction of the examining physician).

An episodic examination will be required if any employee develops signs or symptoms related to the possible overexposure to hazardous substances or other health hazards, if the employee has been injured, or if the employee has been exposed above the permissible exposure limits or published exposure levels in an emergency. The scope of any episodic examination will be left to the discretion of the examining physician.

**A copy of the examining physician's written opinion about the employee's ability to perform work on this hazardous waste site and to use respiratory protection, and a statement that the physician has informed the employee of the results of**

**the examination shall be kept on-site. Subcontractors must provide this information to MK before site mobilization.**

The examining physician must be provided with the following information:

- Information on the employee's anticipated or measured exposure levels.
- PPE used or to be used.
- A description of the employee's duties as they relate to the employee's exposures.
- A copy of 29 CFR 1910.120 (optional).

## **5.2 DRUG ABUSE PREVENTION PROGRAM**

MK is committed to establishing and maintaining for all employees a safe and efficient work environment that is free from the effects of alcohol, illegal drugs, other controlled substances, and prohibited items. Refer to the Accident Prevention Plan (MK 1994b) for more details on the substance abuse program.

## **5.3 RECORDKEEPING**

Arrangements shall be made with the examining physician(s) or others to ensure long-term storage of medical records is in accordance with 29 CFR 1910.120. Statements by the examining physician(s) attesting to the medical qualification of individual workers shall be maintained at the project site. These statements must not contain the specific results of medical examinations or tests. These statements shall be made available to the SSHO or U.S. Navy personnel upon request.

## 6.0 PERSONAL PROTECTIVE EQUIPMENT

In addition to engineering controls and work practices, personal protective equipment (PPE) shall be used, as warranted, to protect personnel from exposure to contaminants that may be encountered during site activities. The following guidelines will be followed:

- Respirators and other PPE necessary to protect the health of employees will be provided by their employer.
- Only NIOSH/MSHA-approved respirators will be used.
- The respirator user's medical status will be reviewed prior to performing work that requires respirator use.
- Written standard operating procedures governing the use of respirators and other PPE, as warranted, will be provided.
- Respirators will be assigned to individual employees for their exclusive use and will be marked to indicate to whom the respirator is assigned for the duration of this scope of work.

Table 5 describes the basic levels (Level B, C, Modified D, and D) of PPE.

Table 6 lists the minimum PPE level required for each task or operation. If air sampling/monitoring indicates that modification to the protection level is warranted, the SSHO is empowered to authorize the modification based on the guidance provided in Table 7, Airborne Contaminant Response Criteria.

PPE will be maintained and stored according to the manufacturer's recommendation and good industrial hygiene practices. Personnel will inspect PPE before each use to ensure the PPE is clean and in good working order. Training will be provided to personnel concerning PPE inspection criteria.

Where needed, the SSHO will develop and review PPE donning and doffing procedures and train personnel on these procedures. The SSHO will also conduct evaluations of PPE effectiveness. Revisions in PPE selection and use will be made as warranted. Supervisors, in coordination with the SSHO, shall address medical considerations, including work limitations due to temperature extremes, when assigning PPE requirements to personnel.

## 7.0 MONITORING AND SAMPLING

Air monitoring refers to direct real-time reading of airborne concentrations, and air sampling refers to time-integrated air sampling (either personal or area samples). Monitoring and sampling will most likely only apply to biomix remediation facility start-up and operations.

### 7.1 GENERAL

This section describes the air sampling and air monitoring program performed to evaluate project worker exposure to potentially hazardous airborne materials and to evaluate off-site impacts. The air sampling/monitoring results will be used to:

- Assess worker exposure to potentially hazardous materials with respect to the Permissible Exposure Limit (PEL) for Air Contaminants (Title 29 Code of Federal Regulations, Part 1910.1000) or other published exposure levels.
- Assess the adequacy of engineering controls and respiratory protection.
- Delineate areas where controls or respiratory protection is needed.
- Establish work control zones.

### 7.2 MONITORING

#### 7.2.1 Volatile Organic Compounds

A direct-reading, real-time photo-ionization or flame-ionization detection instrument capable of detecting volatile organic compounds (VOCs) will be used whenever excavation and penetration in potentially contaminated areas occurs. Readings will be taken at locations that reflect approximate concentrations of organic vapors and gases in the breathing zone of excavation personnel. Results of the organic vapor and gas monitoring will be documented. If necessary, the level of PPE used by personnel will be modified. Table 7 describes the level of PPE to be used, based on the concentration of organic vapors and gases in the breathing zone of project personnel. The direct-reading real-time organic vapor and gas monitoring equipment will be "response checked" according to the manufacturer's instructions before use each day, and calibrated yearly by the manufacturer or other qualified personnel. Records of the response check, maintenance, and annual calibration will be maintained on-site.

Colorimetric indicator tubes (such as Dräger tubes) will be used at the SSHO's discretion whenever the direct-reading real-time instrument measures breathing zone concentrations of organic gases or vapors at 2 parts per million (ppm) greater than

background concentrations. The following compounds may be measured by colorimetric indicator tubes: benzene, toluene, xylene, ethylbenzene, petroleum hydrocarbons (n-Octane), and trichloroethene (TCE). If benzene or other volatiles are detected, the level of PPE will be upgraded as specified in Table 7, or as determined by the SSHO.

### **7.2.2 Airborne Dust**

A direct-reading, real-time instrument capable of detecting airborne dust (such as MIE Miniram) may be used, based on visible observations of excessive dust. Readings will be taken at locations that reflect approximate concentrations of airborne dust in the breathing zone of project personnel. Results of the airborne dust monitoring will be documented. If necessary, the level of PPE used by personnel will be modified or engineering controls enhanced. The direct-reading, real-time monitoring equipment will be "response checked" according to the manufacturer's instructions before use each day, and calibrated by the manufacturer or other qualified personnel yearly. Records of the response check, maintenance, and annual calibration will be maintained on-site. When such monitoring is conducted and the results are greater than 10 mg/m<sup>3</sup> total dust concentrations, immediate steps will be taken to determine the cause, modify site operations, evacuate unprotected personnel and the public if necessary, and notify agency contact personnel.

### **7.2.3 Confined Space Monitoring**

Confined space entry is not anticipated for this project. However, if excavations are to be entered that are greater than 5 feet in depth, the excavation shall be treated as a permit confined space. The excavation can be downgraded to nonpermit confined space based on initial and periodic air monitoring and if engineering controls are in place to safeguard the excavation from collapse. Real-time air monitoring shall be conducted for percent lower explosive limit (LEL), oxygen (O<sub>2</sub>), and hydrogen sulfide (H<sub>2</sub>S).

### **7.2.4 Perimeter Monitoring**

Perimeter monitoring to evaluate emissions of VOCs is not anticipated for this project.

Perimeter monitoring to evaluate emissions of airborne dust may be performed periodically during soil excavation. When such monitoring is conducted and results are greater than 1.0 mg/m<sup>3</sup> (10 times less than the TLV-TWA listed in Section 7.2.2), immediate steps will be taken to determine the cause, modify site operations, evacuate unprotected personnel and the public if necessary, and notify agency contact personnel.

### **7.2.5 Noise Monitoring**

Noise monitoring will be performed, as warranted, at the initiation of each task or operation to determine the sound levels associated with the particular task or operation.

Sound levels will be determined at locations that best approximate the sound levels at the ear of potentially affected personnel. Noise monitoring equipment will be "response checked" according to the manufacturer's instructions prior to use each day, and calibrated by the manufacturer or other qualified personnel yearly. Records of the response check, maintenance, and annual calibration will be maintained on-site.

### **7.2.6 Heat Stress and Cold Stress Monitoring**

When temperatures at the site are above 65°F, the wet bulb globe temperature (WBGT) may be monitored to assess the potential for heat stress. Work/rest periods will be adjusted according to the guidelines stated in the current edition of *ACGIH Threshold Limit Values for Chemical Substances and Physical Agents*<sup>5</sup>. When the clothing worn differs from the ACGIH standard ensemble, such as with workers wearing semipermeable or impermeable, the guidelines established in the NIOSH/OSHA/USCG/EPA, *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, Section 8 (NIOSH and others 1985) should be consulted. Section 8 of this document is summarized as follows:

When employees are required to wear impermeable chemical protective clothing in temperatures exceeding 70°F, employees shall use the "buddy system" to monitor each other's pulse rate at the start of each rest period. If the pulse rate exceeds 110 beats per minute, the next work period shall be shortened by one-third without shortening the rest period. The pulse rate shall be monitored again at the beginning of the next rest period, and if the pulse rate exceeds 110 beats per minute, the work period shall again be shortened by one-third. No employee shall be allowed to continue working in PPE if his or her pulse rate exceeds 110 beats per minute continuously.

Table 8 (reprinted from the *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*) can be used to establish work/rest periods and the frequency of monitoring pulse rates.

Guidelines for the prevention of cold stress and cold stress threshold limit values (TLVs) shall follow the guidelines stated in EM-381-1-1 Section 06.J and the current edition of *ACGIH Threshold Limit Values for Chemical Substances and Physical Agents* (OSHA 1993). At air temperatures below 45°F, the air temperature shall be monitored. Below 30°F, the temperature and wind speed shall be monitored and the equivalent chill temperature calculated. Clothing requirements are listed in paragraph 06.J.09, Section 06.J of EM 385-1-1.

### **7.2.7 Carbon Dioxide Monitoring**

Carbon dioxide monitoring is not anticipated to be necessary for this project.

## **7.3 AIR SAMPLING**

### **7.3.1 Organic Compounds**

Time-integrated air sampling for aromatic hydrocarbons will be performed whenever the real-time monitoring measures concentrations exceeding 5 ppm for organic gases or vapors for more than 5 consecutive minutes. Samples will be taken with personal air sampling pumps from the personal breathing zone. Time-integrated air samples will be collected and analyzed at the SSHP's discretion for aromatic hydrocarbons. The air samples will be collected and analyzed in accordance with NIOSH Method 1501 or equivalent method. The air sampling pump will be calibrated before and after sample collection. Passive dosimeters may be used in place of air sampling pumps. Analysis of all air samples will be performed by an American Industrial Hygiene Association (AIHA) accredited laboratory.

No samples are anticipated as necessary for organic compounds.

### **7.3.2 Inorganic Lead**

No samples are anticipated as necessary for inorganic lead compounds.

### **7.3.3 Welding/Cutting Fumes**

No samples are anticipated as necessary for welding/cutting fumes.

### **7.3.4 Asbestos**

No samples are anticipated as necessary for asbestos fibers.

### **7.3.5 Cadmium**

No samples are anticipated as necessary for cadmium compounds.

### **7.3.6 Inorganic Arsenic**

No samples are anticipated as necessary for inorganic arsenic compounds.

### **7.3.7 Explosives Residues**

No samples are anticipated as necessary for explosive compounds.

### **7.3.8 Biological Hazards**

No samples are anticipated as necessary for biological agents.

### **7.3.9 PCB Hazards**

Air monitoring samples for PCBs are not anticipated. However, if soil significantly contaminated with PCB oil is encountered, then two personal samples shall be collected using the maximum exposed individual(s) in accordance with NIOSH Method 5503. The samples will be collected during the follow-on soil removal activities if any person(s) will be within 15 feet of the soil movement.

### **7.4 AIR MONITORING AND SAMPLING REQUIREMENTS**

Air monitoring and sampling requirements are shown in Table 9.

### **7.5 RECORDKEEPING AND CHAIN OF CUSTODY**

Written records of all monitoring will be maintained on-site. Affected employees will be notified of monitoring results representative of their exposure. Chain-of-Custody (COC) Records will be used for industrial hygiene sampling requiring the collection and shipment of a sample to an approved analytical laboratory. A COC Record will be properly completed and accompany all collected samples in accordance with MK Industrial Hygiene Procedures Manual, Procedure 7.0, *Analytical Laboratory Procedures* (MK 1994a). The selected AIHA-accredited industrial hygiene lab will be American Analytical Laboratories, Inc., Akron, Ohio (216-535-1300) or a local laboratory if one is found. Turn-around time is estimated to be 5 to 10 working days.

Workers will be notified of time-integrated sampling results via memo to the designated supervisor. The Navy will receive all sampling records and results as part of the Close-Out Report.

## 8.0 SAFETY AND HEALTH WORK PRECAUTIONS AND PROCEDURES

Operations shall be conducted safely consistent with the policies and procedures outlined in this SSHP. Personnel shall be restricted to the minimum number necessary to complete the required work as an administrative control to limit personnel exposures to site chemical hazards.

### 8.1 GENERAL

All project and subcontractor personnel assigned to this project are responsible for following this SSHP, for using safe practices, and for wearing the PPE specified by the SSHP. Project personnel shall report hazards and unsafe conditions and practices to the SSHP. All federal, state, and local occupational health and safety regulations must be complied with by project personnel. Violations of project procedures may include disciplinary measures up to and including termination.

### 8.2 OPERATIONS SAFETY

Policies, procedures, requirements, and specific rules shall be established, as needed, to ensure the safety of workers during on-site operations.

#### 8.2.1 Safety Meetings

A safety meeting shall be held at project kickoff and before each change in operation. Plan-of-the-Day meetings are required along with Pre- and Post-Entry Briefings. Refer to Sections 4.4, 4.5, 4.16, 4.17 and 8.6.

#### 8.2.2 General Safety Rules and Procedures

General safety rules and procedures include the following:

- Have a 40-pound rated multipurpose dry chemical fire extinguisher, a first aid kit, eyewash station, and spill response equipment (if applicable) available at every controlled work location. Have the Work Zone Maps posted with pertinent information included and all signs posted.
- Avoid driving over dry grass that is higher than the ground clearance of the vehicle. Catalytic converters on the undercarriage of vehicles are sufficiently hot to ignite dry prairie grass. Never allow a vehicle with a warm undercarriage to sit in a stationary location over dry grass or other combustible materials.

