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INTERIM MEASURES WORK PLAN ADDENDUM FOR CONCRETE WASH RACK AT SOLID WASTE MANAGEMENT UNIT 9 PESTICIDE CONTROL AREA/R-150 TANK AREA NSA CRANE IN

02/01/2012

TETRA TECH

Interim Measures Work Plan Addendum
for
Concrete Wash Rack
at
SWMU 9 - Pesticide Control Area/ R-150 Tank Area

Naval Support Activity Crane
Crane, Indiana

Naval Facilities Engineering Command
Midwest

Contract Number N624670-08-D-1001
Contract Task Order F273

February 2012

INTERIM MEASURES WORK PLAN ADDENDUM
FOR CONCRETE WASH RACK
AT
SWMU 9 - PESTICIDE CONTROL AREA/R-150 TANK AREA

NAVAL SUPPORT ACTIVITY CRANE
CRANE, INDIANA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command Midwest
201 Decatur Ave., Building 1A
Great Lakes, Illinois 60088

Submitted by:
Tetra Tech
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King of Prussia, Pennsylvania 19406

CONTRACT NUMBER N624670-08-D-1001
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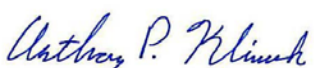
FEBRUARY 2012

PREPARED UNDER THE SUPERVISION OF:



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1.0 INTRODUCTION

This Interim Measures Work Plan (IMWP) Addendum presents the plan for Interim Measures (IM) to address pesticide contamination in the concrete wash rack at Solid Waste Management Unit (SWMU) 9 - Pesticide Control Area/R-150 Tank Area. SWMU 9 is located at the Naval Support Activity (NSA) Crane in Crane, Indiana. Proposed IM described in this IMWP Addendum consists of removal and off-site disposal of pesticide contaminated concrete and restoration of the SWMU 9 site. This IMWP Addendum was prepared for the United States Navy, Naval Facilities Engineering Command, Midwest (Navy) by Tetra Tech under Contract Task Order (CTO) F273 of the Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N624670-08-D-1001.

The original IMWP for SWMU 9 was prepared by Tetra Tech and submitted in September 2008 (Tetra Tech, 2008). That IMWP presented the plan and requirements for excavation and off-site disposal of soil contaminated with polychlorinated biphenyls (PCBs), pesticides, and total petroleum hydrocarbons (TPH) from SWMU 9. The soil excavation and disposal work described in the original IMWP has been performed.

The IM work described in this document will be performed in accordance with this IMWP Addendum and the original IMWP.

1.1 PURPOSE AND SCOPE OF IMWP ADDENDUM

The location of SWMU 9 on NSA Crane is shown on Figure 1-1. A site plan with the location on the concrete wash rack within SWMU 9 is shown on Figure 1-2. During the soil excavation and disposal activities performed under the original SWMU 9 IMWP, soil contaminated with pesticides was excavated in the vicinity, and adjacent to, the below ground concrete wash rack structure on the west side of former Building 55 Area of SWMU 9.

Vehicles and equipment used in the application of pesticides were likely rinsed in the area of the wash rack. The wash rack was included, and was supported by, a below ground concrete structure. Rinsate, which contained pesticides, percolated into the wash rack and into nearby soil. During this process, soils in the area, and sections of the concrete wash rack, were contaminated with pesticides. Soils with pesticide contaminant levels above Media Cleanup Goals (MCGs) have been removed from the site. However, sections of the concrete wash rack structure, which are classified as debris containing a listed waste per 40 CFR 261.3(a)(2)(ii) remain and must be treated in accordance with 40 CFR 268.45 prior to disposal. The September 2008 IMWP did not address the SWMU 9 concrete wash rack.

This IMWP Addendum summarizes analytical data for the concrete wash rack and presents the plan to complete IM work at SWMU 9. As described in this IMWP Addendum, sections of the concrete wash rack contain pesticide contamination at unacceptable levels that will be removed and disposed off-site.

1.2 WASH RACK DESCRIPTION

The top of the wash rack has been demolished and removed during soil excavation activities in the area. It is currently an open, below ground structure. As shown on Figure 1-3 and in the photographs in Appendix A, the concrete wash rack structure is approximately 16 feet wide by 19 feet long. It is approximately 12 feet deep on the east side and 6 feet deep on the west side. The wash rack consists of six concrete walls, four outer walls (north, south, east, and west) and two interior walls (northern interior wall and southern interior wall) that divide the wash rack into three cells. The north wall is approximately 10-inches thick, the other exterior walls are approximately 12-inches thick, and the two interior walls are approximately 16-inches thick. There is a concrete floor covering the middle cell, and the north and south cells have gravel/soil floors.

1.3 ENVIRONMENTAL INVESTIGATION AND REGULATORY SUMMARY

Samples of the wash rack concrete and the adjacent soil have been collected and analyzed for pesticides. That analysis and a proposed interim measures concept has been presented to, and reviewed by, the United States Environmental Protection Agency (USEPA). Based on that review, the USEPA has authorized development of a proposed plan of action. This IMWP Addendum presents that proposed plan of action.

1.4 IMWP ADDENDUM ORGANIZATION

The IMWP Addendum is a supplement to the existing SWMU 9 IMWP (Tetra Tech, 2008). It presents specific information about the SWMU 9 concrete wash rack and includes: a summary of the environmental investigations performed to date (Section 2) and a description of the proposed Interim Measures (Section 3). Appendices present additional information and include:

- Appendix A – Photographs
- Appendix B – Supplemental Specifications

2.0 ENVIRONMENTAL INVESTIGATION SUMMARY

Contaminated soil was excavated from SWMU 9 in 2009 and 2010 in accordance with the SWMU 9 IMWP (Tetra Tech, 2008) and additional characterization and confirmation sampling and analysis were conducted. Tetra Tech performed confirmation sampling to verify that the remaining soil was below MCGs. During soil excavation, contaminated soil was excavated in the vicinity of the concrete wash rack on the west side of former Building 55.

Pesticide contaminated soil was excavated in the immediate vicinity of the concrete wash rack and achievement of MCGs was verified by confirmation sampling and analysis. The area adjacent to the concrete wash rack has been backfilled with clean soil from off-site. Based on the combination of confirmation sampling and analysis, and previous characterization sampling and analysis results, the soil on the outside of the wash rack does not require additional excavation.

Characterization sampling and analysis was performed on the wash rack concrete and the soil immediately below the wash rack in the spring of 2011. The analytical results were used as a basis to develop this IMWP Addendum.

This section summarizes the following:

- Sampling and Analysis of Soil Adjacent to Wash Rack
- Supplemental Wash Rack Characterization Sampling and Analysis
- Regulatory Approach

2.1 SAMPLING AND ANALYSIS OF SOIL ADJACENT TO WASH RACK

Analysis was performed on soil samples collected in the vicinity of the wash rack during previous investigations and IM excavations. This work included: 1) characterization sampling prior to IM excavation, and 2) confirmation sampling during and after IM excavation to confirm that pesticide contamination in the remaining soil was less than MCGs. Characterization soil samples were collected between March 2005 and October 2006 from the wash rack area at depths that ranged from 0 to 2 feet below ground surface (bgs) to 7 to 9 feet bgs (Tetra Tech, 2008). Based on analytical results, soil with pesticides levels above MCGs was excavated and confirmation samples were collected and analyzed. Soil excavation and confirmation sampling continued until sampling and analysis confirmed that contaminant levels in the soil were below MCGs.

During soil excavation, the concrete floor slab on top, and in the vicinity, of the wash rack was also removed.

Within the immediate area of the wash rack, soil was excavated from the exterior of all four sides of the wash rack and disposed offsite; the depth of the excavation was a minimum of 2 feet. On the west side of the wash rack, soil was initially excavated a minimum of 6 feet below the original ground surface. Confirmation samples were collected from the floor and walls of all excavations. Excavation and confirmation sampling continued until soil contaminant levels were below MCGs. After the remaining soil was determined to be less than MCGs, and the excavation was backfilled with clean fill and the area regraded. Therefore, the existing surface soil in the vicinity of the wash rack is not contaminated with pesticides.

The wash rack was located on the west side of the former Building 55 floor slab. From the edge of the floor slab, the ground surface sloped steeply downward to the west. There was (and is) an active steam line at the toe of the slope approximately 25 feet west of the wash rack. After soil with contaminant levels above MCGs was excavated, the area was backfilled to and regraded to a flatter slope. After regrading, the area on the west side of the wash rack was (and is) approximately 4 to 6 feet below the original ground surface.

Based on confirmation sampling and analysis, contaminant levels in the soil outside the wash rack were below MCGs; however, no soil sampling and analysis was performed on the soil below the wash rack and there was only limited concrete sampling and analysis performed on the wash rack concrete. Therefore, supplemental characterization sampling and analysis was performed in the spring of 2011 to obtain information to address the wash rack and the underlying soil.

2.2 SUPPLEMENTAL CHARACTERIZATION SAMPLING AND ANALYSIS

Tetra Tech prepared a Supplemental Work Plan (Tetra Tech, 2011a) to perform characterization sampling and analysis at the wash rack. The Supplemental Work Plan presented a plan to collect samples from the six concrete walls of the wash rack, and the soil below the wash rack.

The supplemental samples were collected in May 2011. Prior to sampling, the standing water in the wash rack was pumped to a nearby manhole and into the NSA Crane wastewater treatment plant. At the end of pumping, approximately 6 inches of mud and water remained on the wash rack floor. The sampling was performed in accordance to the Work Plan and the project-specific Health and Safety Plan.

As described below, during the supplemental sampling, 12 composite concrete samples (each made up of 4 discrete aliquots) and 5 discrete soil samples were collected. The samples were sent to an off-site laboratory (Empirical Laboratories, LLC or Empirical) and analyzed for pesticides using USEPA SW-846 Method 8081A. Specific analytical results are described in the following sections.

2.2.1 Concrete Sampling and Analysis

The concrete samples were collected using a demolition hammer drill with a one-inch diameter drill bit in accordance with the USEPA Region 1 Standard Operating Procedure (SOP) for Sampling Concrete in the Field (USEPA, 1997). Samples were collected by drilling holes into the concrete wall to a depth of one inch. The concrete cuttings were collected as the holes were drilled. An average of five holes was drilled per aliquot to obtain sufficient quantity (5 ounces) of material for each aliquot. The sampling equipment (drill bit) was decontaminated between collections of each aliquot sample. Each composite sample was comprised of equal parts of each aliquot and consisted of approximately 4 ounces. The remaining quantity of each individual aliquot sample was sufficient for individual aliquot analysis.

The general location of the 12 concrete composite samples (09CS007 to 09CS018) are shown on Figure 2-1. As shown on that figure, two composite samples were collected from each of the wash rack walls - one from the lower area and one from the upper area of each wall. The approximate locations of the four discrete aliquots (A, B, C, and D) that made up composites are shown on Figures 2-2 and 2-3. The four aliquots from each area were composited to create a sample to represent that area. The four individual discrete aliquot samples that made up each composite were also sent to the laboratory.

The 12 composite concrete samples were initially analyzed for 7 primary pesticides (4,4'-DDD; 4,4'-DDE; 4,4'-DDT; alpha-chlordane; dieldrin; gamma-chlordane; and heptachlor). The results of that analysis are shown on Figures 2-2 and 2-3 and in Table 2-1. Table 2-1 also shows the Resource Conservation and Recovery Act (RCRA) pesticide non-wastewater universal treatment standards (UTS) for individual pesticides.

As shown in Table 2-1, four of the composite concrete samples exceeded the UTS for non-wastewater for one or more pesticides and one of the four samples also exceeded the pesticide soil MCGs. The four concrete samples that had UTS exceedances were:

- 09CS012 - Upper area of north wall;
- 09CS014 - Upper area of east wall (also exceeded soil MCGs);
- 09CS016 - Upper area of northern interior wall; and
- 09CS018 - Upper area of southern interior wall.

As described above, all of the samples that exceeded a UTS were in the upper area of the wash rack.

The 12 concrete composite samples were also analyzed for 14 additional pesticides. As shown in Table 2-1, none of the samples had pesticide levels that exceeded the UTS for the additional pesticides.

In addition, the four individual aliquots (A, B, C, and D) that made up the four composite samples with UTS exceedances (09CS012, 09CS014, 09CS016, and 09CS018) were also analyzed for the seven primary pesticides. As shown in Table 2-1, three (A, C, and D) of the individual aliquots that made up the composite sample on the upper area of the north wall (09CS012) were below UTS, and one (D) of the individual aliquots that made up the composite sample on the upper area of the northern interior wall (09CS016) were below UTS. All other individual aliquots that made up the composites had a least one pesticide that exceeded a UTS.

2.2.2 Soil Sampling and Analysis

A total of five soil samples were collected from three locations (09SB166, 09SB167 and 09SB168) at or below the wash rack floor, as shown on Figure 2-4. Two soil samples were collected from below the wash rack floor in the south and north cell (09SB166 and 09SB168, respectively) using a hand auger; at each location, one sample was collected from 0 to 2 feet bgs and from 2 to 4 feet bgs. Approximately 6 inches of gravel was on the floor of the north and south cells; the soil below the wash rack was very wet brown and gray clay. Because the middle cell has a concrete floor, soil sample 09SB167 was collected from material on the floor (see photographs in Appendix A).

The five soil samples were analyzed for the seven primary pesticides. As shown on Figure 2-4 and in Table 2-2, none of the individual pesticides exceeded the soil MCGs for the site.

2.3 REGULATORY APPROACH

A Technical Memorandum summarizing the concrete and soil analytical results (Tetra Tech, 2011b) was transmitted to the USEPA by the Navy in July 2011. The transmittal described the analytical results and proposed two basic options to address the four sections of concrete that exceeded the UTS.

The Navy proposed to either: 1) remove and segregate the sections of concrete that need to be treated and then (using the options available in 40 CFR 268.45) either treat the material and dispose it in a RCRA Subtitle D landfill or treat the removed sections of concrete with an immobilization technology (such as

epoxy coating all surfaces) and dispose it in a RCRA Subtitle C landfill; or 2) leave the wash rack in place, fill it with soil, and implement Land Use Controls (LUCs).

Via e-mail on September 27, 2011, the USEPA concurred with the data and authorized the Navy to proceed with preparing a proposed plan of action.

3.0 CONCRETE WASH RACK INTERIM MEASURES

This IMWP Addendum describes the Interim Measures necessary to remove the pesticide contaminated-portions of the concrete wash rack, treat and dispose the contaminated concrete offsite, backfill and restore the site, and other activities necessary to perform the work. Specifically, this work will consist of the following major components:

- Site preparation and support activities
- Water management
- Removal of concrete from wash rack
- Transportation, treatment, and off-site disposal of concrete
- Backfill and site restoration

The IM concrete removal activities are shown on Figures 3-1, 3-2 and 3-3 and summarized in this section. This work is expected to be performed by a Navy Environmental Multiple Award Contract (EMAC) contractor. The Scope-of-Work (SOW) to be performed by the EMAC contractor is presented in this section. Appendix B contains the Supplemental Specifications that describe the EMAC SOW in more detail.

The EMAC contractor will be required to perform all IMWP implementation activities in accordance with the EMAC Basic Contract, and Supplemental Specifications presented in Appendix B. The EMAC Contractor will be required to submit a Work Plan for Navy approval that will describe implementation of the work and a project specific Health and Safety Plan (HASP). After approval from the Navy, the Contractor will perform the work in accordance with all contract documents.

