

FINAL

Work Plan
For
Transportation and Disposal of Contaminated Soil
Solid Waste Management Unit (SWMU) #16/16

NSWC CRANE
CRANE, INDIANA



SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
Contract #N62467-93-D-1106
Delivery Order #0009
Statement of Work #007

March 1998

Comment-Resolution

Draft Work Plan for Transportation And Disposal Of Contaminated Soil Solid Waste management Unit (SWMU) #16/16

Comments by: Tom Brent, NSWC Crane EPD

Comment 1: Signature Page: Delete the U.S. EPA signature block.

Response 1: Changed as commented.

Comment 2: p.7 §2.4 ¶2: Clarify that the vehicles will be covered in order to prevent leakage or spillage during shipment.

Response 2: Text revised as commented.

Comment 3: p.7 §2.5: Add a statement at the end of the paragraph to tie-in the bulleted items (e.g., "The IMR will include:").

Response 3: Text revised as commented.

FINAL

WORK PLAN

TRANSPORTATION AND DISPOSAL OF CONTAMINATED SOIL

SOLID WASTE MANAGEMENT UNIT (SWMU) #16/16

NSWC CRANE
Crane, Indiana

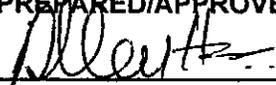
March 06, 1998

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

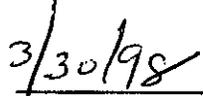
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PREPARED/APPROVED BY:



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MK Project Engineer



Date

APPROVALS:

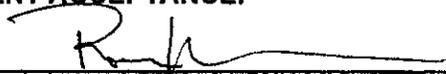


R. Scott Newman
MK Program Manager

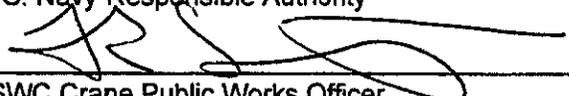


Date

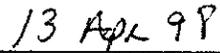
CLIENT ACCEPTANCE:



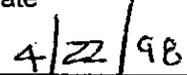
U. S. Navy Responsible Authority



NSWC Crane Public Works Officer



Date



Date

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1.0 INTRODUCTION

1.1 BACKGROUND AND SCOPE

This Work Plan describes the purpose and methodology of soil transportation and disposal activities to be undertaken by Morrison Knudsen Corporation (MK) at Solid Waste Management Unit (SWMU) #16/16 - Cast High Explosive Area of the Naval Surface Warfare Center (NSWC) Crane, Crane, Indiana. This work is being performed for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), under contract number N62467-93-D-1106, Delivery Order 0007, Statement of Work 009.

The scope of the work is to load, transport by a truck, and dispose of approximately 25 (\pm 5) tons of PCB-contaminated soil, gravel, and asphalt from the Cast High Explosive Area. The material will be disposed of at a TSCA-permitted disposal facility. An addendum to a previously submitted Interim Measures Report for SWMU #16/16 [MK, 1997] will be prepared to discuss the actions taken at SWMU #16/16.

1.2 SITE DESCRIPTION

The Naval Surface Warfare Center (NSWC) Crane is located in southwestern Indiana and occupies the northern half of Martin County and parts of Lawrence, Green and Davies counties, approximately 30 miles southwest of Bloomington (Figure 1-1). The site encompasses more than 100 square miles (62,463 acres) including 800-acre Lake Greenwood.

NSWC Crane provides support for equipment, shipboard weapons systems, and ordnance. In addition, NSWC Crane supports the Crane Army Ammunition Activity (CAAA) including production and renovation of conventional ammunition, storage, shipment, and demilitarization and disposal of conventional ammunition.

