



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

N00164.AR.000289
NSWC CRANE
5090.3a

REPLY TO THE ATTENTION OF:

June 30, 1997

DRP-8J

Mr. Jim Hunsicker, Director
Environmental Protection Department
Department of the Navy
Naval Surface Warfare Center
300 Highway 361
Crane, Indiana 47522-5000

RE: Work Plan
Bioremediation Facility
Naval Surface Warfare Center
Crane, Indiana
IN5 170 023 498

Dear Mr. Hunsicker:

The United States Environmental Protection Agency (U.S. EPA) hereby approves, with modifications, the final Work Plan for Soils Bioremediation Facility. Enclosed are revised pages to the May 2, 1997 Revision 2 copy. Please replace these pages in that document. The U.S. EPA's modifications ~~strikeout~~ what is no longer applicable, and **bolds** and/or underlines text that was added. A complete set of the U.S. EPA's originally approved drawings will be distributed by Morrison Knudsen to be attached to the document, and to replace the existing drawings. The U.S. EPA is also adding the following construction condition to the facility, based on our inspection on June 17, 1997:

A silt screen or fine grating device shall be added across the entry areas of the weirs to the retention ponds. The purpose of the screening device is to prevent or reduce materials from washing into the ponds, causing increased sedimentation. This area shall be maintained and watched during rain events so that there is not an overflow or trapping problem. A Field Clarification Request shall be included in the Construction Report.

All field clarification requests and final as-built drawings shall be submitted within 90 days after construction is completed, or the date of this letter, whichever is later. An independent professional engineer's certification must be included in the Construction Quality Assurance Report. Attachment II gives a listing of items that should be included in the report.

Please sign the Work Plan approval sheet, make a copy for your file, and return the original to the U.S. EPA within 30 days. Our Agency is happy to see the finalization of the work plan and construction of the facility. If you have any questions regarding this matter, please contact me at (312) 886-6146.

Sincerely,

A handwritten signature in black ink, appearing to read "Carol Witt-Smith". The signature is fluid and cursive, with a large initial "C" and "W".

Carol Witt-Smith
Corrective Action Expert
WMB, IL/IN/MI Section

cc: Tom Linson, IDEM
John Manley, IDEM
Chris Freeman, NSWC
Captain Carney, NSWC
Commander Smith, NSWC
Don Miller, MK
Dave Beall, MK at NSWC
Adrienne Wilson, SOUTHDIV

ATTACHMENT I
APPROVAL MODIFICATIONS
Replacement Pages to the May 2, 1997 Revision 2
Work Plan for Soils Bioremediation Facility

1. Replace Cover Page. (New revision date)
2. Replace Sign-off Sheet. (New revision date)
3. Main Text, replace Page 1-1. (Typographic error correction)
4. Main Text, replace Page 3-2. (Change in personnel during construction activities only)
5. Main Text, replace Page 3-3. (Change in job descriptions)
6. Main Text, replace Page 3-4. (Change in job descriptions)
7. Main Text, replace Page 3-5. (Change in job descriptions)
8. Main Text, replace Page 3-6. (Change in job descriptions)
9. Health and Safety Plan, replace cover page. (Change in revision)
10. Health and Safety Plan, replace page A-6. (Change in location description)
11. Health and Safety Plan, replace Page A-51. (Change in personnel)
12. Health and Safety Plan, replace Page A-52. (Correction of typographical error)

**WORK PLAN
For
Soils Bioremediation Facility**

**NSWC CRANE
Crane, Indiana**

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

~~May 2, 1997
Revision 2~~

**June 30, 1997
Revision 3**

Prepared For:

**SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P. O. Box 190010
2155 Eagle Drive
North Charleston, South Carolina 29419-9010**

Prepared By:

**MORRISON KNUDSEN CORPORATION
2420 Mall Drive
Corporate Square 1 - Suite 211
North Charleston, South Carolina 29406**

**WORK PLAN
FOR
SOILS BIOREMEDIATION FACILITY**

**INTERIM MEASURES CLEANUP
AT
NSWC CRANE
Crane, Indiana**

**Revision 2
May 2, 1997**

**Revision 3
June 30, 1997**

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

Prepared by:

**MORRISON KNUDSEN CORPORATION
2420 Mail Drive
Corporate Square 1 - Suite 211
North Charleston, South Carolina 29406**

PREPARED/APPROVED BY:

Don J. Miller
MK Project Engineer

Date

APPROVALS:

Robert E. Hlavacek
MK Program Manager

Date

CLIENT ACCEPTANCE:

U. S. Navy Responsible Authority

Date

NSWC Crane Public Works Officer

Date

U.S. EPA ACCEPTANCE:



U.S. EPA Region 5 Project Coordinator

6/30/97

Date

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.

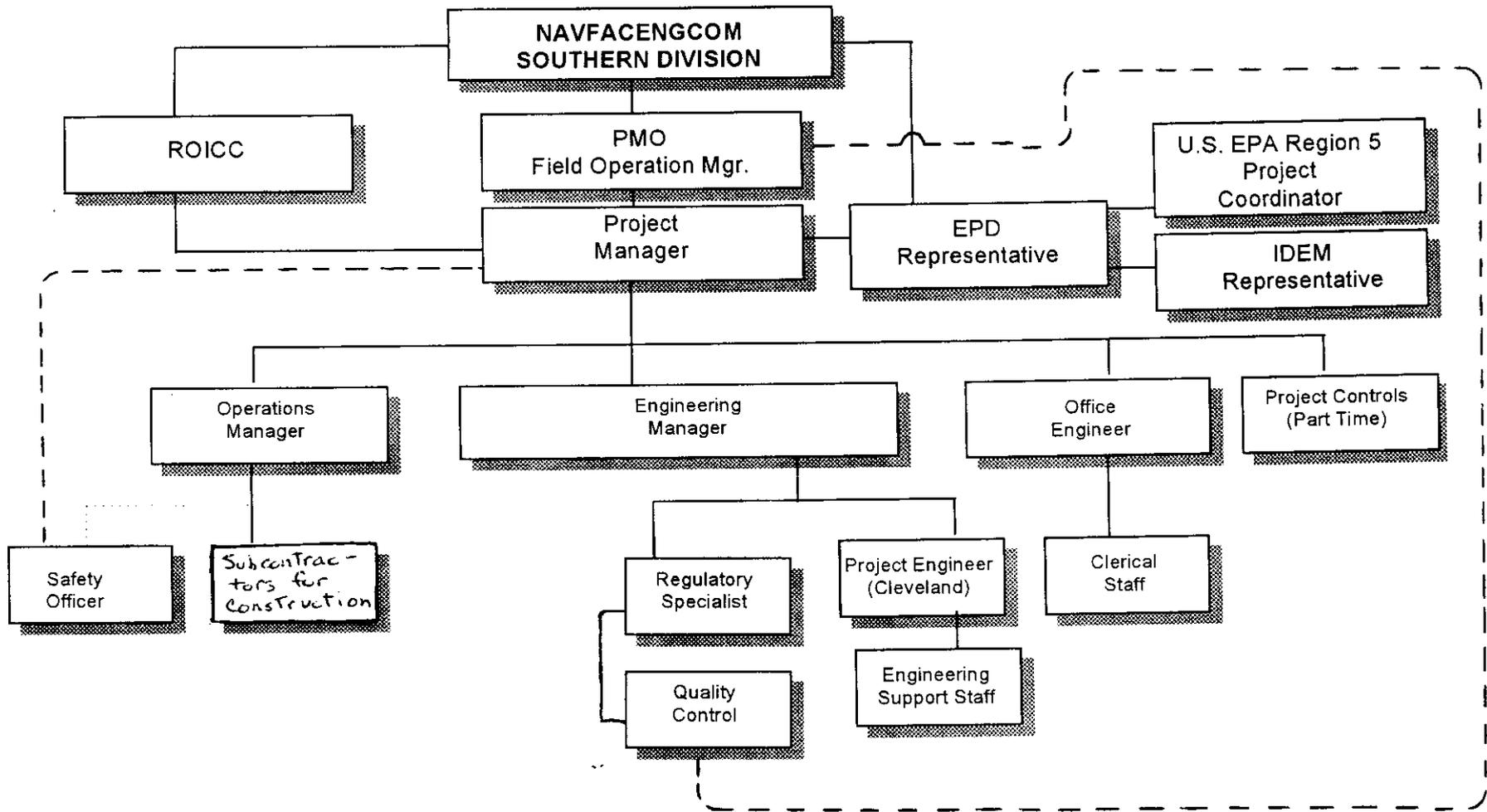
This work plan has been prepared by Morrison Knudsen (MK) for the Naval Facilities Engineering Command (NAVFACENGCOM), Southern Division pursuant to the scope of work defined in Delivery Order #0009, Statement of Work #007, under Contract #N62467-93-D-1106. This work plan describes the design and construction criteria to be used to construct a Solid Waste Bioremediation Facility for performing composting of explosives contaminated soil. A complete description of the bioremediation process and operational requirements is fully described in the Pilot Scale Operational Plan. The Quality Assurance, data collection, and sampling and analytical requirements are described in the Pilot Scale Quality Assurance Project Plan. Both documents are issued under separate cover.