The EMAC contractor will coordinate all field work through the Navy Officer in Charge of Construction (OICC). The Navy will provide a full-time oversight representative during IMWP implementation. The EMAC contractor will provide a minimum of 7 days notification to the OICC and the Navy's oversight representative prior to mobilization.

3.1 SITE PREPARATION AND SUPPORT ACTIVITIES

Prior to, during, and after, concrete removal, site preparation and other support activities will be performed including:

- Erosion and Sediment Control
- Site Support Measures
- Soil Excavation and Stockpiling
- Traffic Control

Erosion and Sediment Control. Before removal activities begin, erosion and sediment controls will be established to prevent impacts to surface water downgradient of the area to be disturbed. This will include silt fence downgradient of the disturbed area, temporary surface stabilization, and other measures. Erosion and sediment control measures will remain in place during excavation, concrete removal, backfilling, and restoration activities are completed. Completed restoration activities include establishment of permanent vegetation and covering disturbed areas with a layer of gravel. The disturbed area to be vegetated will be regularly inspected and maintained until the area is stabilized. Erosion and sediment control measures will be performed in accordance with the Indiana Handbook (IDEM, 1992).

Site Support Measures. Site Support measures will include installation of access controls such as fencing, a decontamination pad, and other measures to support the work. A temporary decontamination pad will be set up to clean equipment used to remove, excavate and transport contaminated material. The pad will be sized to accommodate all the equipment to be used at the site and will be constructed in a manner that contains all the contaminated materials removed from equipment and the liquids used to clean the equipment. Contaminated materials removed from the equipment will be disposed with the concrete. Wash water will be managed as described in the approved water management plan. The EMAC contractor must keep his equipment clean to minimize the spread of contaminated material and soil to adjacent areas and roads.

Soil Excavation and Stockpiling. Soil adjacent to the wash rack may be temporarily excavated and stockpiled to allow the exterior walls to be removed. The EMAC contractor will address this issue in the Work Plan and describe the proposed excavation and stockpiling process.

Traffic Control. The EMAC Contractor will submit a Traffic Control Plan as part of the Work Plan. The Traffic Control Plan will present details about travel routes within NSA Crane and describe compliance with security inspection requirements and to minimize interruptions to facility operations. The EMAC contractor vehicles must travel on the roads and use the weighing facilities shown on Figure 3-4. The Traffic Control Plan must function in accordance with the Access and Security requirements and the Traffic and Entry Plan. As shown on Figure 3-4, access to NSA Crane will be through the Crane Gate (Gate House No. 4) in the northwest. The EMAC contractor is not permitted to travel within restricted areas of the facility. All waste hauling vehicles will be weighed upon arrival and at time of departure using

the certified weight scale located at the Defense Reutilization and Marketing Office (DRMO) (Building 1940). The DRMO scale is operated during normal business hours and weight tickets are available.

3.2 WATER MANAGEMENT

The wash rack is a below ground structure and can accumulate water from runoff, precipitation and groundwater. In the summer of 2010, a sample was collected from the water that accumulated in the wash rack and analyzed for pesticides and other chemicals; based on that analysis, the water was approved for discharge into the wastewater treatment system at NSA Crane. Because contaminated surface soil in the area has been removed and other conditions have not changed, water that accumulates in the wash rack is assumed to still be suitable for discharge into the NSA Crane waste water treatment system. Water also may be used to control dust.

Therefore, the EMAC contractor must address water management in the Work Plan. The EMAC contractor must describe how accumulated water in the wash rack and water used for dust control will be collected and managed.

In 2010 and early 2011 water accumulated in the wash rack was removed by pumping it through a sediment bag filter and into a nearby sanitary sewer manhole. The manhole is approximately 270 feet from the wash rack. The bag filter system removed soil/sediment particles and prevented them from entering the waste water treatment system.

The EMAC contractor will propose a water management plan as part of the Work Plan.

3.3 REMOVAL OF CONCRETE FROM WASH RACK

This work will consist of removing the defined sections of the concrete wash rack with pesticide contamination that exceeds the UTS. The areas of the walls to be removed are shown on Figures 3-1, 3-2, and 3-3. As shown on those figures the concrete to be removed includes:

- North Wall – The east half of the concrete wall from 4.5 feet and greater above the wash rack floor
- East Wall – All concrete from 6 feet and greater above the wash rack floor
- Northern Interior Wall – All concrete from 4.5 feet and greater above the wash rack floor
- Southern Interior Wall – All concrete from 4.5 feet and greater above the wash rack floor

The estimated quantity of contaminated concrete to be removed is approximately 26 cubic yards. The remaining sections of the concrete wash rack do not require removal and will remain on the site.

The limits of concrete to be removed will be marked in the field prior to removal. The actual method to remove the contaminated concrete will be determined by the EMAC contractor. However, the work is expected to be performed with a hydraulic hammer or similar device. The concrete will then be sized reduced, and/or rebar cut to comply with treatment and/or disposal facility requirements. The removed concrete may be temporarily staged on-site pending final approval and/or scheduling with the treatment/disposal facility. This may require obtaining and analyzing a representative sample or samples of the material. This work may also require some incidental soil excavation.

All work will be performed in accordance with the Work Plan and the HASP. This will include dust control, water management, and compliance with OSHA requirements. The EMAC contractor will also be required to perform some site preparation work prior to concrete removal and other support activities as described in Section 3.1.

3.4 TRANSPORTATION, TREATMENT AND OFFSITE DISPOSAL OF CONCRETE

The EMAC contractor will be responsible for transportation, treatment and offsite disposal of the concrete that exceeds the UTS for non-wastewater. It will require treatment in accordance with 40 CFR 268.45 prior to disposal. Treatment may include thermally treating the material, immobilization technology, or other approved method prior to final disposal.

The EMAC contractor will submit a proposed treatment technology and disposal strategy with the cost proposal. The proposal will include the facility name, contact information, permit number, treatment technology, and documentation/certification of the facility to accept the SWMU 9 waste. After selection, the EMAC contractor will provide transportation, treatment and disposal details in the Work Plan. The Navy will provide a copy of the Work Plan to the USEPA for review before the EMAC contractor performs the work.

The EMAC Contractor will be responsible for providing and carrying waste manifests, bills of lading, placards, labeling, markings, licensing, and any other transportation/disposal documentation as required by federal, state, and local regulations. The Navy will supply a USEPA Generator Identification number for this documentation. The EMAC Contractor will prepare all transportation documentation, including bills of lading, manifests, etc. for approval and signature by the Navy. A representative of the Navy will sign completed shipping manifests and bills of lading. The EMAC Contractor shall provide the Navy with a minimum of 48 hour notice (2 business days) prior to shipping waste materials from the Site.

3.5 BACKFILL AND SITE RESTORATION

The wash rack area will be backfilled after the concrete that exceeds UTS is removed from the site. The remaining concrete may be partially demolished so that all rebar and concrete is a minimum of 2 feet below final grade. The area will be backfilled to match existing grade. The backfill soil obtained from an off-site borrow source will have properties similar to the native SWMU 9 soils. The backfill soil will be obtained from a source where due diligence shows no evidence of a release of a regulated substance (i.e., clean fill). A certification must be provided regarding the origin of the clean fill, including a statement that, to the best of the provider's knowledge, the backfill soil has not been contaminated with the release of regulated substances. The backfill soil will be subject to analytical testing to assure that it is not contaminated and meets the following requirements.

- TPH, diesel range organics, USEPA Method SW-846 8015M DRO - less than 1 milligram per kilogram (mg/kg)
- TPH, gasoline range organics, USEPA Method SW-846 8015M GRO - less than 1 mg/kg
- Sum of benzene, toluene, ethylbenzene, and xylenes, USEPA Method SW-846 5030 / 8021 - less than 1 mg/kg
- Characteristic waste determination (ignitability, corrosivity, reactivity, and toxicity), USEPA Method SW-846 1311 - will not fail the test for characteristic waste
- Total PCBs, USEPA Method SW-846 8082 – less than 1 mg/kg
- 4,4'-DDD, USEPA Method SW-846 8081 - less than 3.2 µg/kg
- 4,4'-DDE, USEPA Method SW-846 8081 - less than 3.2 µg/kg
- 4,4'-DDT, USEPA Method SW-846 8081 – less than 3.2 µg/kg
- Dieldrin, USEPA EPA Method SW-846 8081 – less than 3.2 µg/kg
- Heptachlor, USEPA Method SW-846 8081 – less than 1.5 µg/kg
- Alpha-chlordane, USEPA Method SW-846 8081 – less than 1.5 µg/kg

- Gamma-chlordane, USEPA Method SW-846 8081 – less than 1.5 µg/kg

- DRO, USEPA Method SW-846 8015M – less than 1,600 µg/kg

Backfill material will include common fill, gravel and topsoil.

Common Fill. Common fill will be used to backfill the wash rack to a depth of 6 inches below final grade. This material will be placed into the wash rack in 1-foot-thick lifts and compacted with the bucket of an excavator (or backhoe) or hand tamping equipment. When the wash rack is completely backfilled, track-type equipment will be used for compaction. Common fill will meet the following physical characteristics:

- American Society for Testing and Materials International (ASTM) D 2487, USCS Group Symbols GW, GP, GM, SW, SP, or SM
- ASTM D 4318, Liquid limit, 35 maximum
- ASTM D 4318, Plasticity index, 12 maximum
- Maximum of 25 percent by weight passing ASTM D 1140, No. 200 sieve
- Maximum particle size of 1 inch

Gravel. The area of the wash rack area and east will be stabilized with gravel. The area will be covered with 6 inches of gravel and compacted using a using a smooth drum roller or other approved method. The gravel will conform to Indiana Department of Transportation (INDOT) CA No. 53 Aggregate

Topsoil. The uppermost 6 inches of backfill used to establish final grades will be medium-textured loam suitable for establishing vegetation.

The estimated backfill material requirements are as follows:

- Common fill 101 cy
- Gravel 20 cy
- Topsoil 6 cy

Following backfilling, the disturbed area west of the wash rack will be restored using permanent seeding. Restoration will consist of surface preparation, fertilizing, seeding, and mulching. Activities to establish permanent seeding will be implemented as soon as possible following the construction of final grades. Permanent vegetation activities include site/seed bed preparation, seeding, and mulching of the restored excavation areas and the surface soils located underneath support facilities.

The procedures and requirements for permanent seeding activities are presented in Section 3.12 of the Indiana Handbook for Erosion Control in Developing Areas (Handbook) (IDEM, 1992). The seed mixture recommended for use at SWMU 9 will be a standard Indiana seed mixture for open and disturbed areas. The seed mixture includes perennial ryegrass and tall fescue. Planting rates and optimum soil pH for this mixture are presented in the Handbook. Following seeding, the seeded areas will be covered with temporary erosion control matting (e.g., coconut fiber matting) to provide additional stabilization until vegetation is established.

4.0 REFERENCES

ASTM International, ASTM D1140-00(2006) Standard Test Methods for Amount of Materialsin Soils Finer than No. 200 Sieve

ASTM International, ASTM D2487-11 Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

ASTM International, ASTM D 4318-10 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

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Tetra Tech, 2011a. *Technical Memorandum Supplemental Work Plan.* April.

Tetra Tech, 2011b. *Technical Memorandum SWMU 9 – Pesticide Control Area – Concrete Wash Rack, Concrete and Soil Sampling and Analysis Results.* July.

United States Environmental Protection Agency (USEPA), Region 1, 1997. *Standard Operating Procedure for Sampling Concrete in the Field.*

USEPA, SW-846, Method 1311, Toxicity Characteristic Leaching Procedure

USEPA, SW-846, Method 5030, Purge-and-Trap for Aqueous Samples

USEPA, SW-846, Method 8015, Nonhalogenated Organics by Gas Chromatography

USEPA. SW-846, Method 8021, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors

USEPA, SW-846, Method 8081, Organochlorine Pesticides by Gas Chromatography

USEPA, SW-846, Method 8082, Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Figures

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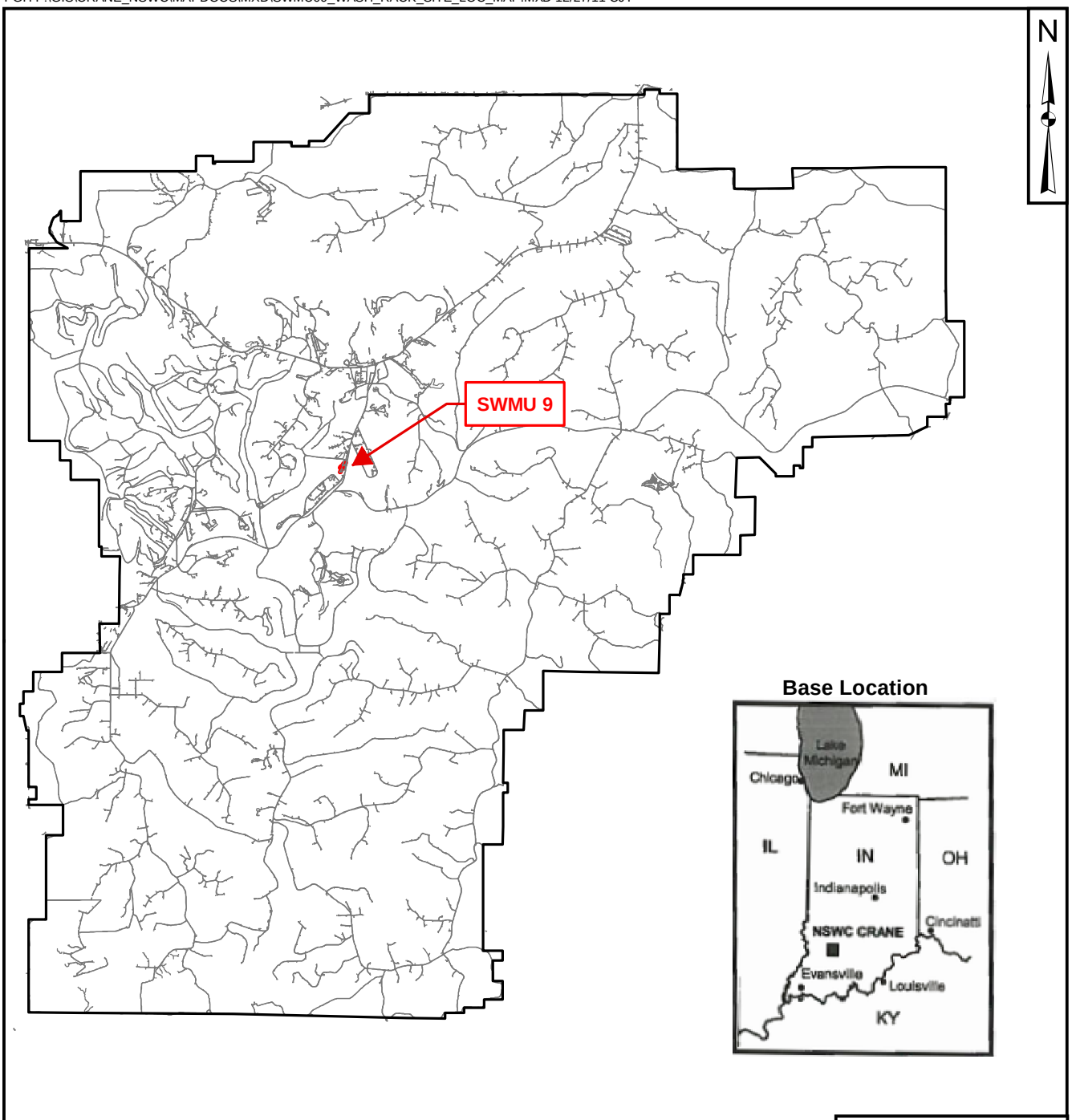