- Do not eat, drink, smoke, take medications, chew gum or tobacco, apply cosmetics, or put objects in your mouth while in the exclusion zone or handling samples.
- When on-site or handling samples, thoroughly wash hands and, if necessary, face, before eating or putting anything in your mouth (to avoid hand-to-mouth contamination). A full body shower is required when specified in the SSHP.
- At a minimum, wear hard hats, safety glasses, and steel-toed and steel-shanked boots when inside the work boundaries.
- Remain a safe distance from excavation equipment when not involved in the operation or monitoring activities.
- Do not, under any circumstances, enter or ride-in or on any backhoe bucket, materials hoist, or any other similar device not specifically designed for carrying personnel.
- Remain aware of your own and other's positions with regard to rotating equipment and be extremely careful when assembling, lifting, and carrying items that may cause pinch point injuries and collisions.
- Be alert to the symptoms of fatigue, heat stress, and cold stress and their effect on the normal caution and judgment of personnel.
- Use explosion proof sampling equipment and tools when required.
- Use ground fault circuit interrupters (GFCI) with all electrical tools and equipment.
- Stand clear of trenches during excavation. Always approach the excavation from upwind.
- Stand upwind, whenever possible, of excavations and other sites where the soil has been disturbed.
- Be alert to potentially changing exposure conditions as evidence by perceptible odors, unusual appearance of excavated soils, oily sheen on water, or other evidence of possible contamination.
- Do not enter any excavation or trench greater than 5 feet in depth unless authorized by a competent person.
- Keep tools and equipment off the ground, whenever possible, to avoid tripping hazards and the spread of contamination.

- Always use the buddy system while operating in the site.
- Use the buddy system for all manual lifting.
- Minimize disturbance of all stabilized sites and areas beyond the work area boundaries.
- Cease all work operations on the site at sunset unless the work zones are adequately illuminated with artificial lighting.
- Attend the Plan-of-the-Day Meeting before the start of the work along with the Pre- and Post-Entry Briefings. All team personnel are required to attend.
- Avoid direct contact with contaminated materials unless necessary for sample collection or required observation. PPE shall be worn at all times, as required.
- Do not handle contaminated soil, waste samples, or any other potentially contaminated items unless wearing chemical resistant gloves.
- Remove disposable clothing properly and follow decontamination procedures.
- Always use an appropriate level of PPE as assigned in the site-specific procedures. Lesser levels of protection can result in otherwise preventable exposure. Excessive levels of safety equipment can impair efficiency and increase the potential for accidents.
- Maintain a high level of awareness of the limitations in mobility, dexterity, and visual impairment inherent in the use of Level B and Level C PPE.
- Establish prearranged hand signals or other means of emergency communication when wearing respiratory equipment, because this equipment seriously impairs speech communication.
- Wear hearing protection if you have to shout to communicate at a distance of 3 feet in steady-state (continuous) noise or when you expect loud impact noise from certain activities.

### **8.3 WORK SITE PRACTICES**

No worker may engage in any activity for which the health and safety consequences of their actions are unclear (for example, previously unplanned work) without the approval of the SSHO. If such activities become necessary to complete any phase of the work, a project instruction or procedure shall be developed and followed.

## **8.4 HAZARD COMMUNICATION**

Each subcontractor shall have a written Hazard Communication Program in accordance with OSHA's Hazard Communication Standard, 29 CFR 1910.1200 and applicable State Department of Health Regulations. Employers shall ensure that other employer(s) are notified of workplace hazards where the latter employers may come in contact with these hazards. Material Safety Data Sheets (MSDS) for all hazardous materials in the work area shall be readily available for employees to review. Refer to Section 4.8 for training requirement.

## **8.5 EXCAVATIONS**

Excavations shall be conducted in accordance with OSHA's Excavation Standard, 1926 Subpart P, and EM 385-1-1, October 1992, Section 25. A competent person must inspect and approve an excavation for personnel entry before each work shift or more often as conditions change. Refer to Section 2.4.4 for more details.

## **8.6 PRE-ENTRY BRIEFINGS**

Before initial entry into a CRZ or EZ, personnel must attend a Pre-Entry Briefing which reviews the requirements of this SSHP and site-specific requirements. A record of attendance at this briefing shall be maintained on the form shown as Figure 4. Additional Pre-Entry Briefings and safety meetings will be conducted if conditions change. The Pre-Entry Briefings are conducted by Subcontractor Supervisors. See Section 4.17 for training requirement.

**Note: Attendance at Post-Entry Briefings is not required to be separately documented. A log entry is satisfactory. Safety Meetings, Pre-Entry Briefings and Tool Box Safety Meetings are required to be formally documented using Figure 4 or equivalent.**

## **8.7 WORK SITE CONTROL**

During work activities, and during non-work periods as warranted, personnel responsible for the work shall maintain control of the work area. No unauthorized personnel shall be allowed to enter the work areas unless they meet the requirements of this SSHP and obtain the approval of the SSHO. Violations of the work control must be reported immediately to the SSHO.

## 9.0 WORK ZONES

Where a potential exists for worker exposure to hazardous substances, safety, or health hazards, work zones will be established, and the flow of personnel and equipment will be controlled. The establishment of work zones will ensure that personnel are properly protected against hazards present in the work area, work activities and contamination are confined to the appropriate areas, and personnel can be located and evacuated in an emergency.

**Before the commencement of field activities, work zones will be established by the Subcontractor Superintendent with the approval of SSHO as necessary to meet operational and safety objectives.** These work zones will be depicted on maps that are field prepared. The maps will be posted by the Subcontractor Superintendent near the entrance to the work area. In addition to the zones, these maps should show assembly points, evacuation routes, location of first aid equipment and fire extinguisher, and emergency communications equipment. One copy of the Work Zone Maps and all revisions will be retained by the SSHO to include in Appendix B of this SSHP.

### 9.1 EXCLUSION ZONE

The exclusion zone (EZ) is the area where hazardous substances are present or expected to occur, or health and safety hazards are present. Entry into this area is limited to personnel required to perform the work who are wearing the specified PPE and have attended a Pre-Entry Briefing. Everyone entering the EZ shall have completed the required health and safety training and will participate in the medical surveillance program as necessary. The boundary of the EZ will be determined for each activity and may change depending on activities and conditions.

An EZ will be established to encompass the contaminated area. For this project, the EZ for each soil excavation area will consist of the immediate area of excavation extending outward for approximately 20 feet. The EZ will include the excavated soil classified as potentially contaminated that may be stockpiled.

The EZ will be clearly delineated with signs, barricade tape, fences, or other suitable means. Access control points will be established to regulate the flow of personnel and equipment in an out of the zone and to help verify that proper procedures for entry and exit are followed. PPE levels in the EZ (refer to Section 7) are initially scoped as Level C, depending on the task listed in Table 6. Decontamination will follow guidelines established in Section 10. Gross contamination will be removed in the EZ followed by additional decontamination in the CRZ as discussed in Section 7.0 of the Work Plan. The SSHO will monitor activities in the EZ from his position in the CRZ. The boundary line from the EZ to the CRZ will be based on the following criteria:

1. Approximately 20 feet outward from contaminated work area, or as much as necessary, to include the heavy equipment operating in the zone and the temporary staging of any potentially contaminated soil.
2. Perimeter air monitoring for VOCs reads no increase in ppm-equivalents above background and the portable dust/aerosol monitor shows no increase in concentration above background. Background is considered the Support Zone (SZ) area.

## **9.2 CONTAMINATION REDUCTION ZONE**

The Contamination Reduction Zone (CRZ) is the transition area between the contaminated area (the EZ) and the clean area (the SZ). While designed primarily to reduce the possibility of the support zone becoming contaminated or affected by EZ activities, the CRZ is also used for decontamination of personnel and equipment. No personnel or equipment will be allowed to exit the EZ or CRZ without being properly decontaminated, except in emergencies. The CRZ is designated as the immediate area around the EZ, extending outward approximately 20 feet or as much as necessary, to accommodate the complete length of the longest piece of heavy equipment. Additionally, the immediate area extending outward for approximately 10 feet from the decontamination facility will be designated as the CRZ. The decontamination facility is discussed in Section 7.2 of the Work Plan.

Used PPE will be removed and stored in properly marked 55-gallon drums or other containers for disposal. Work clothing will also be removed and stored in lockers. Personnel washing and shower facilities will be provided. Construction and field equipment will be decontaminated following Work Plan Section 7.4; soil sampling equipment will be decontaminated in accordance with the SAP.

## **9.3 SUPPORT ZONE**

The support zone (SZ) consists of all areas outside the exclusion and contamination reduction zones, but within the project site. The SZ is used for all site activities that are not limited to the EZ or CRZ equipment and material storage, offices, parking, etc. Logs will be maintained of the Pre-Entry Briefing in the SZ to record the names, companies, and reason for entry into the CRZ or EZ. The SZ will also serve as the staging area for all activities.

## **9.4 WORK ZONE CONTROLS**

Before site operations begin, the SZ site office/decontamination facility will be identified with signs stating that all visitors are required to stop and inform site personnel of their presence on the work site.

Entrances to the CRZ and EZ will be conspicuously posted with signs stating the following:

HAZARDOUS AREA KEEP OUT  
DANGER  
AUTHORIZED PERSONNEL ONLY  
PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED IN THIS AREA

Post signs at the entrance to the CRZ before operations begin, stating:

NO SMOKING, DRINKING, OR EATING BEYOND THIS POINT

The following requirements will apply to all personnel entering the CRZ or EZ:

- The use of the "buddy system" is mandatory. No one will be allowed to work alone in the CRZ or EZ without permission from the SSHO.
- No smoking, eating, drinking, chewing tobacco or gum, or application of cosmetics within the CRZ or EZ.

The following traffic rules will apply to all motorized vehicles and equipment while on-site:

- Equipment carrying waste shall always have the right-of-way, except for emergency vehicles.
- The speed limit is 10 mph, or as posted. Exceeding the speed limit is cause for disciplinary action, including termination of employment.
- Personnel will not ride equipment that has not been specifically designed for the transport of personnel.

## 10.0 PERSONNEL AND EQUIPMENT DECONTAMINATION AND HYGIENE PROCEDURES

All personnel, clothing and equipment leaving an EZ shall be inspected and, if necessary, decontaminated to remove any potentially harmful substances that may have adhered to them. Some equipment/clothing may be disposed of rather than decontaminated. In this case, the used PPE and/or equipment (such as disposable sampling equipment) will be stored in properly marked, plastic-lined 55-gallon drums in the CRZ, followed by transport to a local landfill. A Decontamination Facility will be constructed for personnel and equipment decontamination (refer to Section 7.2 in the Work Plan). Refer also to Work Plan Section 7.3 for personnel decontamination, Section 7.4 for equipment decontamination, and Section 7.5 for sampling equipment decontamination. This section gives guidelines for performing the decontamination procedures. Final details will be described during the site-specific safety and health briefing prior to commencing field operations when all equipment is procured, tested, and in place.

### 10.1 PERSONNEL DECONTAMINATION

Decontamination (decon) stations will be established in the CRZ. The decon stations will consist of the following, as appropriate:

- Equipment drop.
- Portable High-Energy Particulate Air (HEPA) vacuum for vacuuming PPE before removal.
- Boot wash station consisting of a tub of water, detergent with brushes for cleaning, and another tub of water for rinsing.
- Glove wash station similar to boot wash station.
- Sampling equipment wash station (similar to boot wash station).
- Disposable clothing drop and work clothing drop. All contaminated or potentially contaminated disposable clothing shall be placed into labeled 6-mil plastic bags for disposal as contaminated waste. Work clothing will be required to be placed into labeled 6-mil plastic bags for laundry servicing if potentially contaminated as a result of ripped or torn disposable clothing or other abnormal conditions.
- Personal showers and washing facilities will consist of water, towels, and soap. Street clothing shall be stored in lockers provided in the personnel decon facility "clean side."

## **10.2 EQUIPMENT DECONTAMINATION**

All equipment and tools used in the EZ will be inspected for contamination before removal from the EZ. Any equipment and tool with visible contamination will be cleaned before removal from the EZ. A water and detergent solution will be used for highly contaminated equipment, followed by a high-pressure hot water rinse, if necessary. All water used during decontamination will be contained for treatment and/or disposal. Some construction and field equipment will be decontaminated at the temporary decontamination facility. After gross contamination is removed, affected surfaces of the equipment will be wrapped in plastic and transported.

## **10.3 WASHING FACILITIES**

A washing facility may or may not be available in the SZ. The washing facility will consist of water, soap, and towels for personnel, as necessary. If a washing facility is not available, SZ personnel will be allowed to use the washing facilities in the CRZ.

## **10.4 DECONTAMINATION WASH WATER**

Personnel decon stations, equipment decon areas, and washing facilities will be designed to collect all wash and rinse waters into 55-gallon drums or a larger temporary storage container. The tank, if used, will be of sufficient volume to allow for collection and temporary storage of decontamination water and rinse water from the CRZ and vehicle decontamination. Decontamination water will be disposed of via the on-site sewage treatment facility or shipped off-site for disposal.

## **10.5 PERSONAL HYGIENE**

Eating, drinking, and the use of tobacco or cosmetic products are prohibited in the CRZ and EZ. Personnel exiting the controlled areas are required to thoroughly wash their hands and face before eating, drinking, smoking, or using toilet facilities.

## **11.0 ON-SITE FIRST AID AND EQUIPMENT**

This section describes first-aid and equipment requirements.

### **11.1 FIRST-AID AND CPR TRAINING**

At least two employees on each shift shall be certified to administer first aid and CPR. Individuals required to work alone in remote areas shall be trained in first aid. At a minimum, the SSHO will be first-aid and CPR certified. Each subcontractor must have at least one first-aid and CPR certified individual on-site when the subcontractor is at work.