The *Soils Bioremediation Facility* will be constructed to treat explosives-contaminated soil. It will be located near the NSWC landfill, south of the Burns City Gate as shown in Figure 1-2. The Facility will treat the contaminated soil in three pre-engineered open-ended buildings using an amendment mix based on bench-scale testing of Crane soils, results from the Umatilla Army Depot composting activities, as well as results from other amendment composting tests.

1.1 PURPOSE

The purpose of this work plan is to provide construction guidance, technical specifications and drawings, quality control and safety considerations for the construction of a Bioremediation Facility for use in composting of contaminated soil. This plan may be modified, amended, or revised, with the approval of the United States (U.S.) Navy and the U.S. EPA, to optimize the facility design in order to improve performance throughout the pilot scale program. The following documents are provided for the Soils Bioremediation Project and will be used in conjunction with each other:

1. The approved *Work Plan For Soils Bioremediation Facility*, which addresses the construction of the Bioremediation Facility for composting of explosives-contaminated soils.
2. The approved *Task-Specific Site Safety and Health Plan (SSHP)*, which is Appendix A to the *Work Plan For Soils Bioremediation Facility* and



**FIGURE 3-1
ORGANIZATION CHART**

**TABLE 3-1
PROJECT RESPONSIBILITIES**

TEAM MEMBERS	RESPONSIBILITIES
NAVFACENCOM Southern Division Restoration Project Manager (RPM)	Overview of project execution and coordination between Contractor, NSWC Crane, U.S. EPA, 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 Field Operations Manager resides in PMO and is responsible for all Delivery Order Field activities. The PMO is the point of contact for Southern Division.
U.S. EPA Region 5 Project Coordinator (RPC)	Responsible for overview of all site activities to assure compliance with RCRA. RPC shall review and approve all phases of remedial activities including work plans, construction design, equipment, analytical results, etc..
NSWC Environmental Protection Department (EPD) Environmental Construction Representative (ECR)	Responsible for monitoring contractor performance for compliance with RCRA, the RCRA Corrective Action Part B Permit, and other environmental regulations as they apply to the approved Interim Measures Work Plans. In absence of NTR and in an environmental emergency, the ECR shall provide direction to Contractor and provide notification to appropriate parties.
NSWC Resident Officer In Charge of Construction (ROICC)	Southern Division's on-site representative and is the liaison between NSWC officials, the U.S. EPA, and the Project Manager for the SWMUs at NSWC Crane.
Project Manager (PM)	<p>Reports to the Field Operations Manager from the PMO. 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"> • Single point of contact for U.S. Navy and U.S. EPA liaison. • Coordinates the project resources to ensure compliance with the appropriate plans, procedures, and regulatory requirements. • Oversees all personnel on-site and coordinates with the PMO. • Overall responsibility for cost, schedule control, safety, and quality.
Site Superintendent - Operations Manager (OM)	<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 Operational Plan are completed.</p> <ul style="list-style-type: none"> • Coordinates the activities of all field operations personnel. • Provides daily reports to the PM on the status of field operation activities. • Responsible for equipment maintenance, procurement of amendments, and miscellaneous equipment rental. • Primary responsibility for production of the Bioremediation Facility and direct supervision of operators, drivers, laborers, and the ES.
Engineering Manager (EM)	<p>Reports to the PM and has primary responsibility for finalizing the operations plans, provides construction support, and oversight of engineering and scientific activities.</p> <ul style="list-style-type: none"> • Acts as the MK representative at the RAB presentations, • Acts as the MK site communications officer, • Provides technical direction to the engineering and science staff, • Provides oversight and coordination of the preparation of technical documents.