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C. TULLEY	12/29/11
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G. TEN EYCK	12/29/11
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NAVFAC

LOCATION MAP
SWMU 9 WASH RACK
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
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FIGURE NO.	REV
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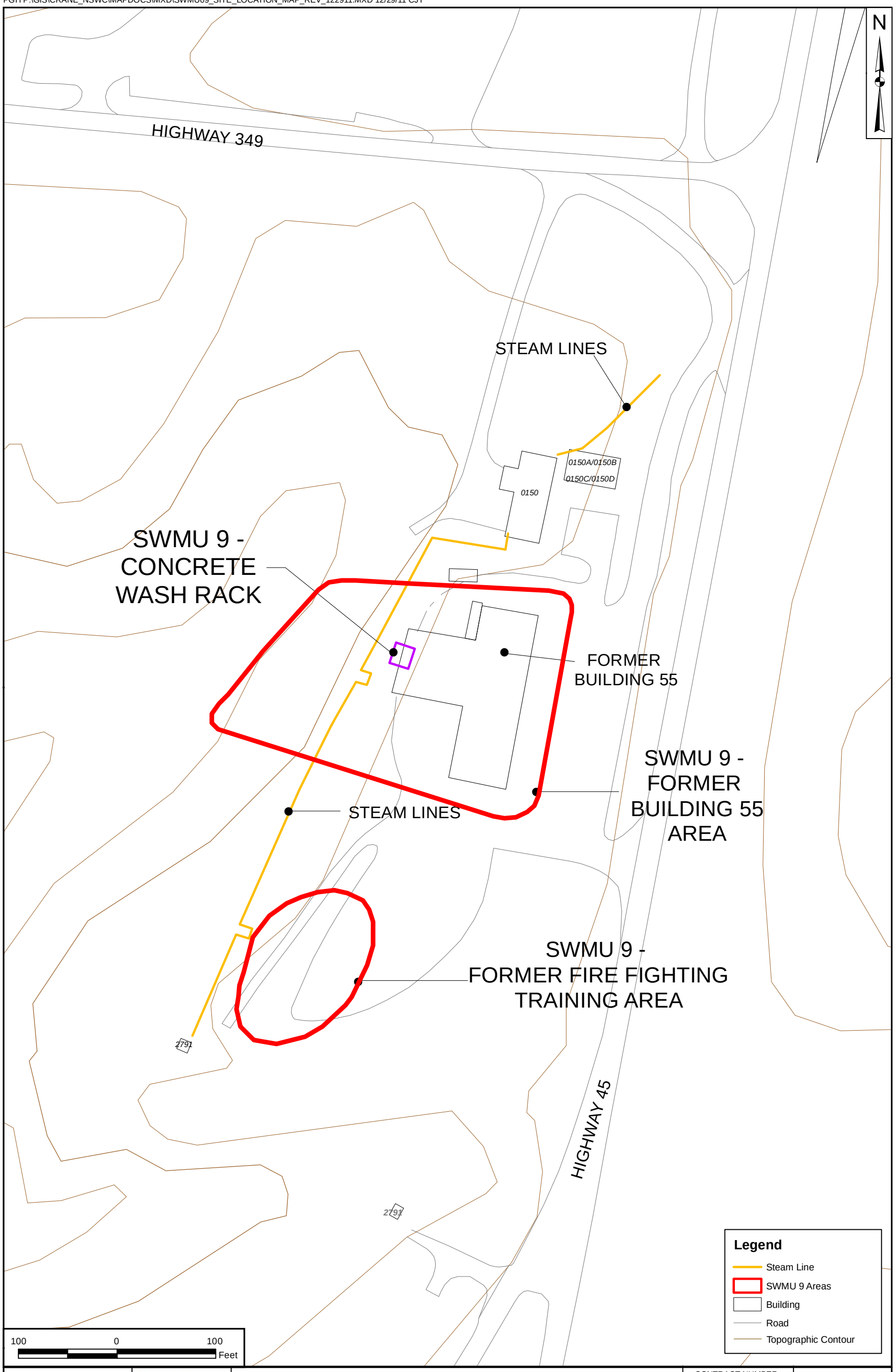

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NAVFAC

SITE PLAN
SWMU 9 WASH RACK
NSA CRANE
CRANE, INDIANA

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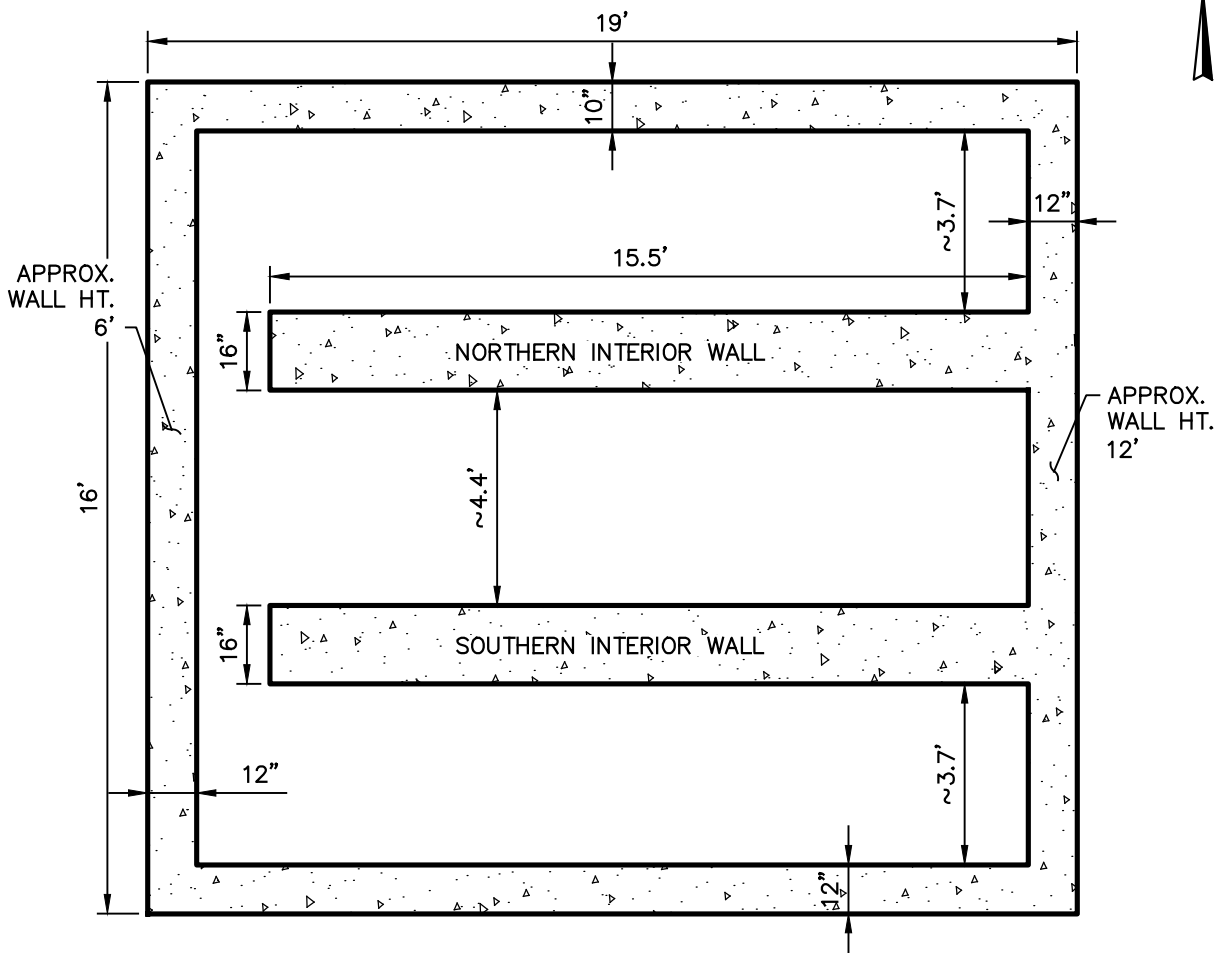
FIGURE NO.	REV
FIGURE 1-2	0



NOTES:

1. TOP OF CONCRETE WASH RACK HAS BEEN DEMOLISHED AND REMOVED.

2. WASH RACK EXTERIOR BACKFILLED WITH SOIL.

DRAWN BY BH DATE 2/8/11	NAVFAC	WASH RACK PLAN SWMU 9 WASH RACK NSA CRANE CRANE, INDIANA	CONTRACT NO. 2111
CHECKED BY CM DATE 11/18/11			OWNER NO. 0000
REVISED BY DATE			APPROVED BY DATE
SCALE NOT TO SCALE			DRAWING NO. FIGURE 1-3 REV. 0

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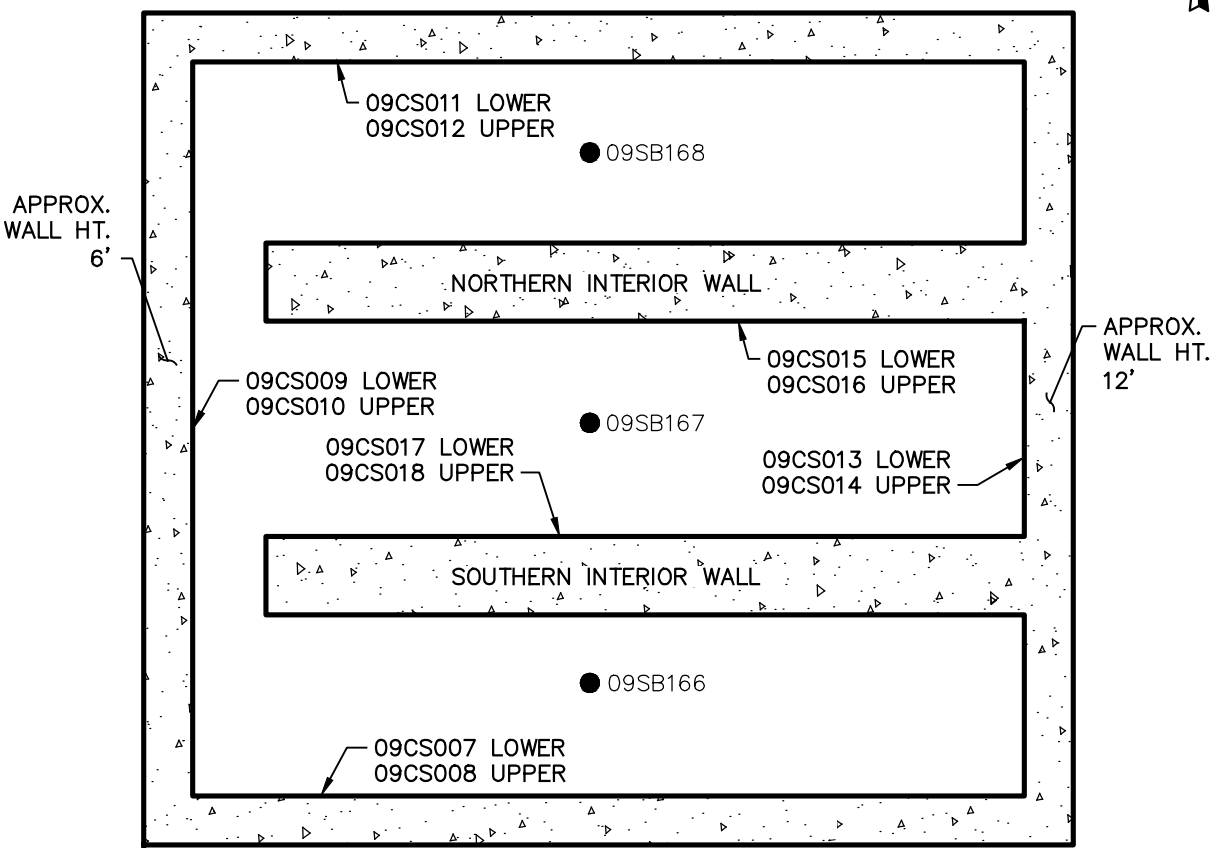

NOTES:

1. ALL CONCRETE SAMPLES (CS) WERE COMPOSITES.
2. FOUR (4) DISCRETE SAMPLES (ALIQUOTS) WERE COLLECTED FOR EACH CONCRETE COMPOSITE SAMPLE.
3. SOIL SAMPLES AT 09SB166 AND 09SB168 WERE COLLECTED BELOW FLOOR. SOIL SAMPLE AT 09SB167 WAS COLLECTED FROM MATERIAL ON FLOOR.

LEGEND:

● 09SB166 — SOIL SAMPLES

DRAWN BY BH	DATE 2/8/11	CONCRETE AND SOIL SAMPLING LOCATIONS SWMU 9 WASH RACK NSA CRANE CRANE, INDIANA	CONTRACT NO. 2111
CHECKED BY CM	DATE 11/18/11		OWNER NO. 0000
REVISED BY	DATE		APPROVED BY DATE
SCALE NOT TO SCALE			DRAWING NO. FIGURE 2-1 REV. 0

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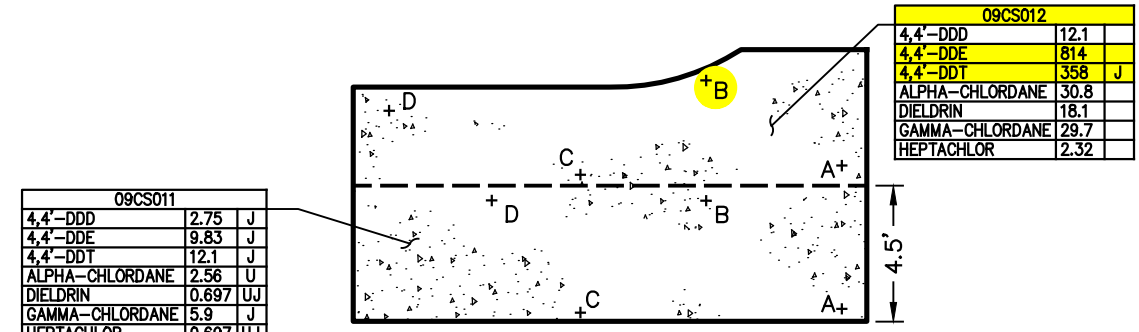
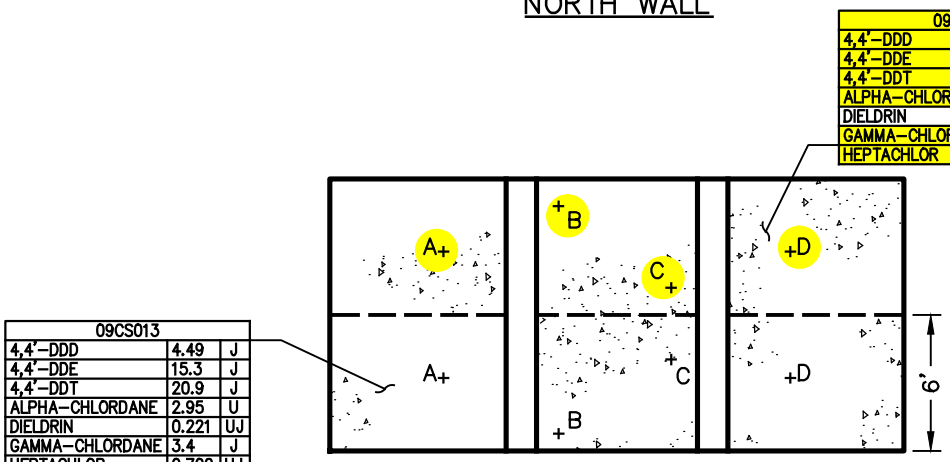
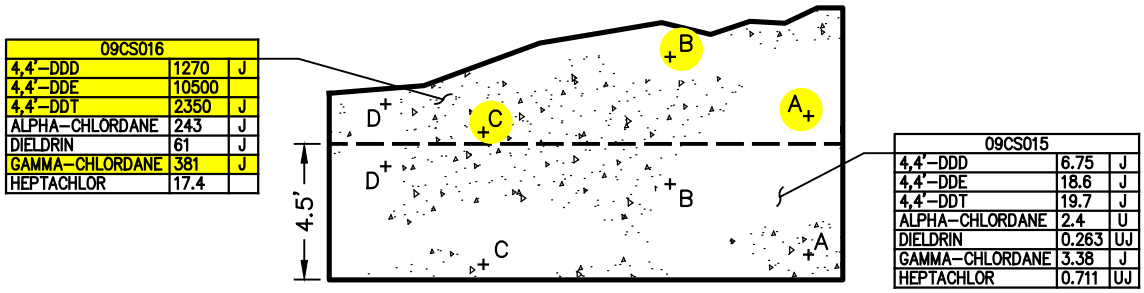