### **11.2 FIRST AID AND MEDICAL FACILITY REQUIREMENTS**

A 16-unit first-aid kit, at a minimum, shall be maintained at the work site. The location of the first aid kit shall be communicated to project personnel as part of the Pre-Entry Briefing and site-specific training. Included with the first-aid kit shall be a CPR kit for control of biohazards. A separate eyewash kit shall also be available at each work station. The phone numbers and locations of emergency contacts and medical facilities shall be posted in the office trailers and at entry to the control zones. The Work Zone Map must also be posted at each controlled work area. The locations and phone numbers of emergency contacts for each facility are listed in Table 3.

### **11.3 REPORT OF FIRST AID CASES**

All first aid cases, accidents, and incidents shall be promptly reported to the SSHO. The SSHO shall immediately notify the NSWC Site Representative of all injuries, even if only preliminary information is available.

The MK Project Management Office (PMO) should be notified shortly after notification to the NSWC Site Representative. If the NSWC Site Representative cannot be reached, the PMO still should be promptly notified.

A written report of the injury must be provided to the NSWC Site Representative and PMO within 24 hours of the incident. This report is to include:

1. Employers' First Report of Injury (Workman's Compensation Insurance Form)
2. Supervisor's Accident Investigation Report (MK Form CAS 24/77)
3. Accident Data Report (MK Form 6783/91).

4. Any records provided by the Medical Service Provider such as (1) Hospital Emergency Room Reports, (2) Examining Physician's designation of work restriction, and (3) Examining Physician's Work Release.

## 12.0 EMERGENCY RESPONSE PLANS AND CONTINGENCY PROCEDURES

This section describes a contingency plan to be implemented in the event of injuries, illnesses, accidents, and fires. The contingency plan provides guidelines for the proper response to emergencies, but the actual response will depend on the situation.

### 12.1 GENERAL

In the event of an emergency, the SSHO will direct all personnel to take appropriate action which could include any or all of the following:

- Evacuate the work zone to a safe place of refuge.
- Notify emergency services as identified in Table 3.
- Initiate emergency response action and notify emergency services.

### 12.2 PRE-EMERGENCY PLANNING

During mobilization activities for this project, the PM, Project Superintendents and the SSHO shall review the NAVFAC SouthDiv Emergency Response Procedure PHSP 002.1. Following review, they shall execute the steps necessary to ensure effective emergency response requirements and resources are established for this project.

In addition to the guidance provided in this document, emergency response preplanning specific to each task and work site will be included in the project kickoff meeting, any task-specific safety meetings, Pre-Entry Briefings, and construction toolbox meetings. This training will include:

- **Assembly Points.** If the work activity may result in a release of hazardous substances, more than one assembly point will be specified to ensure that at least one upwind assembly point is accessible. This also pertains to fires and sites subject to adverse weather conditions. Information must be included on the Work Zone Maps.
- **Emergency Response Coordinator.** The SSHO, as the on-site emergency response coordinator, will contact the emergency response providers, account for individuals at the assembly point, and plan the appropriate response.
- **Evacuation Routes.** Routes will be specified as needed. Information must be included on the Work Zone Maps.

- Means of Evacuation. The number of personnel that may be evacuated from the work site by various routes will be evaluated by the SSHO.
- Means of Communication. This will include the means of alerting personnel to an emergency at all points in the work site. Communication procedures should consider the sound screening potential of hearing protection, distance, and noisy equipment when specifying the use of alarms, horns and sirens. The means of communication with emergency response providers will be considered. Information must be included on the Work Zone Maps.
- Designation of a location for first aid services, fire extinguisher(s) and spill control equipment. Information must be included on the Work Zone Maps.
- Procedures to be followed by employees who remain to operate critical operations to ensure safe shutdown.

Emergency response providers (ambulance, fire, police) will be informed of their responsibilities under this SSHP by the SSHO. Providers will be given advance information, as necessary, to enable them to respond to an emergency expeditiously, while minimizing risk to themselves.

### **12.3 RESPONSIBILITIES**

Following is a description of personnel roles, lines of authority, and the emergency response communication/notification responsibilities for site personnel.

#### **12.3.1 Site Personnel**

All site personnel are responsible for recognizing conditions that have the potential for resulting in a personal injury or damage to property and to report the condition immediately to their supervisor or the SSHO.

#### **12.3.2 Project Manager**

The Project Manager is responsible for ensuring adherence to the administrative elements and achievement of the Emergency Response Plan, as referenced in this document. He will evaluate the site's preparedness for emergency responses and identify special conditions that may require additional preparations. He will ensure that necessary equipment and facilities are provided to support this plan.

### **12.3.3 Certified Industrial Hygienist**

The Certified Industrial Hygienist (CIH) is responsible for preparing the Emergency Response Plan (typically this section of the SSHP). The CIH will develop and review the Emergency Response Plan, evacuation plans, and oversee implementation at the site. The CIH will ensure that supervisors and employees meet the training requirements of the plan and approve the equipment used in the plan. The CIH may designate on-site duties to the SSHO.

### **12.3.4 Site Safety and Health Officer**

The SSHO is responsible for directing response actions in emergencies. The SSHO coordinate with project management to ensure the availability of response equipment and supplies and will initiate drills. The SSHO will evaluate emergency response plans over the course of the project to keep them up-to-date and to ensure that they are applicable and relevant to emergency response organizations.

### **12.3.5 Subcontractors**

All subcontractor personnel will comply with the provisions of this plan and participate in training as required to implement response procedures. All personnel will be aware of their work areas and notify supervisors of hazards at the site.

## **12.4 EMERGENCY RECOGNITION AND PREVENTION**

Site personnel shall be informed of hazards and life-threatening emergencies during site-specific training to include the project kickoff meeting, safety meetings, and briefs. Means to control hazards and mitigate emergencies will be addressed then.

## **12.5 SAFETY ZONES**

Suitable assembly points will be established at the start of the project by the SSHO to provide a safe point of refuge for site personnel. Additional information concerning other potential site hazards will be provided in the site briefing. Safety Zones or assembly points must be included on the Work Zone Maps.

## **12.6 SITE SECURITY AND CONTROL**

Base personnel shall always be informed of any emergency, and only authorized personnel shall be allowed into the area. As necessary, areas may be cordoned off and access restricted.

## **12.7 EVACUATION ROUTES**

Evacuation routes will be established based on scope of work, location of work, and atmospheric conditions. Evacuation routes shall be posted in various locations on

the site, if necessary, and included on the Work Zone Maps. All site personnel will be informed of evacuation procedures during site-specific training, especially Pre-Entry Briefings.

## **12.8 EMERGENCY DECONTAMINATION**

In the event an employee is injured or becomes ill and requires hospital treatment, the extent of decontamination depends on the severity of the injury or illness and the time delay that decontamination may cause. If the employee has any signs of contamination, the ambulance and hospital staff will be informed of this and the nature of the contamination. The NSWCrane Fire Department can provide gross decontamination before treatment and transport by the Ambulance Service. Reasonable effort will be expended to decontaminate the victim prior to removal from the site. The medical facilities will be informed of the intended scope of work and the potential for contaminated personnel. The medical facilities will receive copies of all the MSDSs and/or NIOSH Pocket Guides applicable to this project. The SSHO will visit each medical facility and provide the necessary information.

## **12.9 EMERGENCY MEDICAL TREATMENT AND FIRST AID**

See Section 11.0 of this plan.

## **12.10 COMMUNICATIONS**

The SSHO and the Construction Superintendent(s) shall be equipped with two-way radios for on-site communications, as warranted. Cellular telephones, if necessary, will be used for additional communications with outside emergency services. Two-way radios and cellular telephones are to be used only for emergencies. The job supervisor(s), with concurrence from the SSHO, will establish the requirements for radios and/or cellular telephones.

## **12.11 CRITIQUE OF RESPONSE AND FOLLOW-UP**

All drills, exercises, and actual emergencies shall be critiqued, and follow-up corrective actions shall be implemented, as needed.

## **12.12 PPE AND EMERGENCY EQUIPMENT**

Site personnel performing a rescue or responding to a spill must have an understanding of the potential hazards involved and wear the appropriate PPE.

Portable fire extinguishers will be used for fire protection in all work and storage areas. Portable fire extinguishers using dry chemical materials must be used in areas where flammable/combustible liquids or gases are stored or used. Portable emergency eyewash kits shall be available at each work site. Where necessary, emergency containment equipment for spills shall be available at each work site.

## **12.13 SITE TOPOGRAPHY, LAYOUT AND PREVAILING WIND CONDITIONS**

Topography, layout, and prevailing wind conditions shall be considered in establishing evacuations routes and assembly points.

## **12.14 INITIAL REPORTING AND MANAGEMENT OF INCIDENTS**

All emergencies will be promptly reported to the Emergency Response Number (X3300), the Environmental Department (X1132, X3114, or X6160), and to the SSHO. The SSHO will ensure that the NSWC Site Representative is notified promptly and will direct initial emergency response actions until the arrival of the NSWC Site Representative. The NSWC Site Representative can include the officer in charge of security, fire department and/or ambulance services, or the Environmental Protection Department Manager or designee.

The following initial response actions are to be taken by MK personnel and subcontractors at the work site for various types of incidents.

### **A. Incident Type: Fires in Vehicles and Mobile Equipment, Process Equipment, and Support Structures.**

Response Actions:

1. Notify the NSWC Crane Security Desk at extension 3300, and provide the following information:
  - a. The name and phone number of the person making the call.
  - b. The location of incident.
  - c. The type of incident.
  - d. Injured or trapped personnel and any potential material release.
2. SSHO or PM designates one person to meet the emergency response units at the nearest road where the units will be approaching.
3. SSHO or PM assumes initial command of the situation and directs personnel to do one of the following:
  - a. Emergency shutdown of process equipment or mobile equipment, evacuate the work zone or immediate area to a safe place of refuge, meet the incoming response units and provide all available information.
  - b. Initiate first fire attack and knockdown using available fire extinguishing equipment followed by evacuating the work zone or immediate area.

**B. Incident Type: Preparation for Adverse Weather Condition to Include High Winds, Tornado, Heavy Rains, Snow and Ice Conditions.**

Response Actions:

1. SSHO or PM notifies the NSWC Crane Security Desk at extension 3300 and provides the following information:
  - a. The name and phone number of the person making the call.
  - b. The location of the work site(s).
  - c. Preparation for adverse weather condition has begun.
  - d. Permanent structure location where personnel will be relocating to on Base.
2. SSHO or PM will direct personnel to shutdown operations, secure loose materials, and park and secure mobile equipment. Personnel shall be directed to report to a permanent building after completing decontamination procedures.
3. SSHO or PM will complete accountability and await clearance from Base Security to resume operations or other action.

**C. Incident Type: Medical and Rescue Emergencies.**

Response Actions:

1. Notify the NSWC Crane Security Desk at extension 3300 and provide the following information:
  - a. The name and phone number of the person making the call.
  - b. The location of incident.
  - c. The type of incident.
  - d. Injured or trapped personnel and any exposure to hazardous material.
2. SSHO or PM designates one person to meet the emergency response units at the nearest road where the units will be approaching.
3. SSHO or PM assumes initial command of the situation and completes or directs personnel to do one or both of the following:
  - a. Emergency shutdown of process equipment or mobile equipment and any other necessary action to mitigate or control the incident.
  - b. Initiate emergency first aid actions until arrival of emergency units.

#### **D. Incident Type: Spills or Releases of Hazardous Material**

Response will be conducted according to NAVSURFWARCENDIVINST 5090.5, Base Oil and Hazardous Substance Spill Contingency Plan.

Response Actions:

1. Notify the NSWC Crane Security Desk at extension 3300 and provide the following information:
  - a. The name and phone number of the person making the call.
  - b. The location of incident.
  - c. The type of incident.
  - d. Injured or trapped personnel and estimate of material released.
2. SSHO or PM designates one person to meet the emergency response units at the nearest road where the units will be approaching.
3. SSHO or PM assumes initial command of the situation and directs personnel to do one of the following:
  - a. Emergency shutdown of process equipment or mobile equipment, evacuate the work zone or immediate area to a safe place of refuge, meet the incoming response units and provide all available information.
  - b. Initiate first spill response using available spill response equipment only for small operational spills which personnel are trained to mitigate. Evacuate the work zone or immediate area if there are any health threats or risks to personnel.

**12.14.0.0.0.0.1.0**  
**LOGS, REPORTS, AND RECORDKEEPING**

**12.15 SAFETY AND HEALTH LOGBOOK**

The SSHO shall maintain a Project Safety and Health Logbook for the duration of site work activities. Information will be recorded daily on the form shown as Figure 6. The logbook will contain the following information:

- General weather conditions including approximate wind speed and direction, temperature, precipitation, and amount of sun.
- Monitoring/sampling conducted for the day, with results, as appropriate.
- Instrumentation used.
- Level of protection and any special considerations.
- Any problems or unusual situations during the day.
- Activities conducted throughout the day.
- Documentation of any correspondence.
- Number of employees in each area.
- SSHO's signature and date.

Additional records to be kept will include calibration data, instrument serial numbers, modifications to established safety and health procedures, and daily safety inspections. Visitors will be registered before entering the site. Records of training, site orientations, and briefings (including pre-entry) will be maintained.

**12.16 REPORTS**

A daily site safety and health inspection report shall be prepared by the SSHO. This report shall identify work activities, safety and health-related deficiencies, and corrective measures. At a minimum the checklist shown in Figure 7 shall be completed by the SSHO. Additional industrial hygiene and safety forms will be used, as necessary, such as with recording instrument calibrations, monitoring results, and air sampling data. All incidents that result in property damage, personnel injuries, or illness will be investigated and notification/reporting requirements met in accordance with standard MK policy and procedure.

