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NCBC GULFPORT  
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FIVE YEAR REVIEW SITES 5, 6, 8 AND 10 NCBC GULFPORT MS (PUBLIC DOCUMENT)  
2/1/2011  
TETRA TECH NUS

# Comprehensive Long-term Environmental Action Navy

CONTRACT NUMBER N62467-04-D-0055



Rev. 1  
02/22/11

## Five-Year Review for Sites 5, 6, 8, and 10

Naval Construction Battalion Center Gulfport  
Gulfport, Mississippi

Contract Task Order 0049

February 2011



NAS Jacksonville  
Jacksonville, Florida 32212-0030

**FIVE-YEAR REVIEW  
FOR  
SITES 5, 6, 8, AND 10**

**NAVAL CONSTRUCTION BATTALION CENTER  
GULFPORT, MISSISSIPPI**

**COMPREHENSIVE LONG-TERM  
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

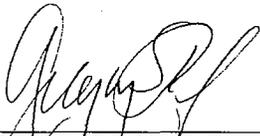
**Submitted to:  
Naval Facilities Engineering Command  
Southeast  
NAS Jacksonville  
Jacksonville, Florida 32212-0030**

**Submitted by:  
Tetra Tech NUS, Inc.  
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**CONTRACT NUMBER N62467-04-D-0055  
CONTRACT TASK ORDER 0049**

**FEBRUARY 2011**

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### Five-Year Review Summary Form

| SITE IDENTIFICATION  |  |   |
|--|--|---|
| <b>Site Name (from WasteLAN):</b> Naval Construction Battalion Center (NCBC)<br>Gulfport, Mississippi              |  | <b>USEPA ID (from WasteLAN):</b><br>N/A   |
| <b>Region:</b> 4   | <b>State:</b> MS   | <b>City/County:</b> Gulfport/Harrison   |
| SITE STATUS  |  |   |
| <b>NPL status:</b> Non-NPL   |  |   |
| <b>Remediation status</b> (under construction, operating, complete): Under construction, operating                 |  |   |
| <b>Multiple OUs*?</b> (highlight): <input checked="" type="checkbox"/> Y <input type="checkbox"/> N                |  | <b>Construction completion date:</b> To be determined                                 |
| <b>Has site been put into reuse?</b> (highlight): <input checked="" type="checkbox"/> Y <input type="checkbox"/> N |  |   |
| REVIEW STATUS  |  |   |
| <b>Lead agency:</b> Department of the Navy, Naval Facilities Engineering Command Southeast                         |  |   |
| <b>Author name:</b> Robert Fisher  |  | <b>Author title:</b> Remedial Project Manager   |
| <b>Author affiliation:</b> Department of the Navy, Naval Facilities Engineering Command Southeast                  |  |   |
| <b>Review period**:</b> March 2006 to March 2011   |  | <b>Date(s) of site inspection:</b> September 29, 2010,<br>and February 1 and 17, 2011 |
|  | <b>Type of review (highlight):</b><br>1. Pre-SARA<br><b>2. Post-SARA</b><br>3. NPL-Removal Only<br>4. Regional Discretion<br>5. NPL State/Tribe-lead | <b>Review number (1, 2, etc.):</b><br><br>1   |
| <b>Triggering action:</b> The remedial action on-site construction mobilization at NCBC Gulfport Site 8.           |  |   |
| <b>Trigger action date (from WasteLAN):</b> March 3, 2006  |  |   |
| <b>Due date (five years after triggering action date):</b> March 3, 2011   |  |   |

\* ["OU" refers to operable unit.]

**Issues:**

No issues were discovered for Sites 5, 6, or 10. One issue was discovered for Site 8 at NCBC Gulfport during the five-year review.

**Site 8**

1. Spalling of the concrete covering Site 8 due to tracked vehicle operations on the pad.

**Recommendation and Required Actions:**

The following action is recommended to be protective of human health and the environment for Site 8 at NCBC Gulfport:

**Site 8**

1. Inspect the integrity of the concrete cover and make any necessary repairs.
2. Ensure the unit commanders using this area to park vehicles are aware of the issue and will ensure that proper safeguards are used to prevent damage to the concrete.