NORTH WALL



EAST WALL



NORTHERN INTERIOR WALL

NOTES:

1. APPROXIMATE LOCATION OF ALIQUOT (A, B, C, AND D) SHOWN AS +
2. TAGS SHOW ANALYTICAL RESULTS IN ug/kg (ppb)
3. SHADING INDICATES UTS EXCEEDANCE

DRAWN BY BH DATE 2/8/11	NAVFAC	CONCRETE ANALYTICAL RESULTS (1 OF 2) SWMU 9 WASH RACK NSA CRANE CRANE, INDIANA	CONTRACT NO. 2111
CHECKED BY CM DATE 11/18/11			OWNER NO. 0000
REVISED BY DATE			APPROVED BY DATE
SCALE NOT TO SCALE			DRAWING NO. FIGURE 2-2 REV. 0

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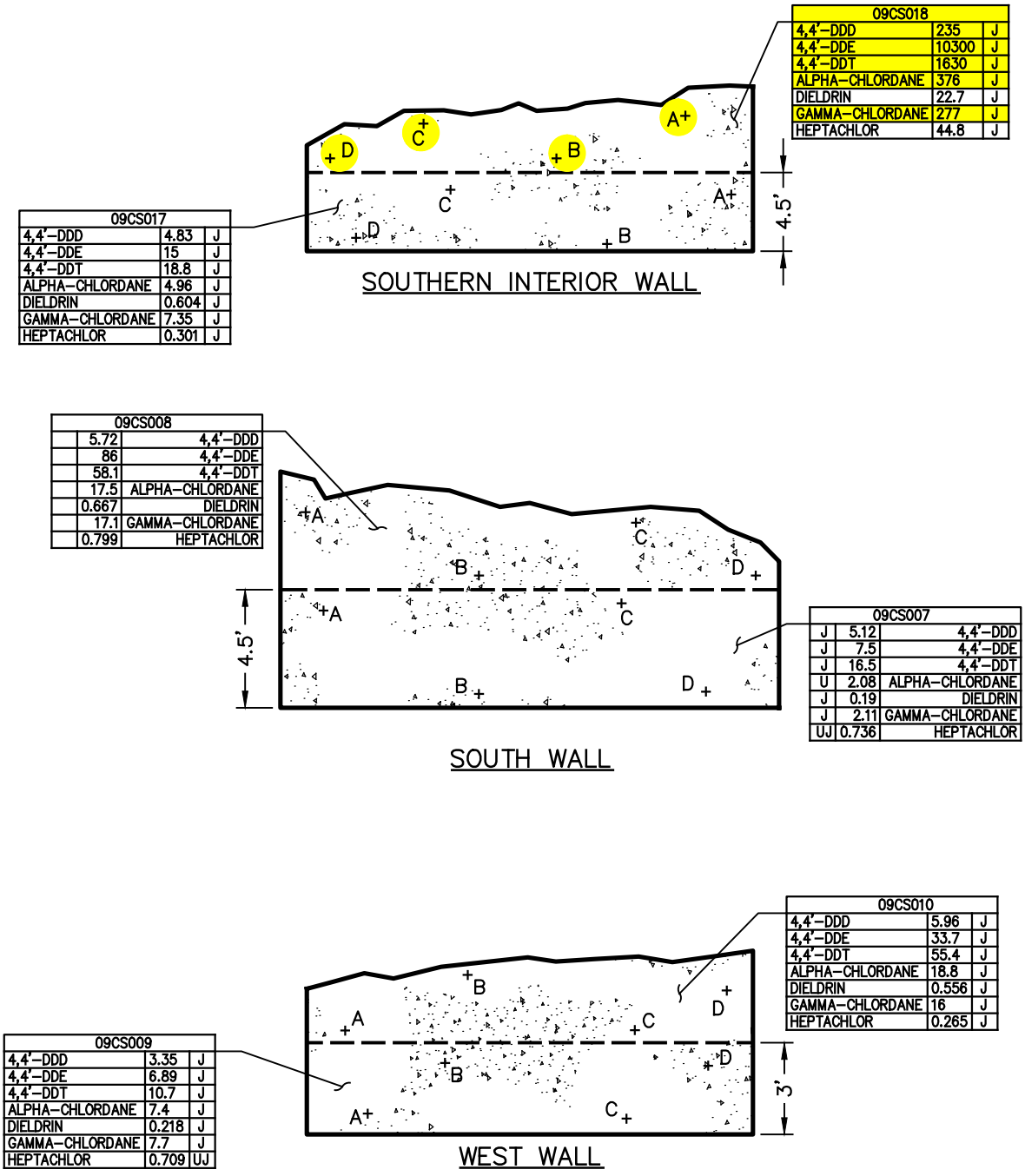

NOTES:

1. APPROXIMATE LOCATION OF ALIQUOT (A, B, C, AND D) SHOWN AS +
2. TAGS SHOW ANALYTICAL RESULTS IN ug/kg (ppb)
3. SHADING INDICATES UTS EXCEEDANCE

DRAWN BY BH	DATE 2/8/11	CONCRETE ANALYTICAL RESULTS (2 OF 2) SWMU 9 WASH RACK NSA CRANE CRANE, INDIANA	CONTRACT NO. 2111
CHECKED BY CM	DATE 11/18/11		OWNER NO. 0000
REVISED BY	DATE		APPROVED BY DATE
SCALE NOT TO SCALE			DRAWING NO. FIGURE 2-3 REV. 0

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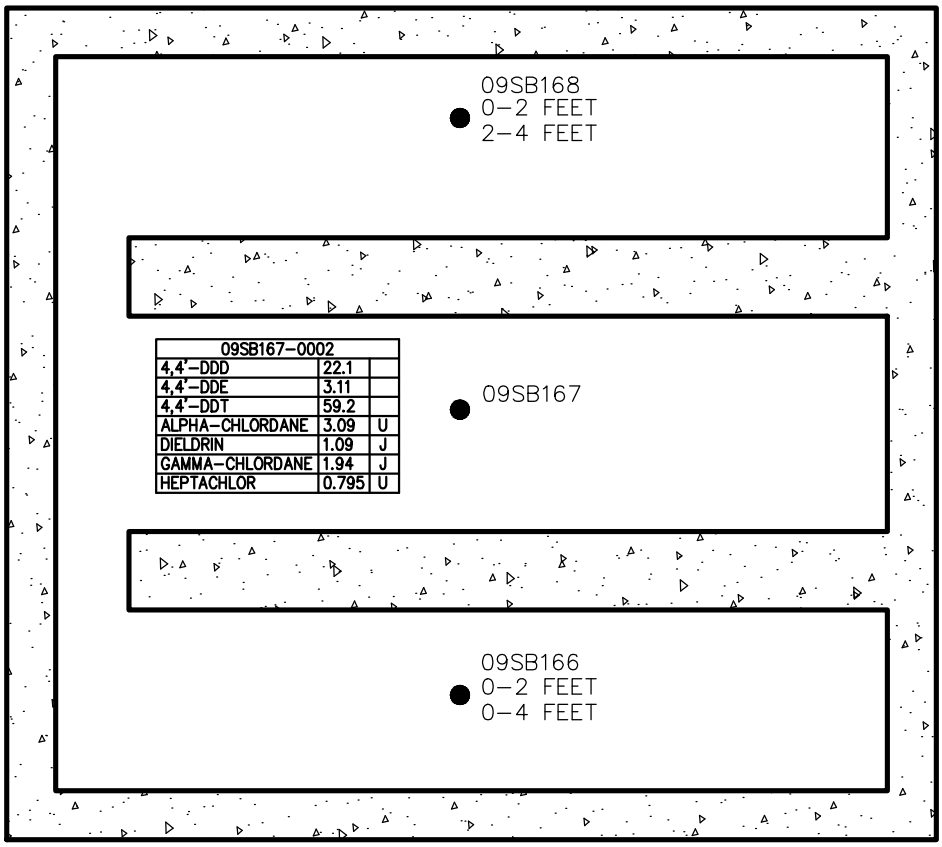
09SB168-0002		
4,4'-DDD	18.1	
4,4'-DDE	3.18	
4,4'-DDT	16	
ALPHA-CHLORDANE	0.816	UJ
DIELDRIN	0.211	J
GAMMA-CHLORDANE	6.58	J
HEPTACHLOR	0.816	U

09SB168-0204		
4,4'-DDD	25.9	
4,4'-DDE	4.2	
4,4'-DDT	57.6	
ALPHA-CHLORDANE	4.99	J
DIELDRIN	0.788	U
GAMMA-CHLORDANE	0.913	J
HEPTACHLOR	0.398	J

N



09SB167-0002		
4,4'-DDD	22.1	
4,4'-DDE	3.11	
4,4'-DDT	59.2	
ALPHA-CHLORDANE	3.09	U
DIELDRIN	1.09	J
GAMMA-CHLORDANE	1.94	J
HEPTACHLOR	0.795	U

09SB166-0002		
4,4'-DDD	106	J
4,4'-DDE	16.9	J
4,4'-DDT	99.9	J
ALPHA-CHLORDANE	11	J
DIELDRIN	1	J
GAMMA-CHLORDANE	10.4	J
HEPTACHLOR	0.84	UJ

09SB166-0204		
4,4'-DDD	248	J
4,4'-DDE	36.2	
4,4'-DDT	410	J
ALPHA-CHLORDANE	20.5	J
DIELDRIN	1.61	J
GAMMA-CHLORDANE	22.8	J
HEPTACHLOR	0.82	UJ

NOTES:

1. SOIL SAMPLES 09SB166 AND 09SB168 COLLECTED USING HAND AUGER FROM MATERIAL BELOW THE WASH RACK FLOOR
2. SAMPLE 09SB167 COLLECTED FROM MATERIAL ON CONCRETE FLOOR OF CENTER CELL
3. TAGS SHOW ANALYTICAL RESULTS IN ug/kg (ppb)

DRAWN BY BH	DATE 2/8/11
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REVISED BY	DATE
SCALE NOT TO SCALE	

NAVFAC

ANALYTICAL RESULTS
SWMY 9 WASH RACK
NSA CRANE
CRANE, INDIANA

CONTRACT NO. 2111	
OWNER NO. 0000	
APPROVED BY	DATE
DRAWING NO. FIGURE 2-4	REV. 0

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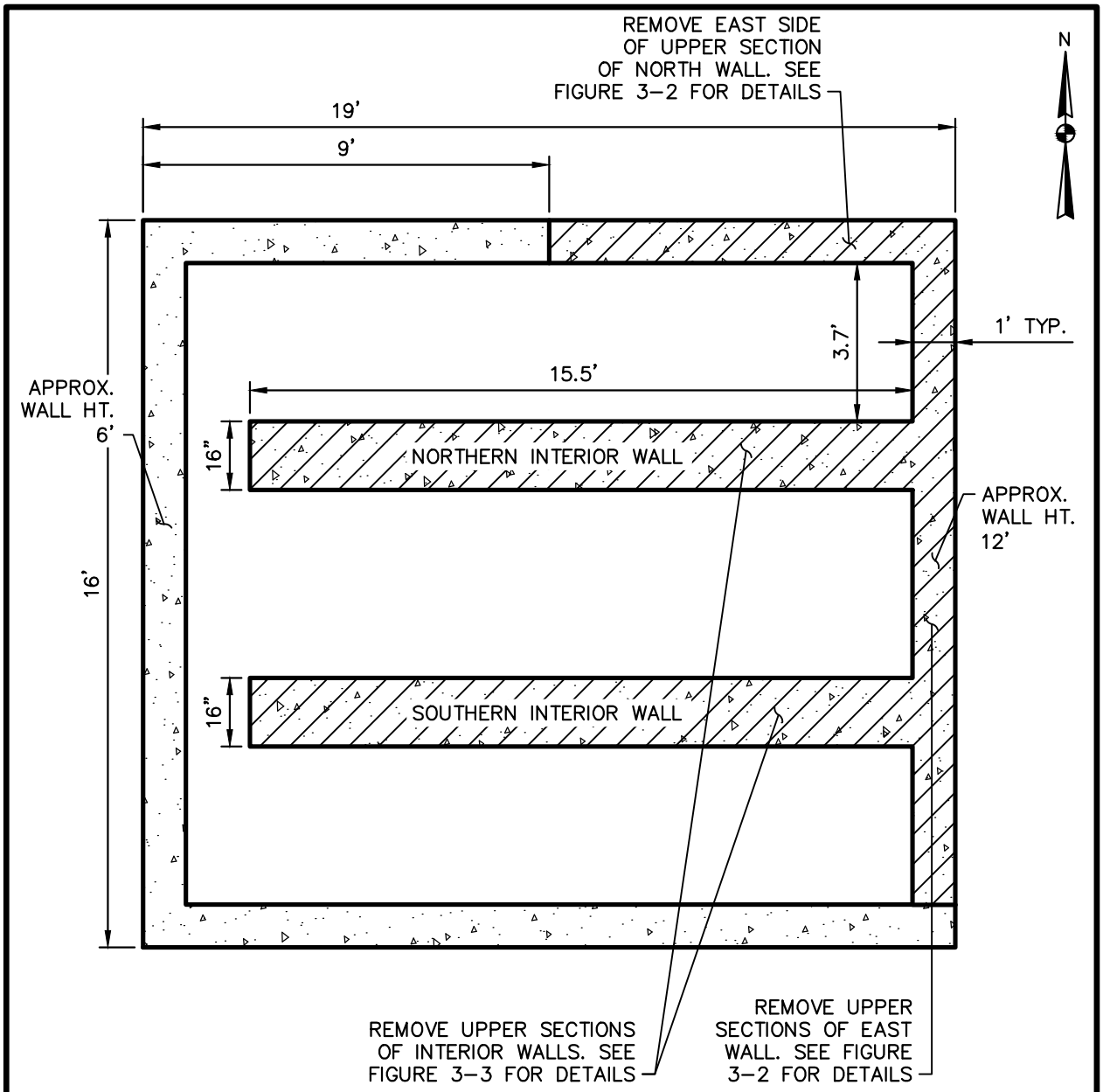