## **12.17 RECORDKEEPING**

The SSHO shall maintain records of all injuries and illnesses for MK employees only incidental to the work following 29 CFR 1904, including copies of the Worker's Compensation First Report of Injury. The SSHO shall maintain records of all injuries and illnesses of subcontractors incidental to the work, including copies of the Worker's Compensation First Report of Injury. These records will be maintained on the OSHA 200 Log, or equivalent, and will include the number of exposure workhours documented on a MK Monthly Project Safety Report form. A record of all first aid treatments, not otherwise recordable, shall be maintained and furnished to the NSWC Site Representative upon request. The SSHO shall maintain records of employee exposure to potentially harmful toxic materials, harmful physical agents, and medical records in accordance with 29 CFR 1910.120. Workers will be notified of time-integrated sampling results via memo to the designated supervisor. The Navy will receive all sampling records and results as part of the Close-Out Report.

## **13.0 ON-SITE WORK PLANS**

A Site-Specific Work Plan was developed to define the work tasks and identify the work objectives. The means and personnel required to complete the task are identified along with consideration for methods, logistics, quality control/assurance and resources. This SSHP is a supplement to the Work Plan.

## **14.0 COMMUNICATION PROCEDURES**

This section describes communication procedures and equipment.

### **14.1 RADIO COMMUNICATION**

The SSHO and construction supervisors shall be equipped with two-way radios for on-site communications, as warranted by the number and proximity of work sites. Two-way radios will not be available from the base. MK will lease radios per requirements specified by the Security Chief. The SSHO will obtain information on radio unit designation and communication protocols and brief the construction supervisors. In certain areas, two-way radio communication is restricted due to explosive operations.

### **14.2 TELEPHONE**

If not restricted by explosive operations, a cellular telephone shall be available for emergency communications if no other telephone is readily available. At each job location, the Supervisor is responsible for verifying the location of the nearest telephone and informing the workers at the Pre-Entry Briefing.

### **14.3 EMERGENCY ALARM**

An emergency alarm, such as an air horn, shall be available at each major work site to warn personnel of an emergency. Personnel shall be trained on actions they are to take if the alarm is sounded to include evacuation routes and assembly points. During this project, use of audible alarm may not be necessary and voice contact should be sufficient for emergency annunciation. The SSHO will make this decision. The buddy system shall be used always while operating at this project. The job supervisor along with the SSHO shall establish prearranged handsignals, as a backup to voice communications, in cases such as wearing respirator equipment and confined space entry.

### **14.4 DRILLS AND EXERCISES**

Drills and exercises shall be conducted to ensure that communication methods are adequate. The SSHO will test the two-way communication to confirm emergency communication using NSWCC Crane recommended protocols. No field exercises are planned at this time.

## **15.0 SPILL CONTAINMENT PLAN**

Spill and release accident scenarios during interim measures cleanup could occur and may involve residue process material and rinsates from decontamination activities. The information in this section will be used by project personnel to respond to and mitigate any releases on the project site.

### **15.1 GENERAL**

In case of a spill or release, the SSHO will order all personnel to take appropriate action which could include any or all of the following:

- Evacuate the work zone to a safe place of refuge.
- Notify emergency services as identified in Table 3.
- Initiate spill response action and notify emergency services.

### **15.2 PREPLANNING FOR SPILL CONTROL**

Construction activities and, most importantly, operational activities will be reviewed for release potential and the capability of on-site personnel to adequately respond. Base personnel will be contacted to determine their capability to respond to various releases. All aspects of the Emergency Response Plan, as described in Section 12.0, will be reviewed by site personnel to ensure adequacy and that resources are available.

During mobilization activities for this project, the PM, Project Superintendents and the SSHO shall review the NAVFAC SouthDiv Spill Response Procedure PHSP 003.1 and the Base Oil and Hazardous Substances Spill Contingency Plan. After review, they shall execute the steps necessary to ensure that effective spill response planning requirements and resources are established for this project.

MK will cooperate with the Base and if necessary, other site contractors, and federal, state, and local directors of emergency preparedness and response. This cooperation will ensure a coordinated effort in preparing for a spill emergency with response plans that are compatible and integrated. Prior to starting work, MK will review PHSP.003.1, meet with site representatives on spill control, and ensure the SSHP is consistent with site requirements for spill control. Specific roles and responsibilities will be developed for MK and Navy personnel. It is anticipated that the Base Fire Department will be notified of any spills. They will help in spill containment. The Base Response Team will provide overall command and control of the cleanup activity.

In addition to the guidance provided in this document, the project kickoff meeting, any task-specific safety meetings, and Pre-Entry Briefings will include spill response

and emergency response preplanning specific to each task and work site. This training will include:

- **Assembly Points.** If the work activity may result in a release of hazardous substances, more than one assembly point will be specified to ensure that at least one upwind assembly point is accessible. This also pertains to fires and sites subject to adverse weather conditions. Information must be included on the Work Zone Maps.
- **Emergency Response Coordinator.** The SSHO, as the on-site emergency response coordinator, will contact the emergency response providers, account for individuals at the assembly point, and plan the appropriate response.
- **Evacuation Routes.** Routes will be specified as needed. Information must be included on the Work Zone Maps.
- **Means of Evacuation.** The number of personnel that may be evacuated from the work site by various routes will be evaluated by the SSHO.
- **Means of Communication.** This will include the means of alerting personnel to an emergency at all points in the work site. The means should consider the sound screening potential of hearing protection, distance, and noisy equipment when specifying the use of alarms, horns and sirens. The means of communication with emergency response providers will be considered. Information must be included on the Work Zone Maps.
- Designation of a location for first aid services, fire extinguisher(s) and spill control equipment. Information must be included on the Work Zone Maps.
- Procedures to be followed by employees who remain to operate critical operations to insure safe shutdown.

Emergency response providers (ambulance, fire, police) will be informed of their responsibilities under this SSHP by the SSHO. The provider will be given advance information, as necessary, to enable them to respond to an emergency expeditiously, while minimizing risk to themselves.

### **15.3 SPILL AND FIRE CONTROL MATERIALS AND EQUIPMENT**

Before moving or handling drums or containers that contain hazardous materials, DOT-approved salvage drums or containers will be available. In addition, suitable quantities of proper absorbent materials, neutralizing agents, and fire suppression equipment will be kept available in areas where spills, leaks or ruptures may occur.

Drums and containers used during a cleanup will be appropriate to the hazardous substances they are meant to contain and will meet the regulations promulgated by DOT, 49 CFR Parts 171-179; OSHA, 29 CFR 1910.120; and EPA, 40 CFR 262. Drums and containers will be inspected for defects and their integrity ensured prior to being filled with any nonsolid hazardous substance.

A material spill can be contained with porous or absorbent barriers. Absorbent materials can take several forms (pillows, sheets, brooms, loose chips, particle beads, and fibers) that may be set in place, or scattered by hand or blower. Preferred sorbents are inert nonreactive clay minerals (neutralizing agents may be added) or specific formulations that provide automatic neutralization or vapor control.

#### **15.4 SPILL CONTROL MEASURES**

Stopping the leak or spill at its source may involve turning off pumps or closing valves. Returning a container to an upright position, transferring wastes to other containers, or moving containers to a less dangerous location may, in some circumstances, be possible but should not be attempted if there is the potential for a skin contact exposure to an unknown or caustic/skin absorbent chemical. Similarly, the patching of an active leak is not advised until a careful evaluation of the operation can be made and the necessary PPE and rescue equipment readied.

#### **15.5 DRUM, CONTAINER, AND TANK HANDLING AND MOVING PROCEDURES**

Drums, containers, and/or tanks of hazardous or flammable substances will not be moved until the requirements for preparations as described in the Work Plan and SSHP have been completed. All required equipment and materials must be at the work site ready for use. In addition, the employees need to be familiar with their responsibilities, the emergency response procedures, and the potential hazards associated with the contents of the drums and containers.

Work site operations will be organized to minimize drum or container movement. Each drum or container will be inspected before they are moved to ensure that they can be picked up without suffering a rupture or puncture, and relocated without having the contents spill or leak.

Unlabeled drums and containers will be considered to contain hazardous substances and handled accordingly until the contents are positively identified and labeled. Drums and containers under pressure, as evidence by bulging or swelling, will not be moved until the cause for excess pressure is determined. Appropriate containment procedures will be implemented to protect employees from explosion.

Equipment used to handle the drums and containers will be selected, positioned, operated, and maintained to minimize any contact that could rupture, puncture, dent, or drop drums and containers holding hazardous substances.

Equipment used to handle the drums and containers will be selected, positioned, and operated to minimize the potential for equipment ignition sources to ignite vapors released from ruptured drums or containers.

Drums and containers that cannot be moved without rupture, leakage, or spillage will be emptied into a sound container using a device specified for the material being transferred.

## **15.6 INITIAL REPORTING AND MANAGEMENT OF INCIDENTS**

All emergencies will be promptly reported to the on-site Emergency Response Number (X3300), the Environmental Protection Department (X1132, C3114, or X6160), and to the SSHO. The SSHO will ensure that the NSWCR Site Representative is notified promptly and will direct initial emergency response actions until the arrival of the NSWCR Site Representative. The NSWCR Site Representative can include the officer in charge of security, fire department and/or ambulance services, or the Environmental Protection Department Manager or designee.

Initial response actions to be taken by MK personnel and subcontractors at the work site for spill and release emergencies are as follows:

### **A. Incident Type: Spills or Releases of Hazardous Material**

Response Actions:

1. Notify the NSWCR Crane Security Desk at extension 3300 and provide the following information:
  - a. The name and phone number of the person making the person call.
  - b. The location of incident.
  - c. The type of incident.
  - d. Injured or trapped personnel and estimate of material released.
2. SSHO or PM designates one person to meet the emergency response units at the nearest road where the units will be approaching.
3. SSHO or PM assumes initial command of the situation and directs personnel to do one of the following:
  - a. Emergency shutdown of process equipment or mobile equipment, evacuate the work zone or immediate area to a safe place of refuge, and meet the incoming response units and provide all available information.
  - b. Initiate first spill response using available spill response equipment only for small operational spills where personnel are trained to

mitigate. Evacuate the work zone or immediate area if there are any health threats or risks to personnel.

## **16.0 CONFINED SPACES**

Permit-required confined space entry is not anticipated on this project. If entry is required in an excavation that is greater than 5 feet in depth, the excavation must be treated initially as a permit-required confined space. Atmospheric monitoring must be completed before the excavation can be downgraded to nonpermit-required confined space. Engineering controls must be in place to safeguard the excavation from collapse. Any confined space entry must follow MK Procedure 9.0 found in the Industrial Hygiene Procedures Manual (MK 1994a).

# TABLES

**TABLE 1  
SITE DESCRIPTION AND CONTAMINANTS**

Identifier	Location/Description	Scope of Work	Contaminants
SWMU #14/00, Sanitary Landfill and Lithium Battery Disposal Area	West of H-161, south of Burns City Gate, see Figure 1-2 and Figure 4-1 in the Work Plan.	Unearthing, packaging, transportation, and disposal of 20 lithium batteries; site sampling; backfilling the excavation and restoration of the site.	None reported. Sampling will be completed for lithium and metals. Batteries are spent lithium-iron disulfide cells, a relatively benign substance.
SWMU #17/04, PCB Capacitor Burial/Pole Yard	West from the intersection of H-45 and H-5, see Figure 1-2 and Figure 4-2 in the Work Plan.	Excavation, packaging, transportation, and disposal of three PCB capacitors; site sampling; backfilling the excavation and restoration of the site.	None reported. Sampling will be completed for PCBs and metals. Capacitors were confirmed sealed at burial. The PCBs in the capacitors could be Aroclor 1242, 1254, or 1260.

**TABLE 2  
POTENTIAL CONTAMINANTS**

Potential Contaminant	Description	Exposure Limits	Signs and Symptoms	First Aid
Lithium Iron Disulfide batteries <sup>1</sup> (spent)				
PCBs the type of Aroclor 1242, 1254 and 1260	Colorless to brown liquid with mild hydro-carbon odor	OSHA PEL 0.5 mg/m <sup>3</sup>	Irritant to eyes and skin. Acne-form dermatitis, jaundice, dark urine.	Irrigate eyes immediately with water. Soap wash skin promptly. Provide respiratory support. Seek medical attention immediately.

Data in this Table is derived from References 4, 5 and 6 listed in Section 1.3 herein.

<sup>1</sup> MK is unable to locate sufficient safety data regarding this compound. Discussed hazard characteristics with NSWCrane. Solid material left inside a spent battery is a relatively benign material, a neutralized salt. During mobilization, MK will attempt to get additional data, in the form of a MSDS either from NSWCrane or the waste disposal facility contracted to recycle the batteries.

**TABLE 3  
PERSONNEL NAMES AND TELEPHONE NUMBERS**

<u>Contact</u>	<u>Person or Agency</u>	<u>Telephone</u>
Robert Hlavacek	MK Program Manager (MK PMO)	(803) 554-9367
Scott Newman	MK Senior Project Manager (MK PMO)	(803) 554-9369
Tom Payne	MK Project Manager at NSWC Crane	Office: (812) 854-6941
Robert Porter	MK Site Superintendent	Office: (812) 854-6941 Home: (812) 863-7173
Elvin Graves	MK Site Safety and Health Officer	Office: (812) 854-6941 Home: (812) 384-1536 Cellular: (812) 639-8356 2 way radio designation: Unit 0004
John Berggen	MK Project Engineer	Office: (812) 854-6941
Jerry Smith	MK Site Quality Assurance/Quality Control Supervisor	Office: (812) 854-6941
Michael Findley	MK Health and Safety Program Manager	(803) 554-9407
Cmdr. Larry Laws	NSWC Crane PWD/Eng. Dept	(812) 854-1834
Capt. J.M. Carney	NSWC Base Commander	(812) 854-1210
Jim Hunsicker or Tom Brent	NSWC Environmental Protection Services	(812) 854-6160
Adrienne Townsel-Wilson	SOUTHNAVFACENCOM	803-743-0582
Brent Robertson	ROICC(NTR)	(812) 854-3318
Law Enforcement	NSWC Security (Base)	3300 emergency
Fire Department	NSWC Fire Department (Base)	3300 emergency (812) 854-1235
Lt. Dale Eads	NSWC E.O.D. (Base)	(812) 854-3456
Ambulance Service	NSWC Ambulance (Base)	3300 emergency (812) 854-1100
Dale Groh	NSWC Safety Directory	(812) 854-3601
Poison Control Center	Poison Control Center	(800) 942-5969
National Response Center	National Response Center	(800) 424-8802
Regional USEPA Emergency	USEPA (Region 5)	(910) 221-5191

**TABLE 3  
PERSONNEL NAMES AND TELEPHONE NUMBERS**

<u>Contact</u>	<u>Person or Agency</u>	<u>Telephone</u>
Hospital	NSWC Base Medical Facility Head Nurse (Mary Muessig)	(812) 854-1220 (812) 854-4319
Hospital	Bedford Medical Center 2900 West 16 th Street Bedford, IN 47432	(812) 275-1200
Hospital	Bloomington Hospital 601 West Second Street Bloomington, IN	(812) 336-9515
Utility Locator Service	Public Works Dept.	(812) 854-1834

**Directions to NSWC Medical Department On-site:**

The NSWC Fire Department coordinates the on-site ambulance service. The Medical Department is located in Building 12, off of H-2 just north of H-5.