**Protectiveness Statement(s):**

**Site 5**

The completed portions of the remedy, stabilization and capping of contaminated soil and sediments and installation of warning signs, are protective. The remaining portion of the remedial action at Site 5, institutional controls and monitoring, will be protective once implemented. Institutional controls and long-term monitoring are in the design phase and should be in place in 2011. Long-term protectiveness of the remedial action will be verified by land use control (LUC) inspections and groundwater sampling after the remedial design for that portion of the corrective action is complete. Additionally, informal LUCs are already in place, where the Installation Restoration (IR) manager and others are aware of the limitations associated with Site 5 and conduct periodic visual observations of the site.

**Site 6**

The remedial action at Site 6 consists of long-term monitoring and a LUC program. The monitoring program has been implemented and is protective. The LUC portion of the remedy is still in the design/construction phase and will be protective once complete. Additionally, informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 6 and conduct periodic visual observations of the site.

**Site 8**

The stabilization and capping of contaminated soil and sediments portion of the Site 8 remedy is completed and protective. The institutional controls and monitoring phase of the selected remedy for Site 8 will be protective when fully implemented. This portion of the remedy is in the design phase and is expected to begin in 2011. Additionally, informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 8 and conduct periodic visual observations of the site.

The only issue noted at Site 8 during the review was spalling of the concrete due to the parking of tracked vehicles on the concrete cap. As stated above, the spalling has not affected the protectiveness of the remedy; however, the affected portion of the pad should be inspected and repaired as necessary.

Although the concrete cap was designed to handle heavy equipment, continued operation of tracked vehicles without proper additional protection will shorten the life of the concrete cover.

**Site 10**

The completed portions of the Site 10 remedy, installing a concrete cover over the contaminated soil and sediments, and installation of warning signs, are protective. Ecological and human health risks have been addressed through capping/covering of contaminated soil and sediments. The remaining portion of remedial action at Site 10, institutional controls and monitoring, will be protective once implemented. Institutional controls and monitoring are in the design phase and should be in place in 2011. Informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 10 and conduct periodic visual observations of the site.

This five-year review shows that the Navy is meeting the requirements of the Decision Documents or Action Memoranda for the sites at NCBC Gulfport.

Signature of U.S. Department of the Navy and Date

  
\_\_\_\_\_  
S. W. Wiles  
By direction

15 MAR 2011  
Date

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This document, *Five-Year Review for Sites 5, 6, 8, and 10 at Naval Construction Battalion Center Gulfport, Mississippi* has been prepared under the direction of the undersigned Mississippi registered Professional Engineer. The work and professional opinions rendered in this report were developed in accordance with commonly accepted procedures consistent with applicable standards of practice and based on information by others. Should information become known other than what was known at the time of this document preparation, the undersigned engineer reserves the right to modify his findings. This document was prepared for the Naval Construction Battalion Center Gulfport, Mississippi and should not be construed to apply to any other site.

  
\_\_\_\_\_  
Gregory S. Roof, P.E. 2/23/11  
Date  
Professional Engineer  
State of Mississippi License No. 16639  
Expires: December 31, 2011  
Tetra Tech NUS, Inc. COA No. 00001155

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## ACRONYMS

|        |   |
|--------|---|
| %      | Percent   |
| ABB-ES | ABB Environmental Services, Inc.                                      |
| AM     | Action Memorandum   |
| ARAR   | Applicable or Relevant and Appropriate Requirement                    |
| bls    | below land surface  |
| CCI    | CH2M Hill Constructors, Inc.  |
| CED    | Construction Equipment Department                                     |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR    | Code of Federal Regulations   |
| COC    | chemical of concern   |
| CTO    | Contract Task Order   |
| DCE    | dichloroethen   |
| DD     | Decision Document   |
| DDT    | dichlorodiphenyltrichloroethane                                       |
| DPT    | direct push technology  |
| DRO    | diesel range organic  |
| EC     | Engineering Control   |
| FS     | Feasibility Study   |
| GCL    | geosynthetic clay layer   |
| HASP   | Health and Safety Plan  |
| HHRA   | Human Health Risk Assessment  |
| HLA    | Harding Lawson & Associates   |
| HO     | Herbicide Orange  |
| HxCDF  | hexachlorinated-dibenzo-furans  |
| IAS    | Initial Assessment Study  |
| IC     | Institutional Control   |
| IR     | Installation Restoration  |
| LNAPL  | light non-aqueous phase liquid  |
| LTM    | Long-term Monitoring  |
| LTMP   | Long-term Monitoring Plan   |
| LUC    | Land Use Control  |
| LUCIP  | Land Use Control Implementation Plan                                  |
| µg/kg  | microgram per kilogram  |
| µg/L   | microgram per liter   |
| MCL    | Maximum Contaminant Level   |