**TABLE 3-1
PROJECT RESPONSIBILITIES**

TEAM MEMBERS	RESPONSIBILITIES
Science Manager (SM)	<p>Reports to the EM and has primary responsibility for oversight of the science activities on site including regulatory support, data collection and analysis, and data reporting:</p> <ul style="list-style-type: none"> • Provides scientific analysis of data; • Provides technical direction to the ES and Technicians; • Provides technical direction to the OM;
Environmental Specialist (ES)	<p>Reports to the OM and will receive technical direction from the SM. Specific responsibilities include:</p> <ul style="list-style-type: none"> • Supervises the activities of the technical staff relative to data collection, sampling, and process control; • Coordinates with the Site Superintendent to ensure that activities are properly coordinated for facility operation; • Coordinates the activities of the support staff and provides project status reports to the SM; • Maintains project records of all monitoring and analysis and prepares technical reports presenting the results of the monitoring, analysis, and facility operational performance; • Responsible for sample collection, field screening analysis, and preparation of samples for shipment;
Project Controls	<p>Reports to the PM with primary responsibilities of tracking of all cost and scheduling for the NSWC Crane Project.</p> <ul style="list-style-type: none"> • Responsible for cost collection and reporting • Responsible for schedule development, maintenance, and reporting.
Project Engineer (PE) (Cleveland)	<p>Reports to the EM with primary responsibilities of coordinating the engineering effort in support of field activities.</p> <ul style="list-style-type: none"> • Assign Cleveland based resources as required for the completion of all project plans and documents. • Provide engineering support for field activities as required.

**TABLE 3-1
PROJECT RESPONSIBILITIES**

TEAM MEMBERS	RESPONSIBILITIES
<p>Site Safety and Health Officer (SSHO)</p>	<p>Reports to the PMO with field reporting to the OM. 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"> • Responsible for the control and elimination of existing and potential industrial hazards. • Implements and executes personnel surveillance program to ensure proper monitoring of internal and external exposures. • Provides site-specific training to personnel as required by the SSHP. • Tracks all personnel training requirements for heavy and light equipment operation, survey data, certifications, and records to ensure compliance with plans and regulations. • Assists in developing and implementing the SSHP. • Conducts audits as appropriate to ensure compliance. • Reviews and approves work permits for appropriate industrial hygiene and safety controls. • Provides monitoring to ensure the protection of project personnel, the public, and the environment. • Maintains an inventory of industrial hygiene and safety supplies as appropriate. • Maintains monitoring equipment and calibration records. • Stops work when necessary to ensure the safety of personnel and to prevent damage to the environment. • Collects air quality samples, records results, and prepares monitoring reports presenting the air quality results to the U.S. Navy.
<p>Site Quality Control Officer (SQCO)</p>	<p>Reports to the PMO and with field reporting to the SM. The SQCO has primary responsibility for verifying a consistently high level of quality for the project.</p> <ul style="list-style-type: none"> • Reviews and checks all documents, reports, and testing results. • Coordinates with the PM, ES, and OM on all facility operations. • Provides surveillance of all field operation activities to ensure compliance with this <u>Operational Plan</u> and the QAPP <u>Work Plan</u> and completes Field Inspection Checklists. • Keeps minutes of the periodic quality meetings. • Implements the three phases of quality control by conducting preparatory meetings prior to beginning a new feature of work, performing surveillance and audits during the implementation phase and finally performing follow-up inspections to verify work was completed in accordance with all associated plans and procedures. • Ensures tracking and resolution of nonconformance/rework items.
<p>Office Engineer</p>	<p>Reports to the PM with primary responsibilities to support all subcontract administration for the project.</p> <ul style="list-style-type: none"> • Initiates change orders and change order negotiations, • order and expedite all field purchased items.
<p>Secretary</p>	<p>Reports to Office Engineer and is responsible for receiving in-coming telephone calls and correspondence, maintaining project files, and general clerical duties.</p>