**Directions to Bedford Medical Center:**

From Bloomington Gate, head east on Highway 58 to the city of Bedford, then turn left onto 16th Street. Distance to hospital is approximately 20 miles.

**Directions to Bloomington Hospital:**

Exit NSWC Crane on H5-45 through the Bloomington Gate, then follow Highway 45 North to Bloomington. At the intersection of Highway 45 and Highway 37, continue straight ahead over the bypass (Bloomfield Road), and follow Bloomfield Road north until it becomes 2nd Street. Continue on 2nd Street and the hospital will be on right-hand side of the road.

**Note: SSHO is to make sure Table 3 and Figure 3 are included with the Work Zone Maps posted at the job site. In addition, Table 3 and Figure 3 must be posted at each office location. Table 3 must be updated to include all subcontractor points-of-contact.**

Notify the SSHO of any changes in work conditions which may affect the health and safety aspects of the task. The Superintendents or designated supervisors are responsible for conducting Plan-of-the-Day meetings, Pre-Entry and Post-Entry Briefings, weekly safety meetings, and conducting or ensuring that other training is completed.

**TABLE 4  
TRAINING REQUIREMENTS**

<i>Identifier</i>	<i>Location</i>	<i>40 Hr. Haz. Waste</i>	<i>Haz. Waste Annual Ref.</i>	<i>Haz. Waste Super- visor</i>	<i>Weekly Safety Mtg.</i>	<i>Haz. Com</i>	<i>Metal s</i>	<i>CPR First Aid</i>	<i>Respir- atory  Protec- tion</i>	<i>Confine d Space</i>	<i>Site Specifi c</i>	<i>POD, Pre &amp; Post Entry Brief</i>	<i>Other</i>
<i>SWMU 14/00</i>	<i>Sanitary Landfill and Lithium Battery Area Disposal Area</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>N</i>	<i>Y</i>	<i>Y</i>	<i>O</i>	<i>Y</i>	<i>Y</i>	<i>O<sup>2,3</sup></i>
<i>SWMU 17/04</i>	<i>PCB Capacitors Burial/Pole Yard</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>N</i>	<i>Y</i>	<i>Y</i>	<i>O</i>	<i>Y</i>	<i>Y</i>	<i>O<sup>2,3</sup></i>
<i>Soil and wastewater</i>	<i>All Areas</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>N</i>	<i>Y</i>	<i>Y</i>	<i>O</i>	<i>Y</i>	<i>Y</i>	<i>Y<sup>2,3</sup></i>

*Y = Yes, N = No, O = Optional*

*Notes:*

- 1- Excavations greater than 5 feet in depth should be treated as permit required confined spaces until atmospheric monitoring proves it can be downgraded to non permit required confined space and engineering controls on excavation design are in place.*
- 2- Competent person per 29 CFR 1926, subpart P, Excavations.*
- 3- 49 CFR Part 172 Subpart H for personnel required to classify, mark, select packaging, inspect, load and transport hazardous materials.*

**TABLE 5  
SELECTION OF PERSONAL PROTECTIVE EQUIPMENT**

<b>PPE</b>	<b>Level D</b>	<b>Modified Level D</b>	<b>Level C</b>	<b>Level B</b>
<i>Coveralls or other approved working apparel</i>	<b>Yes</b>	<b>Optional</b>	<b>Optional</b>	<b>Optional</b>
<i>Chemical-resistant clothing (coveralls; hooded, one- or two-piece chemical-resistant coveralls)</i>		<b>Yes</b>		
<i>Chemical-resistant clothing (coveralls; hooded one- or two-piece chemical splash suit; chemical-resistant hood and apron; disposal chemical-resistant coveralls)</i>			<b>Yes</b>	
<i>Chemical-resistant clothing (coveralls and long-sleeved jacket; one- or two-piece chemical splash suit; disposal chemical-resistant one-piece suit)</i>				<b>Yes</b>
<i>Boots, leather or chemical resistant, protective toe and steel shank meeting ANSI Z41.1 (29 CFR 1926.28(a)).</i>	<b>Yes</b>			
<i>Boots (inner), chemical resistant, protective toe and shank meeting ANSI Z41.1 (29 CFR 1926.28(a)).</i>		<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<i>Boot covers (outer), chemical resistant (disposable)</i>		<b>Optional</b>	<b>Optional</b>	<b>Optional</b>
<i>Safety glasses or chemical splash goggles, meeting ANSI Z87.1-1979 for "Industrial Safety Glasses"</i>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	
<i>Face shield</i>	<b>Optional</b>	<b>Optional</b>	<b>Optional</b>	<b>Optional</b>
<i>Gloves (cotton/leather)</i>	<b>Optional</b>			
<i>Gloves (inner), chemical resistant or liners</i>		<b>Optional</b>	<b>Yes</b>	<b>Yes</b>
<i>Gloves (outer), chemical resistant</i>		<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<i>Long underwear</i>		<b>Optional</b>	<b>Optional</b>	<b>Optional</b>
<i>Hardhat</i>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<i>Positive pressure, full-facepiece with nose cup, self-contained breathing apparatus (SCBA) or positive pressure, supplied-air respirator with escape SCBA (MSHA or NIOSH approved) (Note: escape SCBA may not be required)</i>				<b>Yes</b>
<i>Air-purifying respirator, half-face or full face with suitable cartridge (MSHA or NIOSH approved)</i>			<b>Yes</b>	

*Note: Optional requirements to be determined by SSHO based on activity hazard analysis.*

**TABLE 6  
MINIMUM PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS BY TASK**

<i>Site</i>	<i>Activity</i>	<i>PPE</i>
<i>SWMU 14/00 Sanitary Landfill and Lithium Battery Burial Disposal Area</i>	<ol style="list-style-type: none"> <li>1. <i>Configure and set up work area.</i></li> <li>2. <i>Hand excavation.</i></li> <li>3. <i>Mechanical excavation.</i></li> <li>4. <i>Battery handling.</i></li> <li>5. <i>Soil packaging.</i></li> <li>6. <i>Decontamination.</i></li> <li>7. <i>Site restoration.</i></li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Level D, modify where necessary</i></li> <li>2. <i>Level C, modify where necessary</i></li> <li>3. <i>Level C, modify where necessary</i></li> <li>4. <i>Level C, modify where necessary</i></li> <li>5. <i>Modified Level D.</i></li> <li>6. <i>Modified Level D.</i></li> <li>7. <i>Level D.</i></li> </ol>
<i>SWMU 17/04 PCB Capacitor Burial/Pole Yard</i>	<ol style="list-style-type: none"> <li>1. <i>Configure and set up work area.</i></li> <li>2. <i>Hand excavation.</i></li> <li>3. <i>Mechanical excavation.</i></li> <li>4. <i>Capacitor handling.</i></li> <li>5. <i>Soil packaging.</i></li> <li>6. <i>Decontamination.</i></li> <li>7. <i>Site restoration.</i></li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Level D, modify where necessary</i></li> <li>2. <i>Level C, modify where necessary</i></li> <li>3. <i>Level C, modify where necessary</i></li> <li>4. <i>Level C, modify where necessary</i></li> <li>5. <i>Modified Level D.</i></li> <li>6. <i>Modified Level D.</i></li> <li>7. <i>Level D.</i></li> </ol>
<i>Sampling at all locations</i>	<ol style="list-style-type: none"> <li>1. <i>Obtain soil and/or wastewater samples</i></li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Modified Level D</i></li> </ol>

**TABLE 7  
AIRBORNE CONTAMINANT RESPONSE CRITERIA**

<i>Contaminant</i>	<i>Level</i>	<i>PPE</i>	<i>Monitoring Frequency</i>	<i>Actions Taken</i>
<i>Volatile organic compounds</i>	<i>No more than 5 ppm above background, no benzene detected</i>	<i>Level D or modified Level D</i>	<i>Prior to each shift and reentry following 30 minute vacancy or as warranted</i>	<i>Continue periodic monitoring</i>
	<i>Greater than 5 ppm above background but less than 10 ppm above background. No benzene detected, no Action Level for any organic exceeded.</i>	<i>Level D or Modified Level D</i>	<i>At least once every hour, when change in operation occurs, or when requested by workers</i>	<i>Monitor for benzene or other organics. Continue periodic monitoring</i>
	<i>Greater than 10 ppm above background or benzene detected or Action Level exceeded for any organic.</i>	<i>To be determined by SSHO</i>	<i>To be determined by SSHO</i>	<i>Stop work and notify SSHO</i>
<i>Oxygen</i>	<i>Less than 19.5%</i>	<i>To be determined by SSHO</i>	<i>To be determined by SSHO</i>	<i>Stop work, exit area and immediately notify SSHO</i>
<i>% LEL</i>	<i>Equal to or greater than 10%.</i>	<i>To be determined by SSHO</i>	<i>To be determined by SSHO</i>	<i>Stop work, shut off equipment, remove ignition sources if safe to do so; notify SSHO</i>

**TABLE 8**  
**FREQUENCY OF PHYSIOLOGICAL MONITORING FOR FIT AND**  
**ACCLIMATIZED WORKERS<sup>1</sup>**

<i>ADJUSTED TEMPERATURE<sup>2</sup></i>	<i>IMPERMEABLE ENSEMBLE</i>
<i>90°F (32.2°C) or above</i>	<i>After each 15 minutes of work</i>
<i>87.5°-90°F (30.8°-32.2°C)</i>	<i>After each 30 minutes of work</i>
<i>82.5°-87.5°F (28.1°-30.8°C)</i>	<i>After each 60 minutes of work</i>
<i>77.5°-82.5°F (25.3°-28.1°C)</i>	<i>After each 90 minutes of work</i>
<i>72.5°-77.5°F (22.5°-25.3°C)</i>	<i>After each 120 minutes of work</i>

<sup>1</sup>For work levels of 250 kilocalories/hour.

<sup>2</sup>Calculate the adjusted air temperature (*ta adj*) by using this equation:

$$ta\ adj\ ^\circ F = ta^\circ F + (13 \times \% \text{ sunshine}).$$

Measure air temperature (*ta*) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow.

(100 percent sunshine = no cloud cover and a sharp, distinct shadow: 0 percent sunshine = no shadows.)

**Note: Reprinted from Reference 8, Section 1.3 herein.**

**TABLE 9  
AIR MONITORING AND SAMPLING REQUIREMENTS**

Site	Activity	Monitor						Sample	
		VO C	Dust	Oxygen and % LEL	Perimeter (VOCs /Dust)	Noise	Heat Stress	VO C	PCBs
SWMU #14/00  Sanitary Landfill and Lithium Battery Disposal Area	1. Configure and set up work area.	1.O	1.N	1.N	1.N	1.N	1.O	1.O	1.N
	2. Hand excavation.	2.Y	2.O	2.N	2.O	2.N	2.O	2.O	2.N
	3. Mechanical excavation.	3.Y	3.Y	3.N	3.O	3.Y	3.O	3.O	3.N
	4. Battery handling.	4.O	4.N	4.Y	4.N	4.N	4.O	4.O	4.N
	5. Soil packaging.	5.O	5.Y	5.O	5.O	5.N	5.O	5.O	5.N
	6. Decontamination.	6.N	6.N	6.N	6.N	6.O	6.O	6.O	6.N
	7. Site restoration.	7.N	7.O	7.O	7.N	7.O	7.O	7.O	7.N
SWMU #17/04  PCB Capacitor Burial / Pole Yard	1. Configure and set up work area.	1.O	1.N	1.N	1.N	1.N	1.O	1.O	1.N
	2. Hand excavation.	2.Y	2.O	2.N	2.O	2.N	2.O	2.O	2.N
	3. Mechanical excavation.	3.Y	3.Y	3.N	3.O	3.Y	3.O	3.O	3.O
	4. Capacitor handling.	4.O	4.N	4.Y	4.N	4.N	4.O	4.O	4.O
	5. Soil packaging.	5.O	5.Y	5.O	5.O	5.N	5.O	5.O	5.O
	6. Decontamination.	6.N	6.N	6.N	6.N	6.O	6.O	6.O	6.N
	7. Site restoration.	7.N	7.O	7.O	7.N	7.O	7.O	7.O	7.N

**TABLE 9  
AIR MONITORING AND SAMPLING REQUIREMENTS**

Site	Activity	Monitor						Sample	
		VO C	Dust	Oxygen and % LEL	Perimeter (VOCs /Dust)	Noise	Heat Stress	VO C	PCBs
Sampling	1. Obtain soil and wastewater samples	O'	1.N	O'	1.N	1.N	1.N	1.N	1.N