## ACRONYMS (Continued)

|            |  |
|------------|--|
| MDEQ       | Mississippi Department of Environmental Quality                  |
| MOA        | Memorandum of Agreement  |
| MPE        | Multi-phase Extraction   |
| MWR        | Morale, Welfare, and Recreation                                  |
| NAVFAC SE  | Naval Facilities Engineering Command Southeast                   |
| NCP        | National Oil and Hazardous Substances Pollution Contingency Plan |
| NCTC       | Naval Construction Training Center                               |
| NFA        | no further action  |
| ng/L       | nanogram per liter   |
| NMCB       | Naval Mobile Construction Battalion                              |
| NPW        | Net Present Worth  |
| OCBE       | octachlorinated-biphenyl ethers                                  |
| O&M        | operation and maintenance  |
| OU         | Operable Unit  |
| PCB        | polychlorinated biphenyl   |
| Pg/L       | picograms per liter  |
| ppb        | part per billion   |
| ppm        | part per million   |
| ppq        | part per quadrillion   |
| PWD        | Public Works Department  |
| PVC        | polyvinyl chloride   |
| RAGS       | Risk Assessment Guidance for Superfund                           |
| RAO        | Remedial Action Objective  |
| RBC        | Risk-based Concentration   |
| RCRA       | Resource Conservation and Recovery Act                           |
| RI         | remedial investigation   |
| RI/FS      | Remedial Investigation/Feasibility Study                         |
| RSL        | Regional Screening Level   |
| SRT        | sediment recovery trap   |
| SVOC       | semivolatile organic compound                                    |
| TBC        | to be considered   |
| TCRA       | Time Critical Removal Action                                     |
| TEQ        | Toxic Equivalents  |
| Tetra Tech | Tetra Tech NUS, Inc.   |
| TPH        | total petroleum hydrocarbon                                      |

## ACRONYMS (Continued)

|       |   |
|-------|---|
| TRG   | Target Remediation Goal                       |
| USDA  | United States Department of Agriculture       |
| USEPA | United States Environmental Protection Agency |
| UST   | Underground Storage Tank                      |
| VOC   | volatile organic compound                     |

## 1.0 INTRODUCTION

The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of the reviews are documented in Five-Year Review Reports. In addition, Five-Year Review Reports identify issues found during the review, if any, and recommendations to address them.

Naval Facilities Engineering Command Southeast (NAVFAC SE) is preparing this Five-Year Review report pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) § 121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA § 121 states:

*“If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.”*

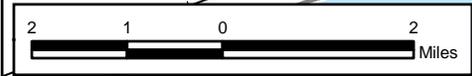
The United States Environmental Protection Agency (USEPA) interpreted this requirement further in the NCP; 40 Code of Federal Regulations (CFR) § 300.430(f)(4)(ii) states:

*“If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.”*

NAVFAC SE conducted this five-year review of the remedies implemented at Sites 5, 6, 8, and 10 at Naval Construction Battalion Center (NCBC) Gulfport in Gulfport, Mississippi. Figure 1-1 shows the location of NCBC Gulfport and Figure 1-2 shows the locations of the sites on the base. This review was conducted for the entire base for the period of March 2006 through March 2011. This report documents the results of the review.

11JAX0044

1-2



| Legend |               |
|--------|---------------|
|        | Stream        |
|        | Gulfport NCBC |
|        | Railroad      |
|        | Road          |

|                        |                  |
|------------------------|------------------|
| DRAWN BY<br>S. STROZ   | DATE<br>03/17/08 |
| CHECKED BY<br>B. OLSON | DATE<br>10/12/10 |
| COST SCHEDULE AREA     |                  |
| SCALE<br>AS NOTED      |                  |