**TABLE 3-1
PROJECT RESPONSIBILITIES**

TEAM MEMBERS	RESPONSIBILITIES
Environmental Technician	<p>Reports to the Environmental Specialist and is responsible for assisting the ES in the collection of samples and data:</p> <ul style="list-style-type: none"> • Assists in maintaining project records of all monitoring and analysis and prepares technical reports presenting the results of the monitoring, analysis, and facility operational performance. • Responsible for data and sample collection, field screening analysis, and preparation of samples for shipment. • Operates process instrumentation such as temperature/oxygen probe and data logger, pH analyzer, etc.; • Performs calculations for moisture content analysis, volume and weight conversions, averages, and standard deviations.
Backhoe Operator	<p>Reports to the OM and is responsible for operation of the backhoe/loader for excavation of contaminated material to be processed, placement of backfill, and on occasion will operate the windrow turner and tractor/loader.</p>
Center-Pivot Loader/Tractor/Skid Steer Loader Operators	<p>Reports to the OM and is responsible for operation of the center-pivot loader, farm tractor and the skid-steer loader for;</p> <ul style="list-style-type: none"> • Loading operations of the amendment grinder-mixer; • Cleanup and windrow forming during loading and windrow turning operations; • Assist in loading finished compost into the live-bottom trailers; • Operate the windrow turner machine as required; • Loading operations of the amendment grinder-mixer.
Truck Driver	<p>Reports to the OM and is responsible for operating the tractor/trailer rigs to deliver contaminated soil to the Bioremediation Facility and deliver finished compost material to the NSWLC landfill.</p>
Laborers-	<p>Reports to the OM or the designated operator/foreman and is responsible for;</p> <ul style="list-style-type: none"> • Decontamination of equipment at the excavation site. • Segregation of reject materials from screener, i.e., rocks, metal, wood, etc.; • Operation of the vehicle decontamination facility at the Biofacility. • General site cleanup and maintenance of Biofacility area, sumps, and ponds.
Subcontractors	<p>Subcontractors shall be responsible for construction of the facility.</p>
<p>Note: See Section 3.0 of the Task-Specific Site Safety and Health Plan for names and contact.</p>	

APPENDIX A
TASK-SPECIFIC SITE SAFETY AND HEALTH PLAN, REV 2 3

1.0 INTRODUCTION

This Task-Specific Site Safety and Health Plan (SSHP) describes safety and health requirements for construction of the Soils Bioremediation Facility. This SSHP is consistent with requirements of the Occupational Safety and Health Administration's (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 September, 1996. This SSHP is applicable 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

Soils Bioremediation Facility - Facility to be constructed ~~east of Bunker 828 which is located on H-280 just off H-54.~~ **east of the Solid Waste Landfill.** Explosives contaminated soils will be received at this facility from on-site SWMUs. The contaminated soil will be processed by mixing with amendments and composting in covered structures. Support subsystems include decontamination facilities; storm water diversion and retention controls; and office and laboratory trailers.

Construction activities will include site preparation; installation of a sloped compost pad with collection sumps; construction of three temporary pre-engineered buildings on the pad with necessary utilities; temporary office facilities and work areas; decontamination facility; installation of soil processing equipment.

1.2 CONTAMINANT CHARACTERISTICS

No contaminants are expected to be encountered. Chemicals used in support of construction activities 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 job-site trailer, NSWCC Medical Building, and each active work area.

1.3 REFERENCES

American Conference of Governmental Industrial Hygienists (ACGIH), 1996-1997. *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices.*

Morrison Knudsen Corporation (MK), 1995. *Safety Procedures and Guidelines Manual.* November.