*Y = Yes, O = Optional at discretion of SSHO, N = Not required*

*<sup>1</sup> When obtaining soil samples in excavations deeper than 5 feet, treat the excavation as permit required confined space until it has been assessed by atmospheric monitoring that the atmosphere is safe and it can be downgraded to non permit required confined space. Engineering controls must be in place to safeguard excavation from collapse.*

# ***FIGURES***



**EXCAVATION AND TRENCHING PERMIT**

(OSHA Section 1926.650)

DATE:	TIME:	DATE EXPIRES:
-------	-------	---------------

JOB DESCRIPTION AND LOCATION (Be Specific):

**BEFORE TRENCHING AND EXCAVATION**

- |  |  |
|--|--|
| <input type="checkbox"/> Soil Classification<br><input type="checkbox"/> Stable <input type="checkbox"/> Type A <input type="checkbox"/> Type B <input type="checkbox"/> Type C<br>Rock<br><br><input type="checkbox"/> Check For Proximity To Utilities, Buildings, Footing or Piling and Sources of Vibrations.<br><br><input type="checkbox"/> Owners of Utilities, Services or Transmission Piping, Etc. (Electrical, Telephone, Water, Sewer) | <input type="checkbox"/> Check For Previously Disturbed Ground<br><br><input type="checkbox"/> Adequacy and Availability of All Equipment, Including Personal Protective Gear, Shoring Material, Signs, Barricades and Machinery.<br><br><input type="checkbox"/> Other Known Obstructions (e.g. Footing Concrete Encasement)<br><br><input type="checkbox"/> Allowable Slope. |
|--|--|

COMMENTS:

**DURING TRENCHING AND EXCAVATION**

- |   |   |                                 |  |  |             |          |       |        |       |       |        |     |       |        |         |       |
|---|---|---------------------------------|--|--|-------------|----------|-------|--------|-------|-------|--------|-----|-------|--------|---------|-------|
| <input type="checkbox"/> Size of Excavation<br>Depth _____ Width _____ Length _____<br><br><input type="checkbox"/> Changing Ground Conditions, Particularly After Rain Fall<br><br><input type="checkbox"/> Monitor For Possible Oxygen Deficiency Or Gaseous Conditions. (Record per IH Manual Procedure 5.0 or equivalent).<br>_____ | <input type="checkbox"/> Protective Systems Depth of A Trench Or Excavation Of 5 Feet or More.<br><br><p><b><u>Check The Applicable OSHA Appendix Below:</u></b></p> <input type="checkbox"/> B - Sloping and Benching<br><br><table style="margin-left: 20px; border: none;"> <tr> <td colspan="3"><b>Maximum Allowable Slopes</b></td> </tr> <tr> <td>Stable Rock</td> <td>Vertical</td> <td>(90°)</td> </tr> <tr> <td>Type A</td> <td>3/4:1</td> <td>(53°)</td> </tr> <tr> <td>Type B</td> <td>1:1</td> <td>(45°)</td> </tr> <tr> <td>Type C</td> <td>1 1/2:1</td> <td>(34°)</td> </tr> </table> | <b>Maximum Allowable Slopes</b> |  |  | Stable Rock | Vertical | (90°) | Type A | 3/4:1 | (53°) | Type B | 1:1 | (45°) | Type C | 1 1/2:1 | (34°) |
| <b>Maximum Allowable Slopes</b>   |   |                                 |  |  |             |          |       |        |       |       |        |     |       |        |         |       |
| Stable Rock   | Vertical  | (90°)                           |  |  |             |          |       |        |       |       |        |     |       |        |         |       |
| Type A  | 3/4:1   | (53°)                           |  |  |             |          |       |        |       |       |        |     |       |        |         |       |
| Type B  | 1:1   | (45°)                           |  |  |             |          |       |        |       |       |        |     |       |        |         |       |
| Type C  | 1 1/2:1   | (34°)                           |  |  |             |          |       |        |       |       |        |     |       |        |         |       |

**NOTE:** Sloping or Benching For Excavations Greater Than 20 Feet Deep Shall Be Designed By A State Registered Professional Engineer (RPE).

- |   |  |
|---|--|
| <input type="checkbox"/> Adequacy Of Shoring And/Or Sloping As Work Progresses.<br><br><input type="checkbox"/> Entrances and Exit Facilities<br><input type="checkbox"/> Stairway <input type="checkbox"/> Ladders <input type="checkbox"/> Ramp<br><input type="checkbox"/> Change In Vehicular and Machinery Operation<br><input type="checkbox"/> Water Removal Equipment and Operation<br><br><input type="checkbox"/> Adequacy of Portable Trench Boxes or Trench Shields | <input type="checkbox"/> C - Timber Shoring For Trenches<br><br><input type="checkbox"/> D - Aluminum Hydraulic Shoring For Trenching<br><br><input type="checkbox"/> RPE - Designed Protection Systems (data must be filed on job-site) |
|---|--|

COMMENTS:

**SIGNATURES AND DATES**

COMPETENT PERSON	SSHO	PROJECT MANAGER
CLIENT REPRESENTATIVE	CIVIL ENGINEER	CIVIL SUPERINTENDENT
EQUIPMENT OPERATOR	SUBCONTRACTOR REP.	OTHER APPROVAL



# Figure 2 Hot Work Permit

## MORRISON KNUDSEN CORPORATION

ENGINEERING, CONSTRUCTION, AND ENVIRONMENTAL GROUP

### HOT WORK PERMIT

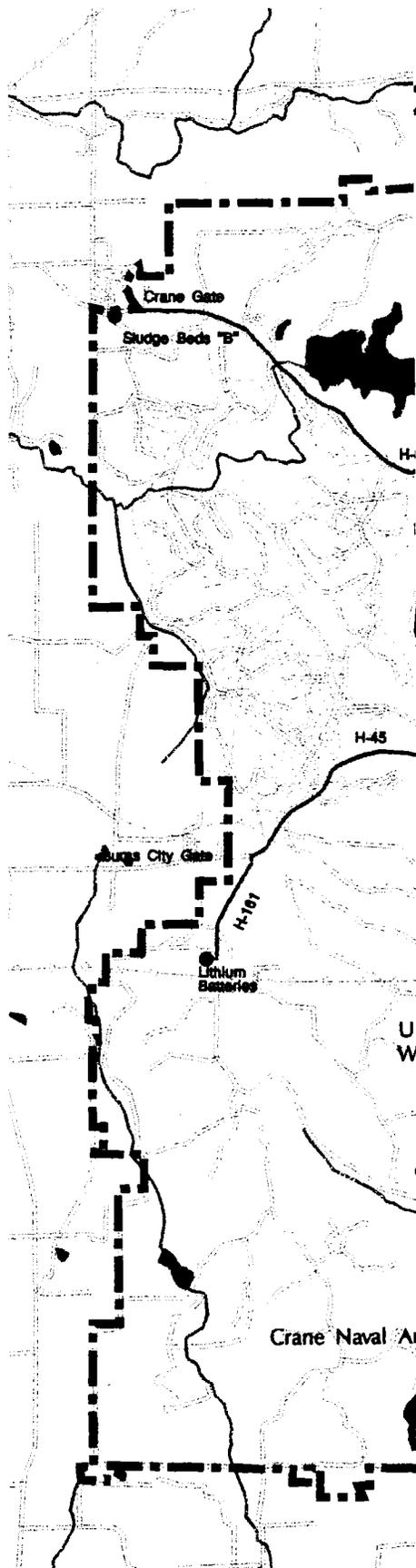
Issued to:	Responsible Person:	Date:												
Building:	Area Equipment	Control No.												
Special Work To Be Done:		Time From/To:												
Please check appropriate response		YES      NO      N/A												
1. Has affected personnel been briefed on job safety & requirements?														
2. Has equipment been properly prepared for this work?														
3. Does other work or processes affect this work?														
4. Has fire detection and/or gas systems been isolated?														
5. Is the work area clean and ready for work to begin?														
6. Has isolation lockout been completed? If so, record lock and tag numbers below.														
7. Has fire watch been assigned with appropriate equipment? Name(s)														
Is GAS TEST required? <input type="checkbox"/> Yes <input type="checkbox"/> No Test Results      Percent LEL      O <sub>2</sub> H <sub>2</sub> S, CO, other toxic		Time      Tester												
Continuous ? <input type="checkbox"/> Yes <input type="checkbox"/> No      Total Hydrocarbons      Others As Req.														
Remarks:														
Special Instructions: <input type="checkbox"/> Yes <input type="checkbox"/> No		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Lock Numbers</th> <th style="width: 50%;">Tag Numbers</th> </tr> <tr><td> </td><td> </td></tr> </table>	Lock Numbers	Tag Numbers										
Lock Numbers	Tag Numbers													
Job Completed? <input type="checkbox"/> Yes <input type="checkbox"/> No	Time/Initial:	Permit Cancelled: (Time)												

### Endorsements as Required

Area Operations Technician:	Signature/Name:	Time:
Person Doing The Work:		
Job Supervisor/Foreman:		
Project Supervisor:		
SSHO (Safety)		

**Figure 3    Directions to Nearest Emergency Medical Facilities**

# Figure 3 Directions to the Nearest Medical Facility



### Legend

- Primary Route
- Naval Reservation Boundary

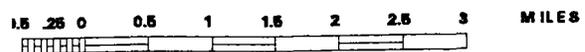
NSWC Medical Department on site:  
 Medical Department manages and coordinates the ambulance service. Located in Building 12 off of the north end of H-5.

Bedford Medical Center:  
 From Crane Gate, head east on Highway 58 to the city of Bedford onto 16th street. Distance to hospital is approximately 20 miles.  
 From Sludge City Gate, head east on I58 to the city of Bedford onto 16th street.

Bloomington Hospital:  
 From Crane Gate, head north on H-5 through the Bloomington Gate, follow north to Bloomington. At Highway 45 and Highway 101, go straight over the bypass (Bloomfield Road), then turn north which turns into 2nd Street. The hospital is on your right.



1 inch = 1.5 miles







**Figure 6 SSHO DAILY LOGBOOK REPORT Page \_\_\_ of \_\_\_**

Date \_\_\_\_\_ Report Number \_\_\_\_\_

Location(s) Work Activity and # Employees: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Weather: Wind speed \_\_\_\_\_ Wind direction \_\_\_\_\_  
Temp & Pressure \_\_\_\_\_ Precipitation \_\_\_\_\_  
Amount sun \_\_\_\_\_

Monitoring conducted:

<u>Location</u>	<u>Sampled for</u>	<u>Instrument used</u>	<u>Sampled Results</u>	<u>By/Time</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Levels of Protection: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Problems or Unusual Situations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Correspondence: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Other Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SSHO Printed Name: \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

**Figure 7 SSHP DAILY INSPECTION CHECKLIST**

**Surveillance No.** \_\_\_\_\_

<b>SURVEILLANCE NO:</b>		<b>ACTIVITY:</b>				<b>PROJECT NO:</b>	
<b>DATE:</b>		<b>LOCATION:</b>				<b>SURVEYED ORGANIZATION:</b>	
		<b>SITE/AREA CONTACT:</b>		<b>RESPONSIBLE MANAGER:</b>		<b>PRIME:</b>	
						<b>SUBTIER:</b>	
<b>ITEM NO.</b>	<b>DESCRIPTION OF SURVEYED ITEMS</b>	<b>N/A SAT UNSAT</b>	<b>DESCRIPTION OF DISCREPANCY/ NON-COMPLIANCE</b>	<b>ACT OR COND</b>	<b>CAT</b>	<b>REQUIRED ABATEMENT DATE</b>	<b>CORRECTIVE ACTION TAKEN AND DATE ABATEMENT COMPLETED</b>
<i>Section 1</i>							
1	<i>Scope of work and site contaminants accurately described?</i>						
<i>Section 2</i>							
2	<i>Activity hazard analysis prepared for each major work phase? (EM 385-1-1, Section 01.A.09)</i>						
3	<i>All hazards including chemical and physical adequately described?</i>						
<i>Section 3</i>							
4	<i>Roles and responsibilities described and personnel roster up-to-date?</i>						
<i>Section 4</i>							
5	<i>All site personnel completed required training?</i>						
6	<i>Training documented and records on site?</i>						
<i>Section 5</i>							
7	<i>All site personnel completed initial medial qualification?</i>						
<i>Section 6</i>							
8	<i>PPE available and in good condition?</i>						
9	<i>PPE work per SSHP and/or SSOH direction?</i>						
10	<i>Personnel trained in proper use, limitations, and inspection of PPE?</i>						
11	<i>PPE inspected per SSHP?</i>						

ITEM NO.	DESCRIPTION OF SURVEYED ITEMS	N/A SAT UNSAT	DESCRIPTION OF DISCREPANCY/ NON-COMPLIANCE	ACT OR COND	CAT	REQUIRED ABATEMENT DATE	CORRECTIVE ACTION TAKEN AND DATE ABATEMENT COMPLETED
12	<i>PPE donning/doffing procedures in place?</i>						
13	<i>Written SOP available describing respirator selection and use?</i>						
<i>Section 7</i>							
14	<i>Air monitoring conducted per SSHP?</i>						
15	<i>Monitoring equipment properly maintained and calibrated?</i>						
16	<i>Employees notified of monitoring results?</i>						
17	<i>Chain of custody prepared and maintained for all samples?</i>						
<i>Section 8</i>							
18	<i>Weekly safety meeting held?</i>						
19	<i>Pre-entry briefs held? and signature sheet completed?</i>						
20	<i>Haz Com programs in place?</i>						
21	<i>Competent person evaluates excavation?</i>						
22	<i>Personnel responsible for work maintain control of area?</i>						
<i>Section 9</i>							
23	<i>Work zone maps prepared and updated?</i>						
24	<i>Maps posted near work area and stored in SSHP?</i>						
25	<i>Traffic patterns established and rules observed?</i>						
<i>Section 10</i>							
26	<i>Inspections performed of all personnel, clothing and equipment leaving exclusion zone?</i>						
27	<i>All materials decontaminated prior to existing contamination reduction zone?</i>						
28	<i>Decon stations properly established?</i>						
29	<i>Proper personal hygiene practices observed?</i>						
30	<i>Decon solutions collected and properly disposed of?</i>						
<i>Section 11</i>							

FIGURE 7 SSHP DAILY INSPECTION CHECKLIST (continued)

Surveillance No. \_\_\_\_\_

ITEM NO.	DESCRIPTION OF SURVEYED ITEMS	N/A SAT UNSAT	DESCRIPTION OF DISCREPANCY/ NON-COMPLIANCE	ACT OR COND	CAT	REQUIRED ABATEMENT DATE	CORRECTIVE ACTION TAKEN AND DATE ABATEMENT COMPLETED
31	At least two employees on each shift trained in CPR and first aid?						
32	First aid kit at each work site?						
33	All first aid and medical cases promptly reported to SSHO?						
<i>Section 12</i>							
34	All personnel trained on Emergency Response Plan and Contingency Procedures?						
35	Emergency pre-planning addressed in safety meeting?						
36	List of emergency services/contact is up to date and posted?						
37	Assembly points identified and communicated to employees?						
38	Evacuation routes established and communicated to employees?						
39	Communication methods are adequate						
40	All drills, exercises, and emergencies critiqued?						
41	All emergencies promptly reported to SSHO?						
<i>Section 13</i>							
42	SSHO maintains project log book?						
43	Daily reports completed by SSHO?						
44	Daily inspections completed by SSHO?						
45	Weekly reports prepared by SSHO?						
46	Records of all injuries and illnesses maintained by SSHO?						
<i>Section 14</i>							
47	Work plans available and up to date?						
48	SOPs developed as needed?						