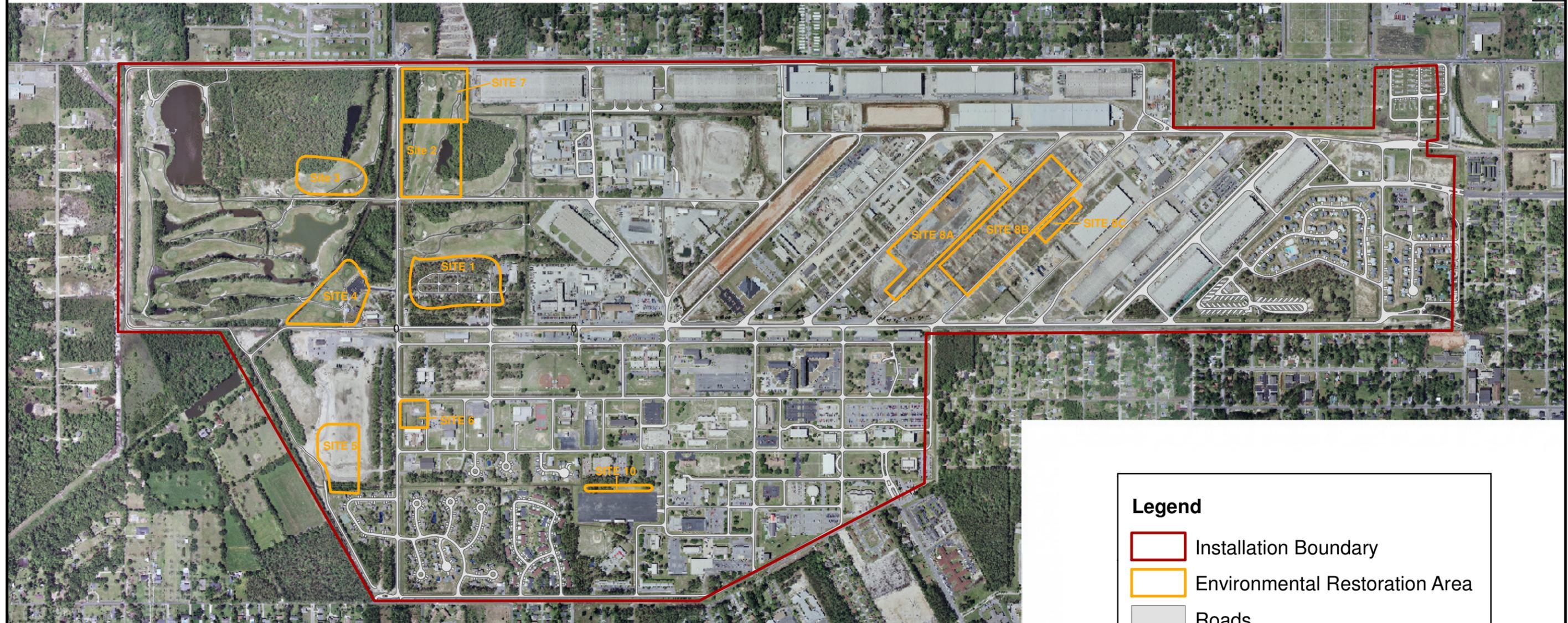


VICINITY MAP  
FIVE-YEAR REVIEW  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

|                          |          |
|--------------------------|----------|
| CONTRACT NUMBER<br>0041  |          |
| APPROVED BY              | DATE     |
| APPROVED BY              | DATE     |
| FIGURE NO.<br>FIGURE 1-1 | REV<br>0 |

CTO 0049

Rev. 1  
02/22/11



**Legend**

- Installation Boundary
- Environmental Restoration Area
- Roads



|                        |                  |
|------------------------|------------------|
| DRAWN BY<br>S. STROZ   | DATE<br>12/10/09 |
| CHECKED BY<br>B. OLSON | DATE<br>10/12/10 |
| REVISED BY             | DATE             |
| SCALE<br>AS NOTED      |                  |



LOCATIONS OF IR SITES  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

|                 |       |
|-----------------|-------|
| CONTRACT NUMBER |       |
| APPROVED BY     | DATE  |
| APPROVED BY     | DATE  |
| FIGURE NO. 1-2  | REV 0 |

This is the first five-year review for NCBC Gulfport. This five-year review is intended to address Sites 5, 6, 8, and 10, which currently have a signed Decision Document (DD) or Action Memorandum (AM) and a removal action or remedial action in place. The triggering action for this statutory review at NCBC Gulfport was remedial action on-site construction mobilization at Site 8 on March 3, 2006. This five-year review is being conducted because hazardous substances, pollutants, and contaminants from past storage, handling, and disposal practices remain at Sites 5, 6, 8, and 10 at concentrations greater than levels that allow for unlimited use and unrestricted exposure.