LEGEND:

SECTION OF WALL TO BE REMOVED

DRAWN BY ND	DATE 11/18/11	CONCRETE REMOVAL PLAN – PLAN VIEW SWMU 9 WASH RACK NSA CRANE CRANE, INDIANA	CONTRACT NO. 2111
CHECKED BY CM	DATE 11/18/11		OWNER NO. 0000
REVISED BY	DATE		APPROVED BY DATE
SCALE NOT TO SCALE			DRAWING NO. FIGURE 3–1 / REV. 0

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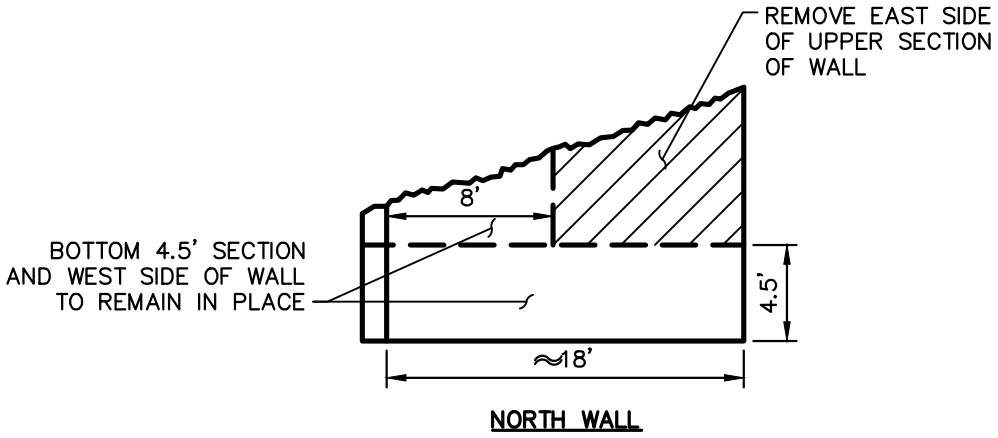
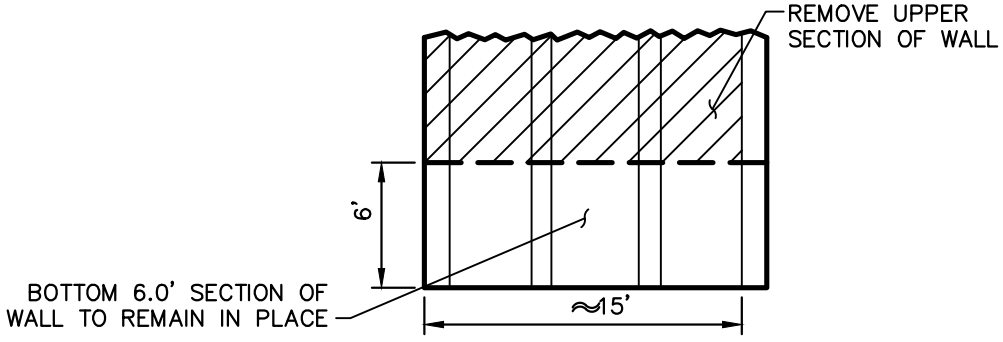


NORTH WALL



EAST WALL

LEGEND:

SECTION OF WALL TO BE REMOVED

DRAWN BY ND	DATE 11/18/11	CONCRETE REMOVAL PLAN – NORTH AND EAST WALLS SWMU 9 WASH RACK NSA CRANE CRANE, INDIANA	CONTRACT NO. 2111
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SCALE NOT TO SCALE			DRAWING NO. FIGURE 3-2 REV. 0

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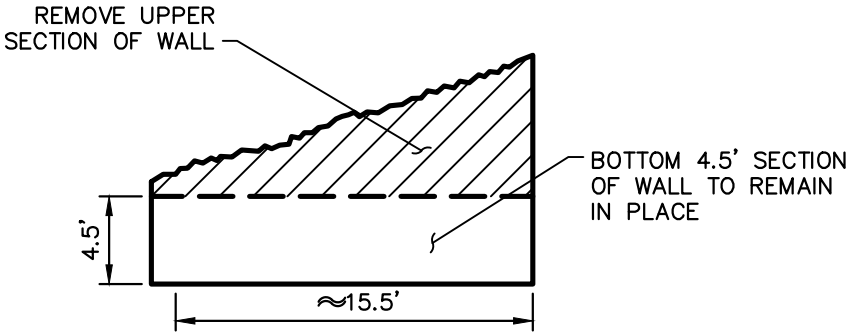
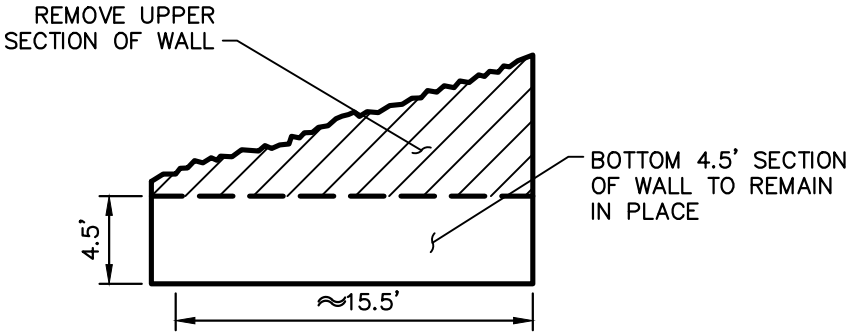


NORTHERN INTERIOR WALL



SOUTHERN INTERIOR WALL

LEGEND:

SECTION OF WALL TO BE REMOVED

DRAWN BY ND DATE 11/18/11	NAVFAC	CONCRETE REMOVAL PLAN – INTERIOR WALLS SWMU 9 WASH RACK NSA CRANE CRANE, INDIANA	CONTRACT NO. 2111
CHECKED BY CM DATE 11/18/11			OWNER NO. 0000
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SCALE NOT TO SCALE			DRAWING NO. FIGURE 3-3 REV. 0

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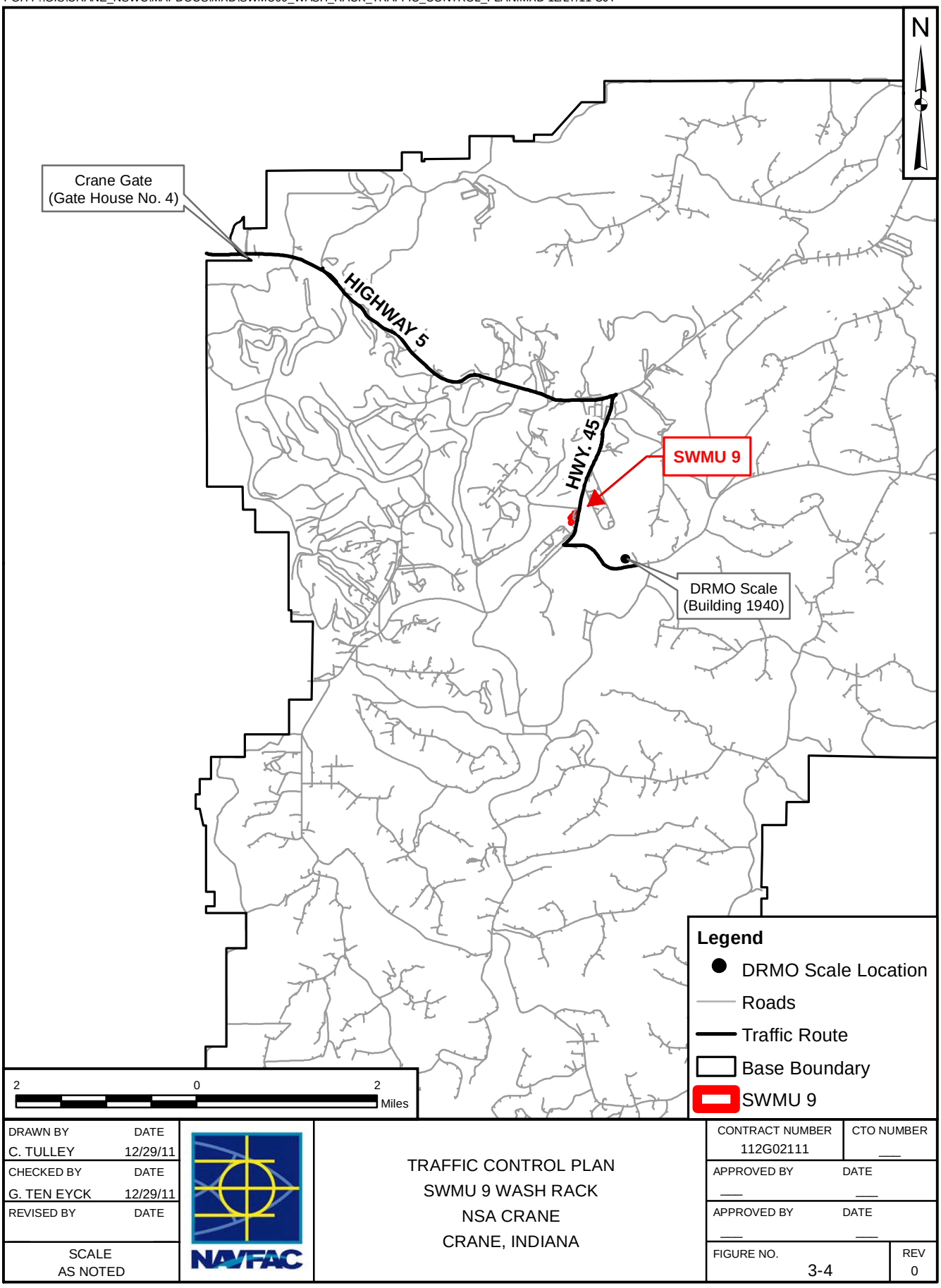

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NAVFAC

TRAFFIC CONTROL PLAN
SWMU 9 WASH RACK
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
112G02111	___
APPROVED BY	DATE
___	___
APPROVED BY	DATE
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FIGURE NO.	REV
3-4	0

Tables

Table 2-1 SWMU 9 Concrete Sample Analysis

Pesticide	Soil Media Cleanup Goals (ug/kg)	UTS - Non Wastewater Standard (ug/kg)	09CS007 South Wall - Lower Area	09CS008-South Wall - Upper Area	09CS009 West Wall - Lower Area	09CS010-West Wall - Upper Area	09CS011 North Wall - Lower Area	09CS012 - North Wall - Upper Area					09CS013 - East Wall-Lower Area
			Composite	Composite	Composite	Composite	Composite	Individual Aliquot or Grab Samples				Composite	Composite
			09CS007C-0001	09CS008C-0001	09CS009C-0001	09CS010C-0001	09CS011C-0001	09CS012GA	09CS012GB	09CS012GC	09CS012GD	09CS012C-0001	09CS013C-0001
4,4'-DDD	24,300	87	5.12 J	5.72	3.35 J	5.96 J	2.75 J	0.51 J	16 J	1.4 J	2.3 J	12.1	4.49 J
4,4'-DDE	17,150	87	7.2 J	86	6.89 J	33.7 J	9.83 J	25 J	2,200 J	30 J	83 J	814	15.3 J
4,4'-DDT	3,600	87	16.5 J	58.1	10.7 J	55.4 J	12.1 J	11 J	440 J	10 J	67 J	358 J	20.9 J
ALPHA-CHLORDANE	3,500	260	2.08 U	17.5	7.4 J	18.8 J	2.56 U	1.4 J	47 J	1.6 J	2.4 J	30.8	2.95 U
DIELDRIN	300	130	0.19 J	0.667	0.218 J	0.556 J	0.697 UJ	0.4 J	47 J	0.32 J	0.64 J	18.1	0.221 J
GAMMA-CHLORDANE	3,500	260	2.11 J	17.1	7.7 J	16 J	5.9 J	2.2 J	81 J	2.4 J	3.5 J	29.7	3.4 J
HEPTACHLOR	1,050	66	0.736 UJ	0.799	0.709 UJ	0.265 J	0.697 UJ	0.41 UJ	9.5 J	0.31 J	2.1 UJ	2.32	0.702 UJ
ALDRIN		66	0.374 UJ	0.267 J	0.36 UJ	0.347 UJ	0.354 UJ	--	--	--	--	0.813 J	0.356 UJ
ALPHA-BHC		66	0.374 UJ	0.353 U	0.36 UJ	0.347 UJ	0.354 UJ	--	--	--	--	0.624 J	0.356 UJ
BETA-BHC		66	0.374 UJ	0.353 U	0.36 UJ	0.347 UJ	0.354 UJ	--	--	--	--	0.34 U	0.356 UJ
GAMMA-BHC(LINDANE)		66	0.374 UJ	0.353 U	0.36 UJ	0.126 J	0.354 UJ	--	--	--	--	0.175 J	0.356 UJ
DELTA-BHC		66	0.374 UJ	0.353 U	0.148 J	0.347 UJ	0.354 UJ	--	--	--	--	0.262 J	0.356 UJ
CHLORDANE		260	0.934 UJ	99.3 J	0.899 UJ	98.4 J	0.884 UJ	--	--	--	--	285 J	0.891 UJ
ENDOSULFAN I		66	0.374 UJ	0.353 U	0.36 UJ	0.347 UJ	0.354 UJ	--	--	--	--	0.34 U	0.356 UJ
ENDOSULFAN II		130	0.374 UJ	0.288 J	0.36 UJ	0.345 J	0.354 UJ	--	--	--	--	1.68 J	0.583 J
ENDOSULFAN SULFATE		130	0.374 UJ	0.353 U	0.36 UJ	0.347 UJ	0.354 UJ	--	--	--	--	0.34 U	0.356 UJ
ENDRIN		130	0.374 UJ	0.353 U	0.36 UJ	0.347 UJ	0.354 UJ	--	--	--	--	0.34 U	0.356 UJ
ENDRIN ALDEHYDE		130	0.374 UJ	0.353 U	0.36 UJ	0.347 UJ	0.354 UJ	--	--	--	--	0.34 U	0.356 UJ
ENDRIN KETONE		130	0.374 UJ	0.353 U	0.36 UJ	0.347 UJ	0.354 UJ	--	--	--	--	0.34 U	0.356 UJ
HEPTACHLOR EPOXIDE		66	0.815 J	0.454 J	0.236 J	0.595 J	0.358 J	--	--	--	--	8.28 J	0.328 J
METHOXYCHLOR		180	0.374 UJ	0.353 U	0.36 UJ	0.347 UJ	0.354 UJ	--	--	--	--	0.34 U	0.356 UJ
TOXAPHENE		2,600	24.2 UJ	22.8 U	23.3 UJ	22.5 UJ	22.9 UJ	--	--	--	--	22 U	23.1 UJ

Notes

1) All data in ug/kg.