The Cast High Explosive area, identified as SWMU #16/16, is located in the north central part of NSWC Crane as shown on Figure 1-2. Building 146 is situated along Highway H-307 and was the site for melt-pouring TNT, RDX, and HMX explosives into projectiles (cast loading). High-pressure water washout of 5-inch projectiles filled with Composition A was also conducted at Building 146. Prior to 1978, the generated waste water was discharged to a storm drain, with release to a ditch and ultimately Boggs Creek. Beginning in 1967, small-arms ammunition was demilitarized in three incinerators located adjacent to Building 146. Incinerator ash collected in the emission controls system was stockpiled on the surface soil prior to disposal. Scattered small piles of potentially contaminated ash and slag are visible throughout the area.

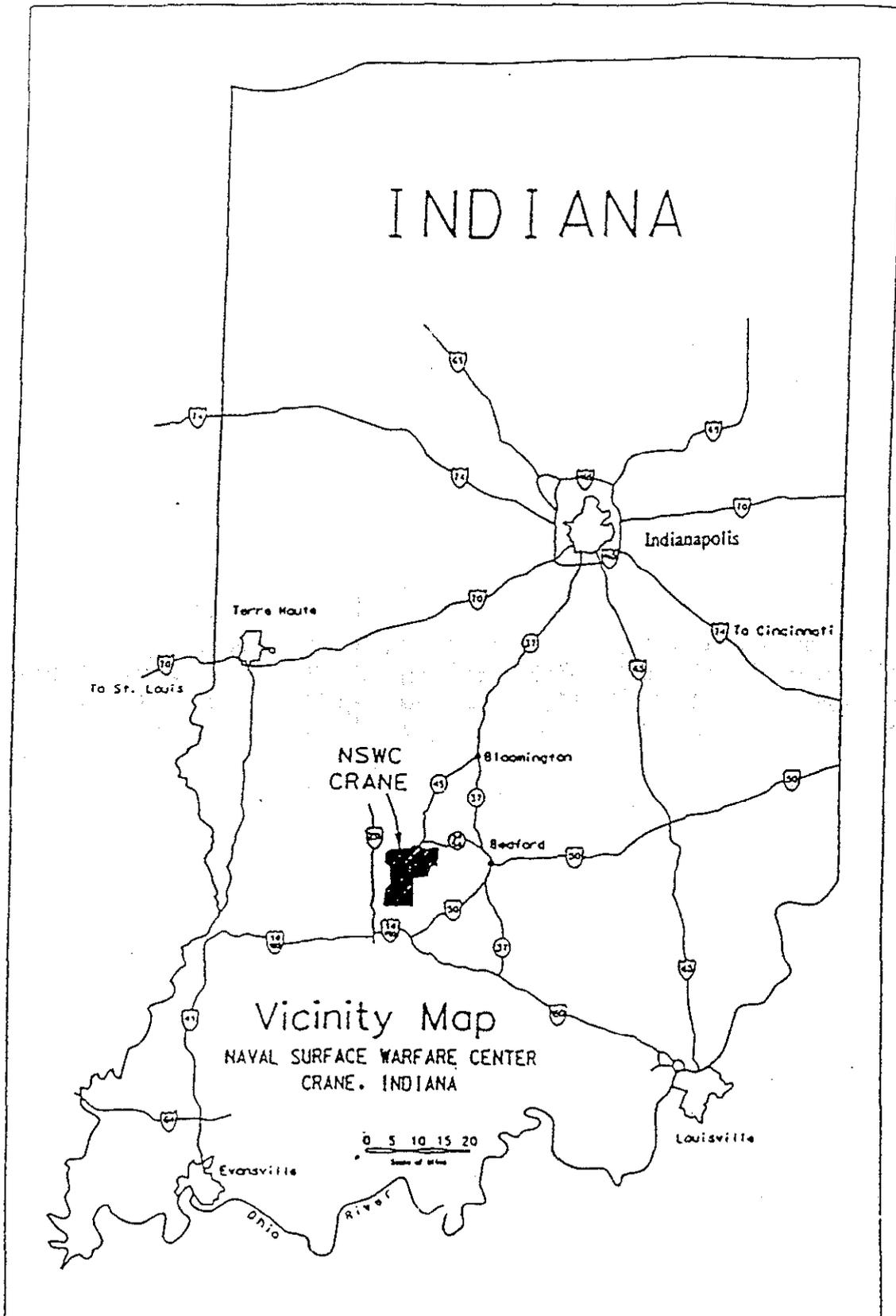
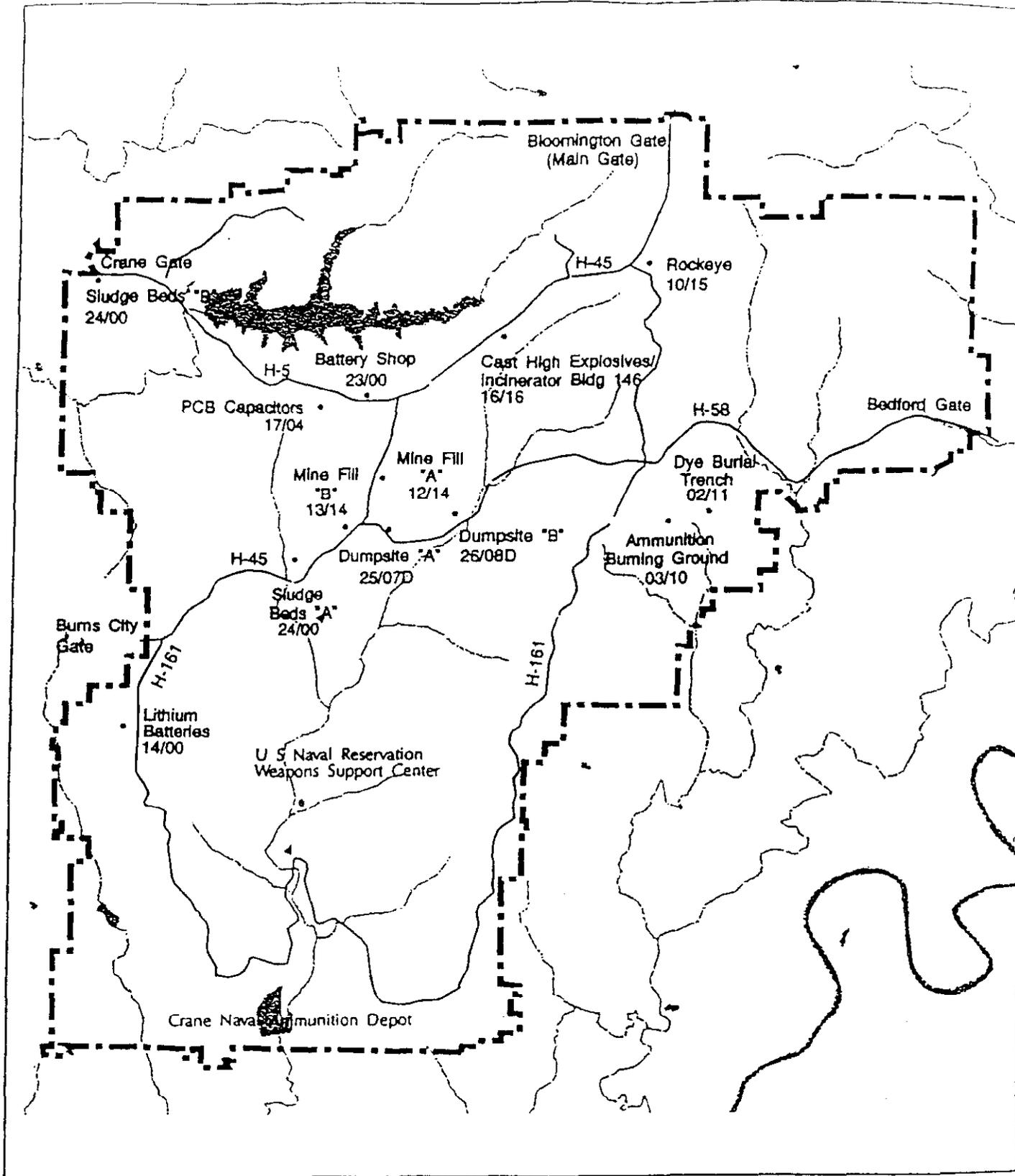