This report consists of six discussion sections and appendices as listed below:

- Section 1.0 discusses the purpose of the report, provides a summary of the history and site chronology of NCBC Gulfport, and evaluates the changes that have occurred in the Applicable or Relevant and Appropriate Requirements (ARARs).
- Sections 2.0 through 5.0 are the five-year reviews for Sites 5, 6, 8, and 10, respectively, at NCBC Gulfport. Each section includes the site chronology, background, summary of the remedial actions performed, and the five-year review findings, assessment, deficiency list, recommendations, and protectiveness statements.
- Section 6.0 summarizes the findings and recommendations.
- Appendices including site inspection forms, site photos, and other site information.

Tetra Tech NUS, Inc. (Tetra Tech) conducted the five-year review in conjunction with the NCBC Gulfport Partnering Team, which includes:

- Robert Fisher, NAVFAC SE Remedial Project Manager
- Bob Merrill, Mississippi Department of Environmental Quality (MDEQ) Remedial Project Manager
- Gordon Crane, NCBC Gulfport Installation Restoration (IR) Manager
- Greg Roof, Tetra Tech Task Order Manager
- John Overholtzer, CH2M Hill Constructors, Inc. (CCI)

The public was notified that the review was underway via a RAB meeting on August 9, 2010. At the meeting, the Navy informed the public that the results would be presented once the effort was complete.

This five-year review consisted of a review of relevant documents, interviews, and site inspections. The completed report is available in the information repository located at the temporary Gulfport Public

Library, 47 Maples Drive # 1, Gulfport, Mississippi. Documents, and other relevant information relied on in the five-year review process, are available for public review at the Information Repository, which includes a copy of the Administrative Record.

## **1.1 OVERVIEW OF NCBC GULFPORT**

NCBC Gulfport is located in the western part of the City of Gulfport, Mississippi, in southeastern Harrison County. Biloxi is located approximately 7 miles east of Gulfport, and Pass Christian is located approximately 7 miles to the west.

NCBC Gulfport is a shore activity under the Commander in Chief, United States Atlantic Fleet, with a mission to support operating units of the Naval Construction Force including Naval Mobile Construction Battalions (NMCBs) One, Seven, Eleven, Seventy-four, and One thirty-three; the Twentieth Seabee Readiness Group; the Twenty-second and Twenty-fifth Naval Construction Regiments, Naval Construction Training Center (NCTC), and other smaller tenant activities. The mission of the facility is to prepare for and support all facets of the mobilization of naval construction forces including reserve units. NCBC Gulfport is also responsible for preservation and storage of war reserves including construction equipment and materials and the Maritime Prepositioning Force.

### **1.1.1 History and Site Chronology**

During the early stages of World War II, America's long range defense plans called for an uncongested deep water port to serve the Caribbean area. Gulfport offered this plus a moderate, semi-tropical year-round climate, which permitted training and out-loading throughout the year. On June 2, 1942, an Advanced Base Depot was established in Gulfport. The mission of the Center changed from a receiving organization to a U.S. Naval Training Center in March 1944, and provided for training in basic engineering, diesel, radioman, quartermaster, and electrician's ratings. The Depot became the U.S. Naval Storehouse in 1945 and the Training Center was decommissioned in 1946. In 1948, the station became custodian of certain national stockpile materials. Bauxite, tin, copper, sisal, and abaca have been stored in varying quantities since that time. Between the late 1940s and early 1960s, the number of military personnel assigned to the facility dropped to four or five enlisted personnel and four or five commissioned officers. The civilian employee population fluctuated with the amount of strategic supplies and construction equipment being received, stored and trans-shipped. Important organizational changes were made early in 1952 when the Naval Storehouse was disestablished and the U.S. NCBC was established.

The Navy's growing commitments for construction forces in Southeast Asia led the way to an increased mission for the NCBC in February 1966. Ten months later, the NCBC had expanded to include new

functions such as Seabee Team Training and a new tenant, Construction Training Unit. The staff for the NCBC had expanded to 183 military and 523 civilian personnel to provide support to approximately 4,200 Seabees.

The Initial Assessment Study (IAS) was presented in 1985 and identified nine sites at NCBC Gulfport where records of past waste disposal or other operations presented potential threats to human health or the environment (Figure 1-2).