FIGURE 7 SSHP DAILY INSPECTION CHECKLIST (continued)

Surveillance No. \_\_\_\_\_

ITEM NO.	DESCRIPTION OF SURVEYED ITEMS	N/A SAT UNSAT	DESCRIPTION OF DISCREPANCY/ NON-COMPLIANCE	ACT OR COND	CAT	REQUIRED ABATEMENT DATE	CORRECTIVE ACTION TAKEN AND DATE ABATEMENT COMPLETED
<i>Section 15</i>							
49	<i>Two-way radios available per SSHP?</i>						
50	<i>Cellular telephone available as needed?</i>						
51	<i>Emergency alarms available and personnel trained on what actions to take?</i>						
52	<i>Drills and exercises conducted to test communication methods?</i>						
<i>Section 16</i>							
53	<i>Spill response measures reviewed with personnel?</i>						
54	<i>Suitable quantities of spill supplies available?</i>						
55	<i>Spills promptly reported to SSHO?</i>						
56	<i>Operations arranged to minimize spills?</i>						
<i>Section 17</i>							
57	<i>Confined space requirements of 385-1-1, Section 06.0.01 followed? Personnel trained?</i>						

Inspection Performed By: \_\_\_\_\_ Date: \_\_\_\_\_

Abatement Accepted By: \_\_\_\_\_ Date: \_\_\_\_\_

***APPENDIX A***  
***ACTIVITY HAZARD ANALYSIS (AHA)***

**ACTIVITY HAZARD ANALYSIS (AHA)**

**Activity:** *Configure and set up work areas.*

**Analyzed By/Date:**

*Eg Petruk 6/6/95*

**Reviewed By/Date:**

*FJP for WP*

<b>1.0 Principal Steps</b>	<b>Potential Hazards</b>	<b>Recommended Controls</b>
<p><b>1.1</b> <i>Walk area down, establish work zone and laydown areas.</i></p>	<p><b>1.1a.</b> <i>Struck by and struck against physical objects during loading and unloading operations and setup.</i></p> <p><b>1.1b.</b> <i>Biological; weeds, snakes, spider's; other plant life.</i></p> <p><b>1.1c.</b> <i>Contact by inhalation, direct contact or ingestion of chemical contaminants.</i></p>	<p><b>1.1a.</b> <i>Preplan work layout (Work Zone Map completed and posted by Subcontractor). Backup alarms on all motorized heavy equipment. Use correct hand and power tools for job and good housekeeping practices.</i></p> <p><i>Note: MK PM to reverify the need for unexploded ordnance survey (UXO) in the work zone areas with the NSWC contact. NSWC non-intrusive geophysical survey completed and topographical map available.</i></p> <p><b>1.1b.</b> <i>MK SSHO to discuss specific biological hazards awareness and communicate findings at POD and/or Pre Entry Briefs.</i></p>
<p><b>1.2</b> <i>Clearing and grubbing.</i></p>	<p><b>1.2a.</b> <i>Struck by and struck against physical objects during clearing and grubbing.</i></p>	<p><b>1.1c.</b> <i>Level D PPE expected. MK SSHO to visual inspect area for evidence of contaminants and will also conduct general area scans for VOCs using PID.</i></p> <p><b>1.2a.</b> <i>Preplan work layout (Work Zone Map completed and posted by Subcontractor). Backup alarms on all motorized heavy equipment. Use correct handtools and power equipment for the job. Review EM 385-1-1 Section 31 on safeguards and recommended practices.</i></p>

**ACTIVITY HAZARD ANALYSIS (AHA)**

<i>Activity: Configure and set up work areas.</i>		<i>Analyzed By/Date:</i> <i>FJ Petrol 6/6/95</i>	<i>Reviewed By/Date:</i> <i>FJP for WP</i>
<b>1.3</b>	<b><i>Equipment to be Used</i></b>	<b><i>Inspection Requirements</i></b>	<b><i>Training Requirements</i></b>
<b>1.4</b>	<b><i>Heavy equipment for loading and hauling. Hand and power tools.</i></b>	<b><i>Daily, prior to use per manufacturer's recommendation.</i></b>	<b><i>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8 hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre and Post Entry Briefs, OSHA Hazard Communication, Respirator.</i></b>

**ACTIVITY HAZARD ANALYSIS (AHA)**

Activity: *Hand and mechanical excavating.*

Analyzed By/Date:

*EJ Petrus 6/6/95*

Reviewed By/Date:

*FJP for W/P*

2.0 Principal Steps	Potential Hazards	Recommended Controls
<p>2.1 <i>Initial excavations completed by hand (potholing) to locate capacitors and batteries.</i></p> <p>2.2 <i>Mechanical excavation.</i></p>	<p><i>Contact with underground utilities, capacitors and batteries, and other objects not expected in the burial area.</i></p> <p><i>Inhalation, direct contact or ingestion of PCB's, spent battery salts or other chemical agents.</i></p> <p><i>Struck by and struck against physical objects during excavations.</i></p>	<p><i>MK Excavation and Trenching permit required. Confirm if any utilities in area. Discuss at Entry Briefings what the expected size, color, configuration and object markings are expected to be for batteries and capacitors. Also, discuss how to recognize a damaged battery and/or capacitor.</i></p> <p><i>Level C PPE during excavating, upgrade or downgrade per SSHO direction. SSHO to conduct periodic air monitoring for VOCs, LEL, O, and H<sub>2</sub>S.</i></p> <p><i>Maintain clear area around heavy equipment. Competent person shall inspect excavation on a periodic basis.</i></p>
2.3 Equipment to be Used	Inspection Requirements	Training Requirements
<p>2.4 <i>Heavy equipment and handtools.</i></p>	<p><i>Daily, prior to use per manufacturer's recommendation.</i></p>	<p><i>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8-hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre- and Post-Entry Briefs, OSHA Hazard Communication, Respirator and Operator Training.</i></p>

**ACTIVITY HAZARD ANALYSIS (AHA)**

**Activity:** *Loading of Batteries and Capacitors for Disposal*

**Analyzed By/Date:**

*FJ Petrol 6/6/95*

**Reviewed By/Date:**

*FJP for WP*

<b>3.0 Principal Steps</b>	<b>Potential Hazards</b>	<b>Recommended Controls</b>
<p><b>3.1</b> <i>Complete final clean-off of batteries and capacitors.</i></p> <p><b>3.2</b> <i>Load batteries and capacitors in over-packs.</i></p>	<p><i>Physical hazards related to the lifting, moving and loading of capacitors and batteries.</i></p> <p><i>Direct contact with any spent battery fuel or PCB oil.</i></p>	<p><i>Preplan lift and verify safe loading factors and correct rigging for equipment.</i></p> <p><i>Verify proper containers are used for load-out and markings and labeling are located on outside of container.</i></p> <p><i>Level C PPE, downgrade per SSHO direction.</i></p>
<b>3.3 Equipment to be Used</b>	<b>Inspection Requirements</b>	<b>Training Requirements</b>
<p><b>3.4</b> <i>Heavy equipment, slinging and rigging, overpack containers, handtools.</i></p>	<p><i>Daily, prior to use per manufacturer's recommendation.</i></p>	<p><i>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8-hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre- and Post-Entry Briefs, OSHA Hazard Communication, Respirator and Operator Training.</i></p>

**ACTIVITY HAZARD ANALYSIS (AHA)**

**Activity:** *Decontamination Facility Operations, Personnel and Equipment.*

**Analyzed By/Date:**

*FJP/Btk 6/6/95*

**Reviewed By/Date:**

*FJP For WP*

<b>4.0 Principal Steps</b>	<b>Potential Hazards</b>	<b>Recommended Controls</b>
<p><b>4.1</b> <i>Receive and place material at facility.</i></p> <p><b>4.2</b> <i>Decontaminate Equipment using high pressure wash or hand scrubbing and/or automatic wash on vehicle tires and undercarriage.</i></p>	<p><b>4.1a.</b> <i>Struck by and struck against. Material handling concerns.</i></p> <p><b>4.2a.</b> <i>Contact with contaminated material and cross contamination; inhalation of airborne aerosols; contact with high pressure wash stream; unexpected movement of material to be decontaminated.</i></p>	<p><b>4.1a.</b> <i>Site Decontamination Facility to provide isolation and controlled access. MK SSHO and Project Supervisor(s) to review material handling procedures to insure good practices and approved equipment is used which conforms to OSHA and EM-381 Section 28.I requirements.</i></p> <p><b>4.2a.</b> <i>Level C PPE with faceshield, modify per SSHO review. Secure items to be decontaminated. Visual inspect integrity of Facility's containment liners and containers used for waste waters. Clean side area established for worker's street clothes and approved respirator storage after cleaning and sanitizing.</i></p>
<b>4.3 Equipment to be Used</b>	<b>Inspection Requirements</b>	<b>Training Requirements</b>

**ACTIVITY HAZARD ANALYSIS (AHA)**

<b>Activity:</b> <i>Decontamination Facility Operations, Personnel and Equipment.</i>		<b>Analyzed By/Date:</b> <i>FJ Petru 6/6/95</i>	<b>Reviewed By/Date:</b> <i>FJP fac WPD</i>
<b>4.4</b> <i>High-pressure wash with soap solution; other decontamination solutions; scrub brushes; material handling equipment and securing equipment.</i>	<i>Before use per manufacturers recommendation.</i>	<i>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8-hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre- and Post-Entry Briefs, OSHA Hazard Communication, and Respirator.</i>	

**ACTIVITY HAZARD ANALYSIS (AHA)**

Activity: *Backfilling and Site Restoration.*

Analyzed By/Date:

*FJ Petrucci 6/6/95*

Reviewed By/Date:

*FJP For WP*

5.0 <i>Principal Steps</i>	<i>Potential Hazards</i>	<i>Recommended Controls</i>
<p>5.1 <i>Offload, spread, compact and reseed area.</i></p>	<p>5.1a. <i>Contact with airborne treated material, may present a biological hazard.</i></p> <p>5.1b. <i>Struck by and struck against physical objects during off-loading and spreading material.</i></p> <p>5.1c. <i>Vibration from compactor, electric or air source.</i></p>	<p>5.1a. <i>Dust Controls required to include wetting fill material. Level D PPE expected, upgrade if necessary. Dust controls and respirator (dust mask) may be necessary during spreading and covering with cover material (spray on straw)</i></p> <p>5.1b. <i>Preplan work layout. Backup alarms on all motorized equipment. Keep clear area around heavy equipment.</i></p> <p>5.1c. <i>Equipment operated per manufacturers recommendation. May require heavy work glove for vibration dampening and hearing protection for noise mitigation.</i></p>
5.2 <i>Equipment to be Used</i>	<i>Inspection Requirements</i>	<i>Training Requirements</i>
<p>5.3 <i>Heavy equipment, handtools, sodding equipment, straw spreader, Compactor.</i></p>	<p><i>Daily, prior to use per manufacturer's recommendation.</i></p>	<p><i>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8-hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre- and Post-Entry Briefs, OSHA Hazard Communication, Respirator.</i></p>

**ACTIVITY HAZARD ANALYSIS (AHA)**

Activity: *Field Sampling Activities for Soil.*

Analyzed By/Date:

*FJP/etmh 6/6/95*

Reviewed By/Date:

*FJP For WP*

6.0. <i>Principal Steps</i>	<i>Potential Hazards</i>	<i>Recommended Controls</i>
6.1. <i>Hand augering (in excavations)</i>	6.1a. <i>Collapse of excavation, entrance and egress, contaminated soil contact, contact with underground utility or piping/mechanical system.</i>	6.1a. <i>Sampler requires approval from competent person to enter excavation if deeper than 5 foot. Atmospheric conditions in excavation checked prior to and during sampling. Modified Level D PPE expected, upgrade per SSHO review. Analyze for potential contact with any underground utility or mechanical service. Note: Excavation Permit must be valid. Review Field Sampling Kit MSDSs.</i>
6.2. <i>Hand augering (non excavated areas)</i>	6.2a. <i>Contaminated soil contact, contact with utility or piping/mechanical system.</i>	6.2a. <i>Excavation/Trenching Permit required for sampling, analyze for potential contact with any underground utility or mechanical service. Level D PPE expected, upgrade per SSHO review. Review Field Sampling Kit MSDSs, add MSDS to project files.</i>
6.3. <i>Containerized Liquids Sampling</i>	6.3a. <i>Contaminated liquid contact.</i>	6.3a. <i>Level D+ PPE.</i>
6.4. <i>Sampling Equipment Decontamination</i>	6.4a. <i>Contact with contaminated material, also direct contact with decontamination solutions (weak nitric acid and acetone)</i>	6.4a. <i>Level D+ PPE with splash goggles and chemical gloves.</i>
6.5 <i>Equipment to be Used</i>	<i>Inspection Requirements</i>	<i>Training Requirements</i>