Table 2-1 SWMU 9 Concrete Sample Analysis

Pesticide	Soil Media Cleanup Goals (ug/kg)	UTS - Non Wastewater Standard (ug/kg)	09CS014 - East Wall - Upper Area					09CS015-Northern Interior Wall -Lower Area	09CS016 - Northern Interior Wall - Upper Area				
			Individual Aliquot or Grab Samples				Composite	Composite	Individual Aliquot or Grab Samples				Composite
			09CS014GA	09CS014GB	09CS014GC	09CS014GD	09CS014C-0001	09CS015C-0001	09CS016GA	09CS016GB	09CS016GC	09CS016GD	09CS016C-0001
4,4'-DDD	24,300	87	4.4 J	180 J	2,200 J	88 J	464	6.75 J	640 J	3.2 J	1,400 J	0.77 J	1,270 J
4,4'-DDE	17,150	87	340 J	6,800 J	36,000 J	20,000 J	12,100	18.6 J	26,000 J	110 J	11,000 J	29 J	10,500
4,4'-DDT	3,600	87	130 J	1,800 J	35,000 J	530 J	4,460 J	19.7 J	2,900 J	95 J	2,000 J	6.5 J	2,350 J
ALPHA-CHLORDANE	3,500	260	48 J	40 J	530 J	1,600 J	823 J	2.4 U	81 J	2 J	110 J	1.2 J	243 J
DIELDRIN	300	130	51 J	25 J	280 J	14 J	85.6 J	0.263 J	30 J	0.68 J	25 J	2.6 J	61 J
GAMMA-CHLORDANE	3,500	260	52 J	130 J	760 J	2,400 J	984 J	3.38 J	330 J	3 J	220 J	2.3 J	381 J
HEPTACHLOR	1,050	66	4.4 UJ	5.8 J	31 J	450 J	136	0.711 UJ	22 J	2.2 U	17 J	0.27 J	17.4
ALDRIN		66	--	--	--	--	22.8 J	0.361 UJ	--	--	--	--	7.28 J
ALPHA-BHC		66	--	--	--	--	6.4 J	0.361 UJ	--	--	--	--	0.519 J
BETA-BHC		66	--	--	--	--	0.625 J	0.361 UJ	--	--	--	--	0.558 J
GAMMA-BHC(LINDANE)		66	--	--	--	--	0.194 J	0.361 U	--	--	--	--	0.305 J
DELTA-BHC		66	--	--	--	--	4.84	0.361 UJ	--	--	--	--	1.14 J
CHLORDANE		260	--	--	--	--	5,630 J	0.902 UJ	--	--	--	--	1,710 J
ENDOSULFAN I		66	--	--	--	--	0.339 U	0.361 UJ	--	--	--	--	0.334 UJ
ENDOSULFAN II		130	--	--	--	--	49.6 J	0.361 UJ	--	--	--	--	16.1 J
ENDOSULFAN SULFATE		130	--	--	--	--	2.86 J	0.361 UJ	--	--	--	--	0.334 UJ
ENDRIN		130	--	--	--	--	0.339 U	0.361 UJ	--	--	--	--	7.29 J
ENDRIN ALDEHYDE		130	--	--	--	--	0.339 U	0.361 UJ	--	--	--	--	0.334 UJ
ENDRIN KETONE		130	--	--	--	--	0.339 U	0.361 UJ	--	--	--	--	0.334 UJ
HEPTACHLOR EPOXIDE		66	--	--	--	--	20.4 J	0.198 J	--	--	--	--	12.1 J
METHOXYCHLOR		180	--	--	--	--	0.339 U	0.361 UJ	--	--	--	--	180 J
TOXAPHENE		2,600	--	--	--	--	21.9 U	23.3 UJ	--	--	--	--	21.6 UJ

Notes

1) All data in ug/kg.

Table 2-1 SWMU 9 Concrete Sample Analysis

Pesticide	Soil Media Cleanup Goals (ug/kg)	UTS - Non Wastewater Standard (ug/kg)	09CS017-Southern Interior Wall -Lower Area	09CS018 - Southern Interior Wall - Upper Area				
			Composite	Individual Aliquot or Grab Samples				Composite
			09CS017C-0001	09CS018GA	09CS018GB	09CS018GC	09CS018GD	09CS018C-0001
4,4'-DDD	24,300	87	4.83 J	74 J	2.7 J	780 J	3.6 J	235 J
4,4'-DDE	17,150	87	15 J	27,000 J	110 J	7,700 J	98 J	10,300 J
4,4'-DDT	3,600	87	18.8 J	2,300 J	51 J	1,200 J	40 J	1,630 J
ALPHA-CHLORDANE	3,500	260	4.96 J	100 J	33 J	100 UJ	100 J	376 J
DIELDRIN	300	130	0.604 J	37 J	1.2 J	82 UJ	4.2 J	22.7 J
GAMMA-CHLORDANE	3,500	260	7.35 J	420 J	32 J	1,200 J	97 J	277 J
HEPTACHLOR	1,050	66	0.301 J	36 J	2 J	100 UJ	4.2 UJ	44.8 J
ALDRIN		66	0.127 J	--	--	--	--	7.3 J
ALPHA-BHC		66	0.353 UJ	--	--	--	--	6.5 J
BETA-BHC		66	0.353 UJ	--	--	--	--	0.181 J
GAMMA-BHC(LINDANE)		66	0.353 UJ	--	--	--	--	1.38 J
DELTA-BHC		66	0.649 J	--	--	--	--	4.23 J
CHLORDANE		260	0.884 UJ	--	--	--	--	2,280 J
ENDOSULFAN I		66	0.353 UJ	--	--	--	--	0.34 UJ
ENDOSULFAN II		130	0.203 J	--	--	--	--	31 J
ENDOSULFAN SULFATE		130	0.353 UJ	--	--	--	--	0.481 J
ENDRIN		130	0.353 UJ	--	--	--	--	0.34 UJ
ENDRIN ALDEHYDE		130	0.353 UJ	--	--	--	--	0.34 UJ
ENDRIN KETONE		130	0.353 UJ	--	--	--	--	0.34 UJ
HEPTACHLOR EPOXIDE		66	1.37 J	--	--	--	--	12.9 J
METHOXYCHLOR		180	0.353 UJ	--	--	--	--	0.34 UJ
TOXAPHENE		2,600	22.9 UJ	--	--	--	--	22 UJ

Notes

1) All data in ug/kg.

Table 2-2 - SWMU 9 Soil Sample Analysis

Pesticide	Soil Media Cleanup Goals (ug/kg)	Soil	Soil	Soil	Soil	Soil	Soil
		09SB166-0002	09SB-FD-0510	09SB166-0204	09SB167-0002	09SB168-0002	09SB168-0204
4,4'-DDD	24,300	106 J	101	248 J	22.1	18.1	25.9
4,4'-DDE	17,150	16.9 J	18.5	36.2	3.11	3.18	4.2
4,4'-DDT	3,600	99.9 J	131	410 J	59.2	16	57.6
ALPHA-CHLORDANE	3,500	11 J	10.9 J	20.5 J	3.09 U	0.816 UJ	4.99 J
DIELDRIN	300	1 J	1.1 J	1.61 J	1.09 J	0.211 J	0.788 U
GAMMA-CHLORDANE	3,500	10.4 J	10.5 J	22.8 J	1.94 J	6.58 J	0.913 J
HEPTACHLOR	1,050	0.84 UJ	0.845 U	0.82 U	0.795 U	0.816 U	0.398 J
ALDRIN		0.384 J	0.561 J	0.542 J	0.338 J	0.414 U	0.40 U
ALPHA-BHC		0.426 UJ	0.429 U	0.416 U	0.403 U	0.959 J	0.783 J
BETA-BHC		0.426 UJ	0.429 U	1.71 J	0.403 U	0.141 J	0.43 J
GAMMA-BHC(LINDANE)		0.426 UJ	0.429 U	0.416 U	0.403 U	0.414 U	0.40 U
DELTA-BHC		0.867 J	0.977 J	1.42	0.403 U	0.414 U	0.40 U
CHLORDANE		1.07 UJ	1.07 U	1.04 UJ	1.01 U	1.03 U	1 UJ
ENDOSULFAN I		0.426 UJ	0.429 U	0.416 U	0.716 J	0.414 U	0.40 U
ENDOSULFAN II		0.426 UJ	0.427 J	1.39 J	0.403 U	0.414 U	0.40 U
ENDOSULFAN SULFATE		0.426 UJ	0.429 U	2.04 J	0.403 U	0.414 U	0.40 U
ENDRIN		0.392 J	0.82 J	0.416 U	0.403 U	0.414 U	0.40 U
ENDRIN ALDEHYDE		0.426 UJ	0.429 U	0.416 U	0.403 U	0.414 U	0.40 U
ENDRIN KETONE		0.426 UJ	0.429 U	0.416 U	0.403 U	0.414 U	0.40 U
HEPTACHLOR EPOXIDE		5.92 J	7.08	0.552 J	0.921	0.414 U	0.40 U
METHOXYCHLOR		0.426 UJ	0.429 U	0.416 U	0.403 U	0.414 U	0.40 U
TOXAPHENE		27.6 UJ	27.8 U	26.9 U	26.1 U	26.8 U	25.9 U

Notes

1) All data in ug/kg.

Appendix A – Photographs

Date:	View:	Photographer:
05/09/2011	W	M. Reising

View of:
Wash rack during initial pumping operations prior to sampling.

Date:	View:	Photographer:
05/10/2011	E	M. Reising

View of:
Wash rack in the final stages of pumping prior to sampling.

Date:	View:	Photographer:
05/10/2011	E	M. Reising

View of :
Collecting concrete sample from east wall.

Date:	View:	Photographer:
05/10/2011	E	M. Reising

View of:
Collecting concrete sample from east wall.

Date:	View:	Photographer:
05/10/11	E	M. Reising

View of:
Collecting concrete sample from east wall.

Date:	View:	Photographer:
05/10/11	W	M. Reising

View of:
Collecting soil sample from below wash rack floor at location SB166.

Date:	View:	Photographer:
05/10/11	E	M. Reising

View of:
Floor of center section of concrete wash rack. There was approximately 6 inches of material on the concrete floor. Soil sample SB167 was collected from this material.

Date:	View:	Photographer:
05/12/11	E	K. Losekamp

View of.
East wall of wash rack at completion of sampling activities. Sample aliquot locations 0014 B, C and D are visible on the east wall.

Appendix B – Supplemental Specifications

SUPPLEMENTAL SPECIFICATIONS

INTERIM MEASURES at CONCRETE WASH RACK
at
SWMU 9 PESTICIDE CONTROL AREA/R-150 TANK AREA
NSA CRANE; CRANE, INDIANA

(Revision 0, February 2012)

1.0 INTRODUCTION

The Environmental Multiple Award Contract (EMAC) contractor shall perform work in the wash rack area of Solid Waste Management Unit (SWMU) 9 in accordance with the NSA Crane Contractor's Operation Manual and the EMAC Basic Contract, and as described in these Supplemental Specifications.

The SWMU 9 site is located as shown on Figure 1-1. The concrete wash rack is located on the west side of the former Building 55 Area of SMWU 9 as shown on Figure 1-2. The Interim Measures (IM) work described in these Supplemental Specifications shall include mobilizing to the site, removing pesticide contaminated-portions of the concrete wash rack, treating and disposing the contaminated concrete offsite, backfilling and restoring the site, and all other services required to perform the work. Specifically, this work will consist of the following:

- Planning and permitting documents
- Site preparation and support activities
- Water Management
- Removal of concrete from wash rack
- Transportation, treatment, and off-site disposal of concrete
- Backfill and site restoration

The IM concrete removal activities are shown on Figures 3-1, 3-2 and 3-3. A Traffic Control Plan is presented on Figure 3-4.

2.0 EMAC CONTRACTOR REQUIREMENTS

The EMAC contractor will be responsible for performing the following work:

1. Attend on-site project kickoff and implementation conference.

2. Submit planning documents in accordance with the EMAC 'Basic Contract' and as described in these supplemental specifications. Submit draft, draft final, and final versions of planning documents; the EMAC contractor shall incorporate Navy Comments on the draft and draft-final versions of the documents into subsequent submittals. The draft documents shall be submitted a minimum of 45 days prior to beginning work to allow sufficient time to finalize the documents. These planning documents shall include:
   - Work Plan
     - Water Management Plan
     - Concrete Removal Plan
     - Traffic Control Plan
     - Concrete Treatment, Disposal and Transportation Plan
     - Erosion and Sediment Control Plan
   - Site Specific Health and Safety Plan (SSHSP) and Activity Hazard Analysis
   - Project Quality Control Plan (QCP)

3. Acquire Facility-specific permits, including but not limited to the following:
   - Safety & Building Availability Permit (ESO 8020/11)
   - Digging Permit (NWSCC 11000/3)
   - Flame Tool/Hot Work Permit (NWSCC 11320)
   - Hazards of Electromagnetic Radiation to Ordnance (HERO) (approval for portable radios)

4. Mobilize required equipment and personnel to remove contaminated concrete and associated activities.

5. Construct and maintain the required erosion and sediment control devices for the duration of the project.

6. Construct required support facilities including, but not limited to, temporary gravel construction entrance, decontamination pad(s), and material storage areas.

7. Implement water management plan.

8. Excavate soil as necessary adjacent to wash rack for concrete removal and temporarily stockpile on-site

9. Remove contaminated concrete and size reduce as necessary for treatment and disposal.

10. Load transport, treat, and dispose contaminated concrete.

11. Backfill wash rack area with common fill.

12. Restore disturbed area with gravel and topsoil and blend with surrounding grades.

13. Establish vegetation on topsoil on west area of site

14. Remove all temporary support facilities, leaving perimeter erosion and sediment controls in place until revegetation is complete and as instructed by the Navy.

15. Restore areas used for temporary support facilities (regrading and revegetation).

16. Demobilize equipment and personnel.

3.0 SUBMITTALS

3.1 Planning Documents

Within 30 days of notification to proceed, the EMAC contractor shall submit draft planning documents for review. The Navy will provide comments within 15 days of receipt. The EMAC contractor shall incorporate comments and resubmit the documents within 15 days. The Navy shall then approve the documents or provide additional comments. The Navy must approve the following planning documents before the EMAC contractor mobilizes to the Site.

- Work Plan
- Site Specific Health and Safety Plan (SSHSP) and Activity Hazard Analysis
- Project Quality Control Plan (QCP)

3.1.1 Work Plan

The Work Plan shall present details and describe the work for site preparation, concrete removal and offsite treatment and disposal, site restoration and all activities necessary to perform the work and include a detailed schedule and sequencing plan. The Work Plan shall include:

- Water Management Plan
- Concrete Removal Plan
- Concrete Treatment, Disposal and Transportation Plan
- Traffic Control Plan
- Erosion and Sediment Control Plan

Water Management Plan. The Water Management Plan shall describe how accumulated water in the wash rack and water used for dust control will be collected and managed. Based on previous work at

SWMU 9, water accumulated in the wash rack was approved for discharge into the wastewater treatment system at NSA Crane after filtering to remove soil, sediment and silt. Because contaminated surface soil in the area has been removed and other conditions have not changed, water that accumulates in the wash rack is assumed to still be suitable for discharge into the NSA Crane wastewater treatment system.