- Site 1 Disaster Recovery Disposal Area (Operated 1942-1948)
- Site 2 World War II Landfill (Operated 1942-1948)
- Site 3 Northwest Landfill/Burning Pit (Operated 1948-1966)
- Site 4 Golf Course Landfill (Operated 1966-1972)
- Site 5 Heavy Equipment Training Area Landfill (Operated 1972-1976)
- Site 6 Fire Fighting Training Area (Operated 1966-1975)
- Site 7 Rubble Disposal Area (Operated 1978-1984)
- Site 8 Air Force Herbicide Orange Spill Area (Operated 1968-1977)
- Site 9 Excavated Drum Storage Area (1984 – deleted from IRP)
- Site 10 Parade Field Ditch (1997)

In 1991, an additional site was identified as Site 10, Parade Field Ditch.

### **1.1.2 Land Use**

Land use on NCBC Gulfport includes training activities, equipment and materials storage, and maintenance areas. The southern and eastern portions of the base include residential housing and recreational facilities. The northwestern corner of the facility includes residential housing and the Seabee Park recreation facility. The central and north central portions of the facility are industrial.

### **1.1.3 Physiography and Topography**

NCBC is located in the Gulf Coast Flatwoods physiographic division, which extends along the southern coast of Harrison County. Topography in this area is a series of wet, poorly drained depressions between better-drained areas of slightly higher elevation.

### **1.1.4 Climate**

During normal weather cycles, the Mississippi coast has a humid sub-tropical climate, influenced by the Gulf of Mexico. Summers are long and hot with high humidity, but winters are fairly short and mild. The

hottest month on the Coast is July, with an average high temperature of 91 degrees. The coolest month is February, with an average low of 49 degrees. Relative humidity ranges from an average of 52 percent in May to a maximum of 96 percent in July. Average yearly rainfall is 62 inches. The area is also prone to hurricanes. About 75 percent of all hurricanes that have struck the Mississippi Gulf Coast since the turn of the century have been Category 3 or higher.

#### **1.1.5      Soils**

The soil associations (or map units) at NCBC Gulfport are the Atmore-Harleston-Plummer association and the Smithton-Plummer association described in the Soil Survey of Harrison County, Mississippi (USDA, 1975).

The Atmore-Harleston-Plummer association is typical for the majority of the base. This association is on broad nearly level flats that are broken by scattered drainageways and numerous low ridges where the soils are gently sloping. Many of the ridges are narrow, and most are less than ¼ mile wide. This association is about 55 percent Atmore soils, 15 percent Harleston soils, 5 percent Plummer soils, and 25 percent Latonia, Poarch, Ocilla, and Escambia soils. Atmore soils are on the broad flats and in drainageways and depressional areas. They are poorly drained and have a silt loam surface layer and a subsoil that is silt loam in the upper part and becomes clayey with depth. Harleston soils are on the low ridges. They are moderately well drained and have a fine sandy loam surface layer and subsoil. The Plummer soils are poorly drained and have a thick loamy sand surface layer and a sandy loam subsoil.

The Smithton-Plummer association is the typical soil unit for the southeastern portion of the base. This association is found on broad flats and in drainageways and depressional areas in the southern part of Harrison County. The areas are about ¼ mile to more than 1 mile wide, several miles long, and irregular. Several areas of better drained soils are on low ridges. Most areas in this association are flooded or have water standing on the surface for long periods. This association makes up about 10 percent of the county. It is about 60 percent Smithton soils, 30 percent Plummer soils and 10 percent Hyde and Poarch soils. Smithton soils are poorly drained. They have a fine sandy loam surface layer and subsoil. Plummer soils are also poorly drained and have a thick loamy sand surface layer and a sandy loam subsoil.

#### **1.1.6      Regional Geology**

NCBC Gulfport is located in the coastal plain of southern Mississippi, which is underlain by a series of estuarine or deltaic sediments that dip southwestward toward the delta of the Mississippi River (Shows, 1970). These sediments range in age from Miocene to Recent and are not readily separated into stratigraphic units. The uppermost beds are Pleistocene and Recent terrace and stream valley

deposits. The uppermost stratigraphic unit in the coastal plain area is the Pamlico Sand. The Pamlico Sand formation is approximately 60 to 70 feet thick and is composed of fine silt, sands, and shale, or clay. The Pamlico Sand is underlain by the following formations:

- Citronelle Formation (youngest), approximately 100 feet thick.
- Graham Ferry Formation, alternating layers of sand, shale, and clay ranging from 125 to 250 feet thick.
- Upper and Lower Pascagoula Formations (oldest), alternating layers of sand, shale, and clay with shell and boulders approximately 1,100 feet thick.