Figure 1-1
Vicinity Map of NSWCR Crane, Indiana



- 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



Figure 1-2
Location of Solid Waste
Management Units



Two settling basins are located near the northeast and northwest corners of Building 146, as shown in Figure 1-3. These basins are thought to accept discharge from the floor drains inside the building. These settling basins (sumps) are constructed of concrete, with wood slats covering the tops. Each sump measures approximately 13 feet long by seven feet wide by seven feet deep. The bottom of a 12-inch diameter discharge pipe is located approximately three and one-half feet from the bottom of the sumps. Figure 1-3 shows the location of the Building 146 sumps as well as the affected soil area.

The major soil contaminants resulting from Building 146 loading and washout activities were TNT, RDX, HMX, Composition A, Composition B, and ammonium picrate. The main compounds of concern in the incinerator ash are lead, barium, cadmium, chromium, and mercury. Potential contamination from PCB oxidation products resulting from fuel blending at the incinerator has also been reported.

Visible piles of slag and ash that had been stockpiled in the area along with metal ammunition casings remaining from incineration activities have been removed and disposed of. Additionally, sludge from two concrete sumps were removed and disposed of, and the sumps were cleaned by pressure washing. An Interim Measures Report describing these activities for SWMU #16/16 has been submitted [MK, 1997] to U.S. EPA.

Soil and gravel excavated during the construction of a storm-water diversion system in 1997, was stockpiled and covered with polyethylene sheeting. The stockpile also contains asphalt removed from the adjacent parking lot. The excavated soil was sampled and associated analytical data is included in Appendix A. The results indicate that the soil is impacted with PCBs at less than 50 parts per million (ppm).