**ACTIVITY HAZARD ANALYSIS (AHA)**

<b>Activity:</b> <i>Field Sampling Activities for Soil.</i>		<b>Analyzed By/Date:</b> <i>EJ Petrus 6/6/95</i>	<b>Reviewed By/Date:</b> <i>FJP For WP</i>
<b>6.6.</b> <i>Soil auger, stainless steel spoons, buckets, field sampling kits and decontamination solutions.</i>	<i>Per manufacturers recommendation. Core drilling equipment if used must be inspected daily. Preplan waste handling.</i>	<i>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8-hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre- and Post-Entry Briefs, OSHA Hazard Communication, Respirator. DOT 181 certification for person supervising the preparation of contaminated materials for offsite shipment.</i>	

***APPENDIX A***  
***ACTIVITY HAZARD ANALYSIS (AHA)***

**ACTIVITY HAZARD ANALYSIS (AHA)**

**Activity:** *Configure and set up work areas.*

**Analyzed By/Date:**

*Fj Petrus 6/6/95*

**Reviewed By/Date:**

*FJP for WP*

<b>1.0 Principal Steps</b>	<b>Potential Hazards</b>	<b>Recommended Controls</b>
<p><b>1.1</b> <i>Walk area down, establish work zone and laydown areas.</i></p>	<p><b>1.1a.</b> <i>Struck by and struck against physical objects during loading and unloading operations and setup.</i></p> <p><b>1.1b.</b> <i>Biological; weeds, snakes, spider's; other plant life.</i></p> <p><b>1.1c.</b> <i>Contact by inhalation, direct contact or ingestion of chemical contaminants.</i></p>	<p><b>1.1a.</b> <i>Preplan work layout (Work Zone Map completed and posted by Subcontractor). Backup alarms on all motorized heavy equipment. Use correct hand and power tools for job and good housekeeping practices.</i></p> <p><i>Note: MK PM to reverify the need for unexploded ordnance survey (UXO) in the work zone areas with the NSWC contact. NSWC non-intrusive geophysical survey completed and topographical map available.</i></p> <p><b>1.1b.</b> <i>MK SSHO to discuss specific biological hazards awareness and communicate findings at POD and/or Pre Entry Briefs.</i></p>
<p><b>1.2</b> <i>Clearing and grubbing.</i></p>	<p><b>1.2a.</b> <i>Struck by and struck against physical objects during clearing and grubbing.</i></p>	<p><b>1.1c.</b> <i>Level D PPE expected. MK SSHO to visual inspect area for evidence of contaminants and will also conduct general area scans for VOCs using PID.</i></p> <p><b>1.2a.</b> <i>Preplan work layout (Work Zone Map completed and posted by Subcontractor). Backup alarms on all motorized heavy equipment. Use correct handtools and power equipment for the job. Review EM 385-1-1 Section 31 on safeguards and recommended practices.</i></p>

**ACTIVITY HAZARD ANALYSIS (AHA)**

<i>Activity: Configure and set up work areas.</i>		<i>Analyzed By/Date:</i> <b>EJ Petrol 6/6/95</b>	<i>Reviewed By/Date:</i> <b>FJP for WP</b>
<b>1.3</b>	<b>Equipment to be Used</b>	<b>Inspection Requirements</b>	<b>Training Requirements</b>
<b>1.4</b>	<b>Heavy equipment for loading and hauling. Hand and power tools.</b>	<b>Daily, prior to use per manufacturer's recommendation.</b>	<b>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8 hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre and Post Entry Briefs, OSHA Hazard Communication, Respirator.</b>

**ACTIVITY HAZARD ANALYSIS (AHA)**

<b>Activity:</b> <i>Hand and mechanical excavating.</i>		<b>Analyzed By/Date:</b> <i>EJ Petard 6/6/95</i>	<b>Reviewed By/Date:</b> <i>FJP for WP</i>
<b>2.0</b>	<b>Principal Steps</b>	<b>Potential Hazards</b>	<b>Recommended Controls</b>
2.1	<i>Initial excavations completed by hand (potholing) to locate capacitors and batteries.</i>	<i>Contact with underground utilities, capacitors and batteries, and other objects not expected in the burial area.</i>	<i>MK Excavation and Trenching permit required. Confirm if any utilities in area. Discuss at Entry Briefings what the expected size, color, configuration and object markings are expected to be for batteries and capacitors. Also, discuss how to recognize a damaged battery and/or capacitor.</i>
2.2	<i>Mechanical excavation.</i>	<i>Inhalation, direct contact or ingestion of PCB's, spent battery salts or other chemical agents.</i>  <i>Struck by and struck against physical objects during excavations.</i>	<i>Level C PPE during excavating, upgrade or downgrade per SSHO direction. SSHO to conduct periodic air monitoring for VOCs, LEL, O, and H,S.</i>  <i>Maintain clear area around heavy equipment. Competent person shall inspect excavation on a periodic basis.</i>
<b>2.3</b>	<b>Equipment to be Used</b>	<b>Inspection Requirements</b>	<b>Training Requirements</b>
2.4	<i>Heavy equipment and handtools.</i>	<i>Daily, prior to use per manufacturer's recommendation.</i>	<i>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8-hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre- and Post-Entry Briefs, OSHA Hazard Communication, Respirator and Operator Training.</i>

**ACTIVITY HAZARD ANALYSIS (AHA)**

<b>Activity:</b> <i>Loading of Batteries and Capacitors for Disposal</i>		<b>Analyzed By/Date:</b> <i>FJ Petrol 6/6/95</i>	<b>Reviewed By/Date:</b> <i>FJP for WP</i>
<b>3.0</b>	<b>Principal Steps</b>	<b>Potential Hazards</b>	<b>Recommended Controls</b>
3.1	<i>Complete final clean-off of batteries and capacitors.</i>	<i>Physical hazards related to the lifting, moving and loading of capacitors and batteries.</i>	<i>Preplan lift and verify safe loading factors and correct rigging for equipment.</i>
3.2	<i>Load batteries and capacitors in over-packs.</i>	<i>Direct contact with any spent battery fuel or PCB oil.</i>	<i>Verify proper containers are used for load-out and markings and labeling are located on outside of container.</i>  <i>Level C PPE, downgrade per SSHO direction.</i>
<b>3.3</b>	<b>Equipment to be Used</b>	<b>Inspection Requirements</b>	<b>Training Requirements</b>
3.4	<i>Heavy equipment, slinging and rigging, overpack containers, handtools.</i>	<i>Daily, prior to use per manufacturer's recommendation.</i>	<i>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8-hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre- and Post-Entry Briefs, OSHA Hazard Communication, Respirator and Operator Training.</i>

**ACTIVITY HAZARD ANALYSIS (AHA)**

<b>Activity:</b> <i>Decontamination Facility Operations, Personnel and Equipment.</i>		<b>Analyzed By/Date:</b> <i>EJ Bink 6/6/95</i>	<b>Reviewed By/Date:</b> <i>EJP For WP</i>
<b>4.0 Principal Steps</b>	<b>Potential Hazards</b>	<b>Recommended Controls</b>	
<b>4.1</b> <i>Receive and place material at facility.</i>	<b>4.1a.</b> <i>Struck by and struck against. Material handling concerns.</i>	<b>4.1a.</b> <i>Site Decontamination Facility to provide isolation and controlled access. MK SSHO and Project Supervisor(s) to review material handling procedures to insure good practices and approved equipment is used which conforms to OSHA and EM-381 Section 28.I requirements.</i>	
<b>4.2</b> <i>Decontaminate Equipment using high pressure wash or hand scrubbing and/or automatic wash on vehicle tires and undercarriage.</i>	<b>4.2a.</b> <i>Contact with contaminated material and cross contamination; inhalation of airborne aerosols; contact with high pressure wash stream; unexpected movement of material to be decontaminated.</i>	<b>4.2a.</b> <i>Level C PPE with faceshield, modify per SSHO review. Secure items to be decontaminated. Visual inspect integrity of Facility's containment liners and containers used for waste waters. Clean side area established for worker's street clothes and approved respirator storage after cleaning and sanitizing.</i>	
<b>4.3 Equipment to be Used</b>	<b>Inspection Requirements</b>	<b>Training Requirements</b>	

**ACTIVITY HAZARD ANALYSIS (AHA)**

<b>Activity:</b> <i>Decontamination Facility Operations, Personnel and Equipment.</i>		<b>Analyzed By/Date:</b> <i>FJ Petru 6/6/95</i>	<b>Reviewed By/Date:</b> <i>FJP fac WPD</i>
<b>4.4</b> <i>High-pressure wash with soap solution; other decontamination solutions; scrub brushes; material handling equipment and securing equipment.</i>	<i>Before use per manufacturers recommendation.</i>	<i>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8-hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre- and Post-Entry Briefs, OSHA Hazard Communication, and Respirator.</i>	

**ACTIVITY HAZARD ANALYSIS (AHA)**

<b>Activity:</b> <i>Backfilling and Site Restoration.</i>		<b>Analyzed By/Date:</b> <i>EJ Petrus 6/6/95</i>	<b>Reviewed By/Date:</b> <i>FJP For WP</i>
<b>5.0</b>	<b>Principal Steps</b>	<b>Potential Hazards</b>	<b>Recommended Controls</b>
<b>5.1</b>	<i>Offload, spread, compact and reseed area.</i>	<p><b>5.1a.</b> <i>Contact with airborne treated material, may present a biological hazard.</i></p> <p><b>5.1b.</b> <i>Struck by and struck against physical objects during off-loading and spreading material.</i></p> <p><b>5.1c.</b> <i>Vibration from compactor, electric or air source.</i></p>	<p><b>5.1a.</b> <i>Dust Controls required to include wetting fill material. Level D PPE expected, upgrade if necessary. Dust controls and respirator (dust mask) may be necessary during spreading and covering with cover material (spray on straw)</i></p> <p><b>5.1b.</b> <i>Preplan work layout. Backup alarms on all motorized equipment. Keep clear area around heavy equipment.</i></p> <p><b>5.1c.</b> <i>Equipment operated per manufacturers recommendation. May require heavy work glove for vibration dampening and hearing protection for noise mitigation.</i></p>
<b>5.2</b>	<b>Equipment to be Used</b>	<b>Inspection Requirements</b>	<b>Training Requirements</b>
<b>5.3</b>	<i>Heavy equipment, handtools, sodding equipment, straw spreader, Compactor.</i>	<i>Daily, prior to use per manufacturer's recommendation.</i>	<i>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8-hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre- and Post-Entry Briefs, OSHA Hazard Communication, Respirator.</i>

**ACTIVITY HAZARD ANALYSIS (AHA)**

<b>Activity:</b> <i>Field Sampling Activities for Soil.</i>		<b>Analyzed By/Date:</b> <i>EJ Petrait 6/6/95</i>	<b>Reviewed By/Date:</b> <i>FJP For WP</i>
<b>6.0. Principal Steps</b>	<b>Potential Hazards</b>	<b>Recommended Controls</b>	
<b>6.1. Hand augering (in excavations)</b>	<b>6.1a. Collapse of excavation, entrance and egress, contaminated soil contact, contact with underground utility or piping/mechanical system.</b>	<b>6.1a. Sampler requires approval from competent person to enter excavation if deeper than 5 foot. Atmospheric conditions in excavation checked prior to and during sampling. Modified Level D PPE expected, upgrade per SSHO review. Analyze for potential contact with any underground utility or mechanical service. Note: Excavation Permit must be valid. Review Field Sampling Kit MSDSs.</b>	
<b>6.2. Hand augering (non excavated areas)</b>	<b>6.2a. Contaminated soil contact, contact with utility or piping/mechanical system.</b>	<b>6.2a. Excavation/Trenching Permit required for sampling, analyze for potential contact with any underground utility or mechanical service. Level D PPE expected, upgrade per SSHO review. Review Field Sampling Kit MSDSs, add MSDS to project files.</b>	
<b>6.3. Containerized Liquids Sampling</b>	<b>6.3a. Contaminated liquid contact.</b>	<b>6.3a. Level D+ PPE.</b>	
<b>6.4. Sampling Equipment Decontamination</b>	<b>6.4a. Contact with contaminated material, also direct contact with decontamination solutions (weak nitric acid and acetone)</b>	<b>6.4a. Level D+ PPE with splash goggles and chemical gloves.</b>	
<b>6.5 Equipment to be Used</b>	<b>Inspection Requirements</b>	<b>Training Requirements</b>	

**ACTIVITY HAZARD ANALYSIS (AHA)**

<b>Activity:</b> <i>Field Sampling Activities for Soil.</i>		<b>Analyzed By/Date:</b> <i>FJ Petrus 6/6/95</i>	<b>Reviewed By/Date:</b> <i>FJP for WP</i>
<b>6.6.</b> <i>Soil auger, stainless steel spoons, buckets, field sampling kits and decontamination solutions.</i>	<i>Per manufacturers recommendation. Core drilling equipment if used must be inspected daily. Preplan waste handling.</i>	<i>OSHA 1910.120 40-Hour Training, 3 day OJT, 8 hours Supervisory. 8-hour Refresher, Site Safety and Health Plan (Project Kickoff), POD, Pre- and Post-Entry Briefs, OSHA Hazard Communication, Respirator. DOT 181 certification for person supervising the preparation of contaminated materials for offsite shipment.</i>	