Table A-1 Personnel Names and Telephone Numbers

<u>Contact</u>	<u>Person or Agency</u>	<u>Telephone</u>
Fire Department	NSWC Fire Department (Base)	3300 emergency (812) 854-1235
Ambulance Service	NSWC Ambulance (Base)	3300 emergency (812) 854-1100
Law Enforcement	NSWC Security (Base)	(812) 854-3318
Robert Hlavacek	MK Program Manager (MK PMO)	(803) 554-9367
Martin Wilson	MK Field Operations Manager	(803) 554-6003
Steve Downey/Dave Beall	MK Site Project Manager	Office: (812) 854-6941
Wally Metcalf	MK Site Superintendent	Office: (812) 854-6941
Richard Spurgeon	MK Site Safety and Health Officer	Cellular: (812) 639-8356 Unit 0004 radio
Don Miller	MK Project Engineer	Office:(216) 523-2121
Randy Smith/Lois Bigley	MK Site Quality Assurance/Quality Control Supervisor	Office: (812) 854-6941
William Piispanen	MK Health and Safety Program Manager	(208) 386-5930
Cmdr. Fred Smith	NSWC Crane PWD/Eng. Dept	(812) 854-1834
Capt. J.M. Carney	NSWC Base Commander	(812) 854-1210
Jim Hunsicker or Tom Brent Chris Freeman	NSWC Environmental Protection Services	(812) 854-6160 (812) 854-4423
Adrienne Townsel-Wilson	SOUTHNAVFACENGCOM	(803) 743-0582
Brent Robertson	ROICC(NTR)	(812) 854-3318
Lt. Dale Eads	NSWC E.O.D. (Base)	(812) 854-3456
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	USEPA (Region 5) Emergency State of Indiana Emergency	(312) 353-2318 (317) 233-7745

Table A-3
Minimum Personal Protective Equipment Requirements by Task

Site	Activity	PPE
Construction of Bioremediation Facility	1. Site preparation, construction and installation of equipment	1. Level D, modified where necessary by the MK SSHO dependent on construction task.

ATTACHMENT II
CONSTRUCTION QUALITY ASSURANCE REPORT
BIOREMEDIATION FACILITY

At a minimum, the document should address the following (the format is flexible). The document must reflect what was actually constructed.

Table of Contents

- 1.0 Executive Summary
 - General
 - Report Organization

- 2.0 Site Preparation
 - Clearing and Grubbing
 - Coordinate System
 - Subgrading
 - Subgrading Preparation
 - Subgrade Protection
 - Subgrade Testing

- 3.0 Asphalt and Gravel Placement and Storage Bin Area
 - Material Testing
 - Bin Blocks
 - Curbing

- 4.0 Retention Ponds
 - Foundation Preparation
 - Gunite Layer
 - Geotextile Layer
 - Geomembrane Layer
 - Factory Defects
 - Seam Testing
 - Destructive Seam Testing
 - Non-Destructive Seam Testing
 - Liner Deployment Records
 - Approved Samples
 - Discharge Weirs

- 5.0 Decontamination Building
 - Foundation
 - Walls
 - Roof
 - Sumps
 - Electrical Supply
 - Water Supply

- 6.0 Treatment Buildings
 - Foundation
 - Walls
 - Roofs and Ventilation System
 - Sumps
 - Electrical Supply
 - Water Supply

- 7.0 Trailers
 - Foundation
 - Type
 - Electrical Supply
 - Water Supply
 - Explosive Safety Upgrading

- 8.0 Incidental Construction
 - Temporary Construction or Structures
 - Moving leachate/sewer hook -ups

- 9.0 Surveying
 - General

- 10.0 Engineering Certification

List of Appendices

- A. Subgrade Field Compaction Test Results
- B. Liner Placement Testing
- C. Liner Panel Layouts, Seam Testing Results
- D. Construction Material Testing
- E. Sump, etc., Placement Data
- F. Survey Data (as-builts and survey notes)
- G. Construction Quality Assurance Testing Log, Approval Letters
- H. Field Clarification Requests