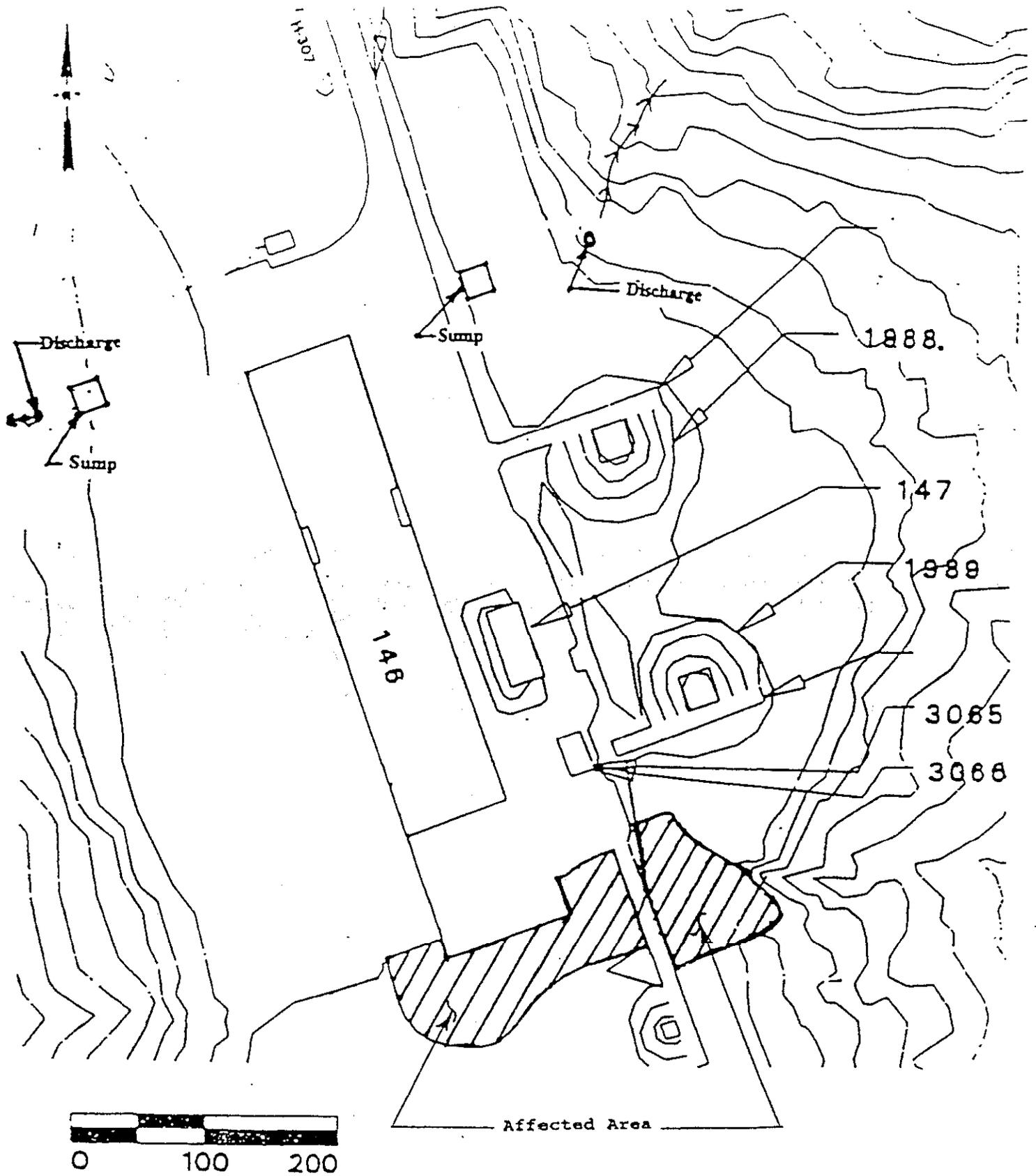


Figure 1-3
SWMU #16/16 Cast High Explosive/Incineration Soil Excavation Area

2.0 WORK APPROACH AND EXECUTION

This section describes the work approach that will be employed during loading, transportation, and disposal of contaminated soil from SWMU #16/16.

2.1 SITE SAFETY AND HEALTH

The requirements of safety and health will be implemented as described in the Site Safety and Health Plan (SSHP), included as Appendix A, of the *Work Plan* [MK, 1995]. The 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' *Safety and Health Requirements Manual* EM 385-1-1.

2.2 QUALITY CONTROL

A Program-Wide Quality Control Plan (QCP) has been developed for the SOUTHNAVFACENCOM Environmental Remedial Action Contract [MK, 1996]. The MK Quality Control Program integrates the Navy's Quality Control system using the "Three Phases of Control". The Three Phases of Control provide internal check points to systematically inspect the planned or on-going work. The Three Phases of Control as described in the QCP [MK, 1996] and the quality control requirements specified in the *Work Plan* [MK, 1995] will be performed during transportation of wastes described in this Plan.

2.3 REGULATORY COMPLIANCE

All interim measures work actions described in this Plan will be performed in accordance with applicable guidance and will conform to all federal, state and local rules, regulations and codes.

Applicable regulations, guidance, and procedures presented in Section 2.1 of the *Work Plan* [MK, 1995] will be complied with.

The excavated material (soil, gravel, and asphalt) described in this Plan is classified as TSCA waste per 40 CFR 761.3 due to the lack of generator knowledge on the source concentration of PCB contamination.