Concrete Removal Plan. The Concrete Removal Plan shall describe the proposed methods to remove, and control the removal of, concrete as shown on Figures 3-1, 3-2 and 3-3. The Plan shall describe the method and equipment proposed to remove the concrete and reduce it in size and/or cut the rebar to comply with treatment and disposal facility requirements. The removed concrete may be temporarily staged on-site pending final approval and/or scheduling with the treatment/disposal facility. This may require obtaining and analyzing a representative sample or samples of the material. The Plan shall also address dust control and describe how concrete debris that falls into the wash rack shall be managed and removed. Incidental soil excavation required to obtain access to the concrete to be removed shall also be addressed in the Concrete Removal Plan. Because of its configuration, the wash rack is considered a confined space and the EMAC Contractor shall provide appropriate personnel, methods and equipment to perform work within the wash rack.

Concrete Treatment, Disposal and Transportation Plan. The Concrete Treatment, Disposal and Transportation Plan shall describe the transportation, treatment and offsite disposal of the concrete shown on Figure 3-1, 3-2 and 3-3. This concrete will require treatment in accordance with 40 CFR 268.45 prior to disposal. Treatment may include thermally treating the material, immobilization technology, or other approved method prior to final disposal. The Plan shall include 1) Subcontractor for transportation of concrete including: name, address, contact name, telephone number, and U.S. Department of Transportation (USDOT) number, and 2) treatment/disposal facility name, contact information, permit number, treatment technology, and documentation/certification of the facility to accept the SWMU 9 waste. The EMAC contractor will be responsible to satisfy all transportation and treatment and disposal requirements and provide the Navy with all disposal documentation.

Traffic Control Plan. The EMAC Contractor shall submit a Traffic Control Plan as part of the Work Plan. The Traffic Control Plan shall present details about travel routes within NSA Crane and describe compliance with security inspection requirements and to minimize interruptions to facility operations. The EMAC contractor vehicles must travel on the roads and use the weighing facilities shown on Figure 3-4. The Traffic Control Plan must function in accordance with the Access and Security requirements and the Traffic and Entry Plan. As shown on Figure 3-4, access to NSA Crane shall be through the Crane Gate (Gate house No. 4) in the northwest. The EMAC contractor is not permitted to travel within restricted areas of the facility. All waste hauling vehicles will be weighed upon arrival and at time of departure using the certified weight scale located at the Defense Reutilization and Marketing Office (DRMO) (Building 1940). The DRMO scale is operated during normal business hours, and weight tickets are available.

Erosion and Sediment Control Plan. The Erosion and Sediment Control Plan must identify erosion and sediment control devices that will be used on-site. Because the disturbed area is relatively small (expected to be less than 0.1 acres) and the minimum disturbed area for a permit is 1 acre, formal approval of an erosion and sediment control plan in accordance with the Indiana Storm Water Quality Manual (Indiana Department of Environmental Management (IDEM) Manual) is not required.

3.1.2 Site-Specific Health and Safety Plan (SSHSP) and Activity Hazard Analysis

The SSHSP must conform to the requirements set forth by OSHA and 29 CFR 1910.120 (HAZWOPER), and must address specific anticipated site activities. The SSHSP shall include copies of all 40 Hour 29 CFR 1910.120 Employee Training Certificates for all Contractor employees scheduled to be on site. The plan shall also include a letter documenting that each employee has been medically cleared to wear respiratory protection and perform work. A copy of each EMAC Contractor employee's fit test shall be kept on site. Activity Hazard Analysis must address details of the work identified in the Work Plan and discuss the construction phases which require significant or additional activity hazard analysis.

3.1.3 Project Quality Assurance / Quality Control (QA/QC) Plan

The QA/QC Plan shall address the integration of quality into the project.

3.2 Facility-Specific Permits

The EMAC contractor shall obtain all required permits, including but not limited to the following:

- Safety & Building Availability Permit
- Digging Permit
- Flame Tool/Hot Work Permit
- Hazards of Electromagnetic Radiation to Ordnance (HERO) (approval for portable radios)

3.3 Submittals during Construction

The EMAC contractor must submit the following documents during construction:

- Field work reports in accordance with Part 6.4 Section C of the Basic Contract.
- Erosion and Sediment Control installation and inspection logs.
- Copies of NSA Crane specific permits.
- Certification and analytical results for backfill material and topsoil. A minimum of one sample per borrow source is required and must be submitted and approved before material can be brought on-site.
- Waste profiles, waste characterization results, and any waste disposal facility pre-approval or approval documentation.
- Work Site Decontamination Certificates (verification that all vehicles equipment and containers were properly decontaminated prior to leaving the work site).
- Disposal Site Decontamination Certificates (verification that vehicles and containers were decontaminated prior to leaving the disposal facility).
- Shipment Manifests (manifests and other documents required to ship waste).
- Delivery Certificates (verification that waste was received at identified waste disposal facility).
- Treatment and Disposal Certificates (verification that waste was successfully received and disposed).
- Decontamination Log.

The EMAC contractor shall compile the above documentation in a Construction Completion Report and provide it to the Navy. The EMAC contractor shall provide the Navy, or their representative, all documentation within 30 days of demobilization from the Site.

4.0 ON-SITE PERSONNEL REQUIREMENTS

All EMAC Contractor personnel working on-site must have completed the 40-hour HAZWOPER training under 29 CFR 1910.120 (e) and have current annual 8 hour refresher training. In addition, the following key personnel shall perform the roles and meet specific requirements as described herein.

- Site Superintendent
- Project Quality Control Manager
- Site Health and Safety Specialist

Site Superintendent. The Site Superintendent shall have responsibility and authority to direct work performed. The Site Superintendent shall be responsible for the management and execution of all site activities in accordance with these Supplemental Specifications, approved Work Plan, and all Federal,

State, and local laws and regulations. The Site Superintendent may not also serve as the Project Quality Control (QC) Manager or Site Health and Safety Specialist (SHSS). The Site Superintendent shall have, as a minimum, the following qualifications:

- A minimum of 6 years site superintendent experience.
- A minimum of 3 years experience on hazardous, toxic, and radioactive waste (HTRW) projects.
- Familiar with the requirements of the U.S. Army Corps of Engineers Safety and Health Requirements (EM 385-1-1).
- Experience in the areas of hazard identification and safety compliance.

Project Quality Control Manager. The Project QC Manager who shall assist and represent the QC Program Manager in continued implementation and enforcement of the approved Project QC Plan. The QC Program Manager or Project QC Manager shall be physically present at the project site whenever work is in progress. The Project QC Manager may also serve as the SHSS, if qualified. The Project QC Manager shall have, as a minimum, the following qualifications:

- A minimum 2 years experience as a Project QC Manager.

- A minimum of 10 years combined experience in the following positions: project superintendent, QC manager, project manager, project engineer or construction manager on similar size and type of construction contracts that included the major trades that are part of this IM.

- Alternatively, the above 10 year combined experience requirement may be satisfied by a professional engineer registered in the State of Indiana that has at least 2 years experience as a Project QC Manager.

- Familiarity with the requirements of the U.S. Army Corps of Engineers Safety and Health Requirements (EM 385-1-1).

- Experience in the areas of hazard identification and safety compliance.

Site Health and Safety Specialist. The SHSS shall assist and represent the EMAC contractor's Health and Safety (H/S) Manager in continued implementation and enforcement of the approved Site Health and Safety Plan (SSHSP). The SHSS shall have the on-site responsibility and authority to modify and stop work, or remove personnel from the site if working conditions change which may affect on-site and off-site health and safety. The SHSS shall be physically present at the project site at all times. The SHSS may be dual hatted with the Project QC Manager. The SHSS shall have, as a minimum, the following qualifications:

- A minimum of 5 years safety work experience on similar projects.
- A 30-hour OSHA construction safety class or equivalent within the last 5 years.
- An average of at least 24 hours of formal safety training each year for the last 5 years.
- Competent person status for at least the following:
  - Confined Space Entry
  - Health hazard recognition, evaluation and control of chemical, physical and biological agents
  - Personal protective equipment and clothing to include selection, use, and maintenance
- First aid and cardiopulmonary resuscitation (CPR) qualified.

5.0 GENERAL REQUIREMENTS

This project is subject to Federal, State, and local regulatory agency inspections and review for compliance with environmental laws and regulations. The EMAC contractor shall fully cooperate with any representative from any Federal, State, or local regulatory agency who may visit the job site and shall provide immediate notification to the Officer in Charge of Construction (OICC), who shall accompany them on any subsequent site inspections. The EMAC contractor shall complete, maintain, and make available to the OICC, Facility, or regulatory agency personnel all documentation relating to environmental compliance under applicable Federal, State, and local laws and regulations. The EMAC

contractor shall immediately notify the OICC if a Notice of Violation, Notice of Deficiency, or similar regulatory notice is issued to the EMAC contractor.

The EMAC Contractor shall be responsible for all damages to persons or property resulting from EMAC contractor fault or negligence as well as for the payment of any civil fines or penalties which may be assessed by any Federal, State, or local regulatory agency as a result of the EMAC contractor's or any EMAC Contractor's violation of an applicable Federal, State, or local environmental law or regulation. Should a Notice of Violation, Notice of Noncompliance, Notice of Deficiency, or similar regulatory agency notice be issued to the Government or Facility owner/operator on account of the actions or inactions of the EMAC contractor or one if its subcontractors in the performance of work under this contract, the EMAC contractor shall fully cooperate with the Government in defending against regulatory assessment of any civil fines or penalties arising out of such actions or inactions.

After approval of the EMAC Contractor's Work Plan and before commencement of work the EMAC contractor shall submit to the OICC the required certifications. As requested by the OICC, the Navy Representative for this project may review and provide surveillance for the OICC to determine if EMAC contractor's submittals comply with the contract requirements.

The EMAC contractor shall be required to commence work on the approved EMAC contractor's Work Plan within 5 calendar days after receiving the notice to proceed and to prosecute the work diligently after receiving the notice to proceed.

NSA Crane will remain in operation during the entire construction period. The EMAC contractor shall schedule the work as to cause the least amount of interference with the Facility. Work schedules shall be subject to the approval of the OICC. Permission to interrupt Facility road services shall be requested in writing a minimum of 15 calendar days prior to the desired date of interruption. The OICC shall be notified 48 hours prior to starting demolition and/or excavation activities.

Regular work hours shall consist of an 8-1/2 hour daily period established by the OICC, Monday through Friday, excluding Government holidays. The EMAC contractor should assume an 8-1/2 hour daily period. Working outside of the 8-1/2 hour daily period will require approval by the OICC. Work hours shall be established during the pre-IMWP implementation conference.

On-site storage, laydown, material handling, and decontamination activities shall be limited to areas approved by the OICC.

During the progress of construction activities, the work area and adjacent areas shall be kept clean and free of rubbish, surplus materials, and unneeded construction equipment. No material or debris shall be allowed to flow or wash into watercourses, ditches, gutters, drains, or pipes. Upon completion of the work, the EMAC contractor shall sweep paved areas and rake clean landscaped areas, and remove waste and surplus materials, rubbish, and construction facilities from the site.

5.1 Work Restrictions

EMAC contractor personnel employed at the Facility shall become familiar with and obey Facility regulations and keep within the limits of the work and avenues of ingress and egress as directed. EMAC contractor and subcontractor personnel shall not enter any restricted areas unless required to do so and until cleared for such entry. The EMAC contractor's equipment shall be clearly marked for identification.

The EMAC contractor shall indicate on the construction schedule any activity that could potentially interrupt Facility operations. The EMAC contractor shall notify the OICC in writing 15 calendar days prior to the required interruption.

5.2 Facilities and Services

The EMAC contractor shall provide utility permits in accordance with Part 4.13 Section C of the Basic Contract.

NSA Crane shall make all reasonably required amounts of utilities available to the EMAC Contractor from existing outlets and supplies, as indicated. The amount of each utility service consumed shall be charged to or paid for by the EMAC Contractor at the prevailing rates charged to NSA Crane or shall be furnished at no charge at the discretion of the Facility. The EMAC Contractor shall carefully conserve any utilities furnished.

The location(s) at which NSA Crane will deliver such utilities or services and the quantity available will be identified by NSA Crane.

The EMAC contractor, at its expense and in a workmanlike manner satisfactory to the OICC, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Government, the EMAC contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

Electric – Electrical power available: primary voltage is 2400 volt, 3 phase, 3 wire, 60 cycle AC; secondary voltages may be 120/208 or 120/240 volts. Final taps and tie-ins to the NSA Crane utility grid will be made by the NSA Crane electric shop.

Potable Water – Potable water shall be made available to the EMAC contractor at the discretion of the Facility. The EMAC contractor shall provide backflow preventer devices on connections to potable water supplies. Under no circumstances will taps to NSA Crane fire hydrants be allowed for obtaining water. The OICC shall identify available potable water supply locations.

Telephone – Facility telephone service is not available to the EMAC contractor.

Sanitary Facilities – The EMAC contractor shall provide temporary sanitary facilities for use by all personnel in accordance with Part 3.10 Section C of the Basic Contract.

Municipal Waste – Facility municipal waste storage and disposal is not available to the EMAC contractor.

Sewer – Wastewater resulting from personnel and equipment decontamination, excavation dewatering, and water collected in the materials handling pad(s) may be discharged to the NSA Crane wastewater treatment system, subject to the approval of NSA Crane based on characterization of the water to be discharged.

5.3 Quality Control

Approval of the QC Plan is required prior to the start of construction. The OICC reserves the right to require changes in the QC Plan and operations as necessary to ensure the specified quality of work. The OICC reserves the right to interview the QC Manager at any time in order to verify his/her submitted qualifications.

The OICC shall be notified in writing of any proposed changes to the QC Plan, at a minimum of 7 calendar days prior to the implementation of the proposed change. Proposed changes must be approved by the OICC.

Combined Contractor Production Report/Contractor Quality Control Report (CPR/CQCR) is required for each day that work is performed. CPR/CQCRs are to be prepared, signed, and dated by the Project QC Manager.

5.4 Safety and Occupational Health Requirements

The SHSS and EMAC contractor representatives who have a responsibility or significant role in accident prevention shall attend the pre-IMWP implementation conference. The purpose of the conference is for the EMAC contractor and the OICC to become acquainted and explain the functions and operating procedures of their respective organizations and to reach mutual understanding relative to the administration of the overall project before the initiation of work. The EMAC contractor shall discuss the details of the work identified in the approved EMAC contractor's Work Plan and discuss which

construction phases will require significant or additional activity hazard analysis. In addition, a schedule for the preparation, submittal, review, and acceptance of additional hazard analysis shall be established to preclude project delays. Lastly, deficiencies in the submitted accident prevention report will be brought to the attention of the EMAC contractor at the conference. The EMAC contractor shall revise the plan to correct deficiencies and resubmit the plan for acceptance.

New project employees (prime or subcontractor) will be informed of specific site hazards before they begin work. Documentation of this orientation shall be kept on file at the project site.

If unforeseen materials hazardous to human health are encountered during operations, that portion of the work shall be stopped and the OICC shall be notified immediately. Within 14 days, the Navy will determine if the material is hazardous. If the material is not hazardous or poses no danger, the OICC will direct the EMAC contractor to proceed without change. If the material is determined to be hazardous or to pose danger, and handling of the material is necessary to accomplish the work, the Contracting Officer will issue modifications to the proposed work.

Equipment shall be operated by designated qualified operators. Proof of qualifications shall be kept on the project site for review. Manufacturer's specifications or owner's manual for the equipment shall be on site and reviewed for additional safety precautions or requirements. Such additional safety precautions or requirements shall be incorporated into the activity hazard analysis. Mechanized equipment shall be inspected in accordance with manufacturer's recommendations for safe operations by a competent person prior to being placed into use. Daily checks or tests shall be conducted and documented on mechanized equipment by designated competent persons.