2.4 WASTE TRANSPORTATION AND DISPOSAL

Prior to waste transportation, the facility permit will be reviewed to ensure that the facility is permitted to accept the wastes described in this Plan. A certification from the

disposal facility indicating that no local, state, or federal violations are pending will be submitted to NSWC Crane EPD.

All personnel handling hazardous waste will be trained per 49 CFR 172.704 and 29 CFR 1910.120. Shipping papers for waste disposal will be prepared in accordance with regulations established in 49 CFR 172. All personnel responsible for hazardous waste labeling, inspecting, profiling and manifesting will be trained per 29 CFR 1910.120 and 49 CFR 172 as amended by HM-181 and HM-126. All vehicles carrying hazardous waste/materials will be placarded in accordance with 49 CFR 172. All vehicles will be adequately protected by covering with polyethylene sheeting, tarpaulin, or other suitable method to prevent leakage or spillage during shipment.

The NSWC Crane EPD will provide the Generator signature on the waste profiles and manifests.

2.5 INTERIM MEASURES REPORT

After the wastes are disposed of, an addendum to the Interim Measures Report (IMR) for SWMU #16/16 will be prepared and submitted to SOUTHNAVFACENGCOM and NSWC Crane EDP for review and submittal to the U.S. EPA. The addendum IMR will include the following items:

- a description of installation of storm-water diversion system at SWMU #16/16;
- a discussion of the management of wastes, including ultimate disposal of generated materials;
- pertinent waste disposal documentation (profiles and manifests);
- a summary of the sampling and analytical results;
- photographic documentation of interim measures actions indicating conditions before, during, and after work activities;
- changes to this Plan, if any; and
- recommendations and conclusions.

3.0 SCHEDULE

The tentative milestone work schedule for the transportation and disposal of contaminated soil from SWMU #16/16 is as follows:

Prepare Profiles and Manifests	March 5, 1998
Obtain NSWC Crane EPD Signature	March 6, 1998
Transport Soil	March 6, 1998
Draft Addendum IMR to Navy (90 days after waste disposal)	June 5, 1998
Receive Comments from Navy	July 6, 1998
Issue Addendum IMR to Regulators (180 days after completion of work)	October 5, 1998

4.0 REFERENCES

- MK, 1995. *Work Plan for Interim Measures Cleanup at Solid Waste Management Units #16/16 and #24/00 at NSWC Crane, Crane, Indiana.* Prepared by Morrison Knudsen Corporation, August 1995.
- MK, 1996. *Delivery Order Execution Quality Control Plan, Southern Division, Naval Facilities Engineering Command.* Prepared by Morrison Knudsen Corporation, Rev. 0, July 12, 1996.
- MK, 1997. *Interim Measures Report for NSWC Crane, SWMU-16/16, Cast High Explosive/Incinerator Building 146, Crane, Indiana.* Prepared by Morrison Knudsen Corporation, February 1997.

**APPENDIX A
SUMMARY OF ANALYTICAL DATA**



CHAIN OF CUSTODY RECORD

171
COC # 1486

120 Park Blvd., 1753 Ln.
Boise, Idaho 83720
(208) 386-5000

Project No.: 4324-0027-36		Project Name: NSWC Crane			Spill Samples		Analysis Required									
Samplers: (Signature) Sampler: (Print) Peter J. Chevalier		DRN					<div style="border: 1px solid black; padding: 5px; transform: rotate(-45deg); display: inline-block;"> ANALYSIS REQUIRED FOR ALL METALS (LODA) PCBs, TOXIC EXPLOSIVE PCP, ETC. </div>									
Sample Type	Sampling Point Description	Sample Date	Time	Sample I.D. Number	Yes	No										
Soil	wastepile-west side	9/24/97	1500	NSWC 16/WP01	/	/	14 day TAT									
Soil	wastepile-east side	9/24/97	1500	NSWC 16/WP02	/	/										
													Compu			
													Chan			
Relinquished By: (Signature) Company:		Date/Time	Received By: (Signature) Company:		Relinquished By: (Signature) Company:		Date/Time	Received By: (Signature) Company:		Relinquished By: (Signature) Company:		Date/Time	Received By: (Signature) Company:			
Relinquished By: (Signature) Company:		Date/Time	Received By: (Signature) Company:		Relinquished By: (Signature) Company:		Date/Time	Received By: (Signature) Company:		Relinquished By: (Signature) Company:		Date/Time	Received By: (Signature) Company:			
Relinquished By: (Signature) Company:		Date/Time	Received By: (Signature) Company:		Received for Laboratory By: (Signature) Company:		Date/Time	Total No. Samples This Shipping Container: Company:		Relinquished By: (Signature) Company:		Date/Time	Received By: (Signature) Company:			
Relinquished By: (Signature) Company:		Date/Time	Received By: (Signature) Company:		Relinquished By: (Signature) Company:		Date/Time	Received By: (Signature) Company:		Relinquished By: (Signature) Company:		Date/Time	Received By: (Signature) Company:			

Seals # 5539, 5540, & 5541

JAN-08-1998 10:21 MORRISON KNUDSEN CORP. 803 740 0160 P.05/19

PESTICIDE ORGANICS ANALYSIS DATA SHEET

16WP02

Lab Name: COMPUCHEM ENV. CORP.

Contract: 501019

Lab Code: COMPU

Case No.: 31923

SAS No.:

SDG No.: 1350C

Matrix: (soil/water) SOIL

Lab Sample ID: 870487

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: _____

% Moisture: 19 decanted: (Y/N) N

Date Received: 09/27/97

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 09/30/97

Concentrated Extract Volume: 10000 (uL)

Date Analyzed: 10/17/97

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: _____

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
---------	----------	---	---

12674-11-2-----	Aroclor-1016	41	U
11104-28-2-----	Aroclor-1221	83	U
11141-16-5-----	Aroclor-1232	41	U
53469-21-9-----	Aroclor-1242	41	U
12672-29-6-----	Aroclor-1248	41	U
11097-69-1-----	Aroclor-1254	14	JP
11096-82-5-----	Aroclor-1260	41	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

16WP02

Lab Name: COMPUCHEM

Contract: 501019

Lab Code: COMPU

Case No.: 31923

SAS No.:

SDG No.: 1346C

Matrix: (soil/water) SOIL

Lab Sample ID: 870478

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: GH070478B57.D

Level: (low/med) LOW

Date Received: 09/27/97

% Moisture: not dec. 19

Date Analyzed: 10/07/97

GC Column: DB624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION (ug/L or ug/Kg)	UNITS: UG/KG	Q
79-01-6-----	Trichloroethene		12	0

FORM 1
8330 ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

16WP02

Lab Name: COMPUCHEM Contract: _____
 Lab Code: COMPU Case No.: 31923 SAS No.: _____ SDG No.: 1348C
 Matrix: (soil/water) SOIL Lab Sample ID: 870483
 Sample wt/vol: 2.0 (g/mL) G Lab File ID: _____
 % Moisture: 19 decanted: (Y/N) N Date Received: 09/27/97
 Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/30/97
 Concentrated Extract Volume: 10000 (ul) Date Analyzed: 10/02/97
 Injection Volume: 25.0 (uL) Dilution Factor: 1.2
 GPC Cleanup: (Y/N) N pH: _____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) MG/KG		Q
2691-41-0	-----HMX	3.7	U	
99-35-4	-----1,3,5-Trinitrobenzene	1.1	BJ	
121-82-4	-----RDX	0.92	BJ	
99-65-0	-----1,3-Dinitrobenzene	1.8	U	
118-96-7	-----2,4,6-Trinitrotoluene	1.8	U	
479-45-8	-----Tetryl	3.1	U	
98-95-3	-----Nitrobenzene	1.8	U	
121-14-2	-----2,4-Dinitrotoluene	0.62	U	
606-20-2	-----2,6-Dinitrotoluene	1.8	U	
35572-78-2	-----2-Amino-4,6-dinitrotoluene	1.8	U	
1946-51-0	-----4-Amino-2,6-dinitrotoluene	0.59	U	
88-72-2	-----2-Nitrotoluene	5.8	U	
99-99-0	-----4-Nitrotoluene	5.8	U	
99-08-1	-----3-Nitrotoluene	1.4	U	