In its current configuration, the wash rack is considered a confined space. The EMAC Contractor shall provide appropriate personnel, methods and equipment to perform work within the wash rack as a confined space or take steps to alter the configuration.

5.6 Environmental Controls

The EMAC contractor must prepare and implement an Erosion and Sediment Control Plan. The Erosion and Sediment Control Plan shall describe the location and description of all erosion and sediment control measures, a sequence of construction to be followed, graphic details of all erosion and sediment control measures to be used, and an approval sign-off block containing the names of the Facility and EMAC contractor contacts, whose signatures indicate plan acceptance/approval.

The EMAC contractor shall strictly follow the Erosion and Sediment Control Plan and maintain all measures used during construction. Modifications to the Erosion and Sediment Control Plan shall be submitted to the OICC for approval. No modifications to the Erosion and Sediment Control Plan will be allowed until these changes have been approved by the OICC and three copies of the approved modifications have been submitted to the OICC.

5.7 Transportation Treatment and Disposal of Pesticide Contaminated Concrete

The EMAC contractor shall be solely responsible for complying with all Federal, State, and local requirements for decontamination of vehicles, equipment, and containers and shall bear all responsibility and cost for any noncompliance. In addition to these requirements, the EMAC contractor shall perform the following:

- Visually inspect all vehicles, equipment, and containers leaving the work site for proper decontamination.
- Prepare and maintain a written decontamination log.

The EMAC contractor shall be solely responsible for complying with all Federal, State, and local requirements for transporting contaminated materials through the applicable jurisdictions and shall bear all responsibility and cost for any noncompliance. In addition to these requirements, the EMAC contractor shall perform the following:

- Inspect and document all vehicles and containers for proper operation and covering.
- Inspect all vehicles and containers for proper markings, manifest documents, and other requirements for waste shipment.

All contaminated materials removed from the site shall be disposed in a treatment/disposal facility permitted to accept such material and with the approval of the OICC.

The EMAC contractor shall properly dispose of investigation derived waste, personnel protective equipment, and miscellaneous wastes associated with implementation of the IMWP, including sampling and analysis wastes that are generated by the Navy representatives.

6.0 EMAC CONTRACTOR SCOPE-OF-WORK

The EMAC Contractor shall be responsible for all interim measures as described as follows:

6.1 Mobilization

Mobilization shall include all activities and associated costs for transportation of personnel, equipment, and operating supplies to the Site and establishment of offices, buildings, and other necessary general facilities for the Contractor's operations at the Site.

The EMAC contractor must mobilize all personnel and equipment in accordance with the approved Traffic Plan described in the Work Plan (Section 3.0 of this SOW).

6.2 Site Preparation

The EMAC contractor shall set up entrances and exits to the Work Area, decontamination areas, and a staging area in a manner that minimizes disturbance of the area. The entrance and exit locations may be from the gravel area east of the site from Highway 45. The EMAC Contractor will identify a proposed location for staging equipment; this area should be selected to minimize disturbance. The entrances, exits, and staging areas must be approved by the Navy prior to mobilization.

A temporary decontamination pad will be set up to clean equipment used to demolish, remove, load, and transport contaminated concrete. The pad must be located within 100 yards of the concrete wash rack. The pad will be sized to accommodate all the equipment to be used at the Site and will be constructed in a manner that contains all the contaminated materials removed from equipment and the liquids used to clean the equipment. Contaminated materials removed from the equipment will be disposed off-site with the concrete. Wash water will be filtered, pumped into the nearby manhole. Care will be taken to keep off-road transport equipment clean to minimize the spread of contamination soil to areas adjacent to the excavations or the temporary roads.

The staging area must be designed and built to control runoff and minimize erosion during the period when materials are staged. Care must be taken to avoid and reduce damage to the area. Many areas of the Site have thin soil; disturbed and damaged areas shall be repaired and restored to original condition at completion of the project.

The EMAC contractor shall install and maintain fencing to secure the work area for the duration of the project. Access shall be controlled during both work and non-work hours. The EMAC Contractor shall remove fencing at the completion of the project.

The EMAC contractor shall establish a “Clean” area on a portion of the Site using imported fill or stone where excavation work is not anticipated to take place. A haul road may be established on Site using imported fill or stone to reduce the need for decontamination of vehicles as they exit the Site.

6.3 Erosion and Sediment Control

Erosion and sediment control measures shall be implemented to reduce or eliminate erosion and sedimentation of soil that would be detrimental to surface water quality. The site generally slopes to the west. The EMAC Contractor shall construct erosion control at any location necessary to prevent runoff or

erosion of soil or debris from any excavated soil, stockpiled debris, or work surfaces. Erosion control measures must be inspected and repaired daily. After the Erosion and Sediment Control Plan is approved, no changes can be made without the approval of Navy.

Based on the type of field activities being implemented during the SWMU 9 interim measures work, the proposed erosion and sediment control measures must include the following, at a minimum:

- Silt Fence - Placed along the west side of the site down gradient from the wash rack. The silt fence will provide a temporary sediment barrier and consist of synthetic filter fabric and wooden posts.

- Gravel Construction Entrance - Placed as a controlled site entrance to reduce the amount of sediment transported by construction vehicles onto facility and public roads.

- Dust Control - Utilized to prevent the movement of airborne dust particles from concrete demolition and associated activities.

- Surface Stabilization - Permanent seeding and a gravel surface shall be used to stabilize disturbed areas.

The EMAC Contractor shall prepare an Erosion and Sediment Control Plan. The construction, implementation, and maintenance of these erosion and sediment control devices will be in accordance with the IDEM Manual. Permanent seeding is discussed in Section 5.6.3. Dust control must be addressed in the EMAC Contractor's Work Plan.

In general, all erosion and sediment control measures will be checked daily and after each runoff-producing rainfall event. Any required repairs will be made immediately. The following items will be checked during each inspection:

- Silt fence will be checked for undermining or deterioration of the fabric. Sediment will be removed when the level of sediment causes bulging or reaches one-half of the fabric height.

- Gravel construction entrance will be maintained to minimize tracking of sediment onto facility or public roads.

- Seeded areas will be checked regularly to ensure that a good growth of vegetation is maintained, and these areas will be fertilized and reseeded, as needed.

- The fuel and lubricant materials storage area will be checked to ensure that stored containers are not leaking and that the lining system is functioning properly.

All erosion and sediment control devices will be inspected and maintained until the Navy has formally accepted the permanent stabilization of the disturbed areas. The EMAC contractor will maintain a logbook of all erosion and sediment control device inspections and maintenance. This logbook will be available at the Site at all times for inspection by Navy.

Erosion control structures shall be adequate to sustain weather damage and degradation, and shall be maintained by the EMAC contractor until site restoration has provided new vegetation or backfill adequate to stabilize remaining soils in-place on the surface of the ground which has been worked by the contractor. Completion of stabilization will be determined by the Navy.

6.4 Removal and Sizing of Concrete

This work will consist of removing the defined sections of the concrete wash rack with pesticide contamination that exceed the UTS as shown on Figures 3-1, 3-2, and 3-3. As shown on those figures the concrete to be removed includes:

- North Wall – The east half of the concrete wall from 4.5 feet and greater above the wash rack floor
- East Wall – All concrete from 6 feet and greater above the wash rack floor

- Northern Interior Wall - All concrete from 4.5 feet and greater above the wash rack floor
- Southern Interior Wall - All concrete from 4.5 feet and greater above the wash rack floor

The remaining sections of the concrete wash rack do not require removal and off-site disposal and will remain on the site.

The actual method to remove the contaminated concrete will be determined by the EMAC contractor and described in the Work Plan. The concrete will then be sized reduced, and/or rebar cut to comply with treatment and/or disposal facility requirements. The removed concrete may be temporarily staged on-site pending final approval and/or scheduling with the treatment/disposal facility. This work will include dust control, water management, and compliance with OSHA requirements.

6.5 Transportation, Treatment and Disposal of Concrete

The EMAC contractor shall provide all transportation, treatment and disposal of contaminated concrete as described in the Work Plan.

The contaminated concrete will require treatment in accordance with 40 CFR 268.45 prior to disposal. Treatment may include thermally treating the material, immobilization technology, or other approved method prior to final disposal.

The EMAC contractor shall provide an appropriate number of off-site disposal trucks during shipping periods in accordance with the Traffic Plan described in the Work Plan. Disposal vehicles shall only arrive and leave the Site during site working hours (as described in the Traffic Plan) to comply with security inspection requirements and to minimize interruptions to Facility operations. All waste-hauling vehicles will be weighed upon arrival and at time of departure using the certified weight scale located at the Defense Reutilization and Marketing Office (DRMO) - Building 1940. The DRMO scale is operated during normal business hours, and weight tickets are available. The DRMO scale is the preferred scale for the EMAC contractor's use. The EMAC contractor shall adhere to haul routes as described in the approved Traffic Plan.

The EMAC contractor shall ensure that all off-site disposal trucks are equipped with appropriate appurtenances (e.g., liners and tarps) in acceptable working condition. All loads must be covered prior to departure. The EMAC contractor shall ensure that all liners and covers are properly secured and that the vehicles are not leaking or releasing any waste constituents at any time.

Drivers of the off-site disposal trucks must not come in physical contact with the contaminated material while covering the load or preparing it for transport. The EMAC contractor shall load off-site disposal trucks in an area designated in the Work Plan.

The EMAC contractor shall be responsible for providing and carrying waste manifests, bills of lading, placards, labeling, markings, licensing, and any other transportation/disposal documentation as required by federal, state, and local regulations. The Navy will supply an EPA Generator Identification number for this documentation. The EMAC contractor shall supply and prepare all transportation documentation, including bills of lading, manifests, etc. for approval and signature by the Navy. A representative of the Navy will sign completed shipping manifests and bills of lading. The EMAC contractor shall provide the Navy with a minimum of 48 hour notice (2 business days) prior to shipping waste materials from the Site.

6.6 Site Restoration

Upon completion of work, the EMAC contractor shall restore all excavated areas on-site and all disturbed areas at the Storage Area as described.

6.6.1 Backfill Materials and Testing

Excavation areas will be backfilled to pre-construction grades. The backfill soil obtained from a borrow source shall have properties similar to the native SWMU 9 soil. The backfill soil (common fill and topsoil) will come from sources where due diligence shows no evidence of a release of a regulated substance has occurred (i.e., clean fill). A certification must be provided regarding the origin of the backfill soil, including

a statement that, to the best of the provider's knowledge, the backfill soil has not been contaminated through the release of regulated substances. The backfill soil will be subject to analytical testing to assure that the material satisfies the following requirements:

- Total Petroleum Hydrocarbon (TPH), diesel range organics (DRO), USEPA Method SW-846 8015M DRO - less than 1 mg/kg.

- TPH, gasoline range organics (GRO), USEPA Method SW-846 8015M GRO - less than 1 mg/kg.

- Total Aroclors (Total PCBs), USEPA Method SW-846 8082 - less than 1 mg/kg.

- Sum of benzene, toluene, ethylbenzene, and xylenes, USEPA Method SW-846 5030/8021 - less than 1 mg/kg.

- Characteristic waste determination (ignitability, corrosivity, reactivity, and toxicity), USEPA Method SW-846 1311 - shall not fail the test for characteristic waste.

- Lead, USEPA Method SW-846 6010B or 6020 – less than 11 mg/kg.

Three types of backfill material are required for site restoration, common fill, gravel, and topsoil. The physical characteristics required for each type of backfill material are described below.

Common Fill. Common fill will be used to backfill all excavation areas to a depth of 6 inches below final grade. This material will be placed into the excavation in 1-foot-thick lifts and compacted by track-walking across 100 percent of the backfilled area with track-type equipment, using the bucket of a backhoe, or other navy approved method. Common fill will meet the following physical characteristics:

- American Society for Testing and Materials (ASTM) D 2487, group symbols GW, GP, GM, SW, SP, or SM.
- ASTM D 4318, liquid limit, 35 maximum.
- ASTM D 4318, plasticity index, 12 maximum.
- Maximum of 25 percent by weight passing ASTM D 1140, No. 200 sieve.
- Maximum particle size of 1 inch.

Gravel. The area of the wash rack area and east will be stabilized with gravel. The area will be covered with 6 inches of gravel and compacted using a using a smooth drum roller or other approved method. The gravel shall conform to Indiana Department of Transportation (INDOT) CA No. 53 Aggregate

Topsoil. The uppermost 6 inches of backfill used to establish final grades will be medium-textured loam suitable for establishing vegetation.

Materials specifications and test results shall be submitted to the Navy.

6.6.2 Backfill and Grading

The EMAC Contractor shall provide all permits, tests, labor, materials, and equipment to restore the wash rack area the adjoining grade. The scope includes, but is not limited to the following:

- Grade backfill to a smooth surface that will allow proper drainage, and will prevent ponding of surface water runoff.

- Place fill in 12-inch loose lifts and compact to 90 percent of maximum dry density by standard Procter method.

- Following fill application, place topsoil or aggregate in a 6-inch thick minimum layer to finished grade.

- Restore areas that have been disturbed and damaged (ruts or scarring in the soil) during the work to original condition.

- Restore topsoil areas by revegetation in accordance with Soil Preparation and Seeding

- Protect revegetated areas from pedestrian and vehicular traffic using signs and/or temporary barriers.

- Maintain or install new appropriate erosion and sediment control measures for the soil excavation area and debris removal areas.

6.6.3 Soil Preparation and Seeding

The area west of the wash rack that is disturbed by interim measures will be restored/stabilized using appropriate topsoil and permanent seeding. Topsoil shall be spread and dressed to finished grade leaving no irregularities or depressions and so as to promote positive drainage. Revegetation shall occur within 24 hours of topsoil placement. Permanent vegetation activities include site/seed bed preparation, seeding, and in conformance with Chapter 7 of the IDEM Manual.

The seed mixture recommended for use at SWMU 9 will be a standard Indiana seed mixture for open and disturbed areas. The seed mixture includes perennial ryegrass and tall fescue. Planting rates and optimum soil pH for this mixture are presented in the Handbook. Following seeding, the seeded areas will be covered with temporary erosion control matting to provide additional stabilization until vegetation is established.

Erosion and sediment control devices will remain in place until permanent stabilization is established over the disturbed areas. Erosion and sediment control devices will not be removed by the EMAC contractor until directed by the Navy.

7.0 SCHEDULE

The EMAC contractor shall include a schedule with the Work Plan. The schedule should start with a notification to proceed and extend through project completion and demobilization. It shall include the project kickoff meeting, deliverables, project milestones, and major work items.

The project kickoff meeting must occur prior to mobilization. The meeting will include the Site Superintendent, a Navy representative and others. The EMAC contractor must provide a minimum of 7 calendar days notice to the Navy prior to the kickoff meeting.

The EMAC contractor shall be required to commence work upon the approval of the Work Plan and within 7 calendar days after receiving the notice to proceed, and to prosecute the work diligently after receiving the notice to proceed.

NSA Crane will remain in operation during the entire construction period. The EMAC contractor shall schedule the work to cause the least amount of interference with the Facility.

Completion date for the project on the Site is to be determined. Completion will require final stabilization in the wash rack area and removal of all EMAC contractor facilities and equipment from the site.