PESTICIDE ORGANICS ANALYSIS DATA SHEET

16WP01

Lab Name: COMPUCHEM ENV. CORP. Contract: 501019
 Lab Code: COMFU Case No.: 31923 SAS No.: SDG No.: 1350C
 Matrix: (soil/water) SOIL Lab Sample ID: 870484
 Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____
 % Moisture: 11 decanted: (Y/N) N Date Received: 09/27/97
 Extraction: (Sep/Cont/Sonc) SONC Date Extracted: 09/30/97
 Concentrated Extract Volume: 10000 (uL) Date Analyzed: 10/17/97
 Injection Volume: 2.0 (uL) Dilution Factor: 20.0
 GPC Cleanup: (Y/N) N pH: _____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
12674-11-2-----	Aroclor-1016	740	U	
11104-28-2-----	Aroclor-1221	1500	U	
11141-16-5-----	Aroclor-1232	740	U	
53469-21-9-----	Aroclor-1242	740	U	
12672-29-6-----	Aroclor-1248	740	U	
11097-69-1-----	Aroclor-1254	20000		
11096-82-5-----	Aroclor-1260	740	U	

VOLATILE ORGANICS ANALYSIS DATA SHEET

16WF01

Lab Name: COMPUCHEM

Contract: 501019

Lab Code: COMPU

Case No.: 31923

SAS No.:

SDG No.: 1346C

Matrix: (soil/water) SOIL

Lab Sample ID: 870475

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: GH070475B57.D

Level: (low/med) LOW

Date Received: 09/27/97

% Moisture: not dec. 11

Date Analyzed: 10/07/97

GC Column:DB624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
---------	----------	---	---

79-01-6-----	Trichloroethene	11	U
--------------	-----------------	----	---

FORM 1
8330 ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

16WP01

Lab Name: COMPUCHEM Contract: _____
 Lab Code: COMPU Case No.: 31923 SAS No.: _____ SDG No.: 1348C
 Matrix: (soil/water) SOIL Lab Sample ID: 870479
 Sample wt/vol: 2.0 (g/mL) G Lab File ID: _____
 % Moisture: 11 decanted: (Y/N) N Date Received: 09/27/97
 Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/30/97
 Concentrated Extract Volume: 10000 (ul) Date Analyzed: 10/02/97
 Injection Volume: 25.0 (uL) Dilution Factor: 1.1
 GPC Cleanup: (Y/N) N pH: _____ Sulfur Cleanup: (Y/N) N

CAS NO. . COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) MG/KG Q

2691-41-0-----	HMX	3.4	U
99-35-4-----	1,3,5-Trinitrobenzene	1.3	BJ
121-82-4-----	RDX	2.8	U
99-65-0-----	1,3-Dinitrobenzene	1.7	U
118-96-7-----	2,4,6-Trinitrotoluene	1.7	U
479-45-8-----	Tetryl	2.8	U
98-95-3-----	Nitrobenzene	1.7	U
121-14-2-----	2,4-Dinitrotoluene	0.56	U
606-20-2-----	2,6-Dinitrotoluene	1.7	U
35572-78-2-----	2-Amino-4,6-dinitrotoluene	1.7	U
1946-51-0-----	4-Amino-2,6-dinitrotoluene	0.54	U
88-72-2-----	2-Nitrotoluene	5.4	U
99-99-0-----	4-Nitrotoluene	5.4	U
99-08-1-----	3-Nitrotoluene	1.3	U