### 1.1.7 Regional Hydrology

In the Gulfport area, geologic units containing fresh water are of Miocene to Recent age. Aquifers are composed predominantly of sand beds that are irregular in thickness and horizontal extent. There are no thick, consistently traceable confining units between aquifers at these shallow depths (Shows, 1970).

The uppermost aquifer is the surficial aquifer, which is composed of undifferentiated alluvium and Pamlico Sand terrace deposits (Recent to Pleistocene in age). The Pamlico Sand formation is approximately 60 to 70 feet thick and is composed of fine sands and clay. Depth to groundwater in the surficial aquifer is variable depending on local topography and precipitation, but generally ranges from 4 to 7 feet below land surface (bls). In the northern part of the Base, shallow groundwater flow in the surficial aquifer is north toward Turkey Creek, which empties into Bernard Bayou and eventually into the Gulf of Mexico via the Mississippi Sound. Generally, this aquifer is not used for potable water supply.

Beneath the surficial aquifer are hydrogeologic units, which include aquifers in the Citronelle Formation and Graham Ferry Formation (Pliocene) and Pascagoula, Hattiesburg, and Catahoula Formations (Miocene). Boundaries between the aquifers are vaguely defined, if at all. These aquifers are composed of sands and discontinuous clays and are a major source of potable water in the Gulfport area.

Wells in the Citronelle Formation are used in Harrison County for both domestic and industrial water supply. Supply wells in the Upper and Lower Pascagoula Formations provide the majority of fresh water used in the Coastal Plain. The Hattiesburg Formation becomes increasingly brackish with depth, and salt water is encountered near the base of this unit (approximately 2,000 feet below sea level).

#### **1.1.7.1 Surface Water**

NCBC Gulfport is located in the Gulf Coast Flatwoods Region, which extends along the southern coast of Harrison County. This area is typically drained by small streams flowing southeastward toward the coast. Topography in this area is a series of wet, poorly drained depressions between better-drained areas of slightly higher elevation.

Surface water in the region of the NCBC is abundant. Average annual mean rainfall in the area is approximately 62 inches per year (Shows, 1970). Individual storms are often intense with large 24-hour totals. The 10-year, 24-hour rainfall is approximately 10 inches (U.S. Soil Conservation Service, 1986); this rate is one of the highest totals for the entire continental United States. These large storms tend to be accompanied by small stream and ditch flooding and flow velocities that scour out streambed loads of sediment.

Storm water runoff is collected in a series of ditches and canals and directed off base. Large precipitation events tend to produce small stream and ditch flooding due to relatively high stream flow velocities. In the area around the base, surface water generally flows to the north or northeast (away from the Gulf of Mexico) towards Canal No. 1, Turkey Creek, Bernard Bayou, and the Back Bay of Biloxi.

#### **1.1.7.2 Groundwater**

NCBC Gulfport is underlain by several thick, unconsolidated systems. These systems are the Holocene (uppermost), underlain by the Pleistocene, and the Miocene formations. These units dip slightly to the south and thicken towards the Gulf of Mexico (Shows, 1970). Depth to groundwater varies depending on precipitation and topography, but generally ranges from 4 to 8 feet. The thickness of these alluvial deposits is approximately 50 feet to 80 feet bls. At the surface, the Holocene alluvium deposits consist of discontinuous layers of sand, silt, clay, and minor amounts of gravel. Depth to groundwater is variable depending on precipitation, but it generally ranges from 4 to 7 feet bls.

Below the Holocene alluvial deposits, Pleistocene terrace deposits consisting of thick lenticular sand and gravel layers separated by thinner clayey-silt layers are found. This unit is referred to as the Citronelle aquifer and is extensively used for domestic water supply wells regionally. Locally, significant silt and clay-rich deposits between 50 and 150 feet bls limit the Citronelle use of the Citronelle as a water supply aquifer (Hardin, 1993).

The Miocene units below the Pleistocene terrace deposits consist of thick beds of sand and gravel with only minor clay lenses. The Miocene aquifer is the primary source of drinking water in the Gulfport area.

These units are generally lenticular and discontinuous over the area (Shows, 1970). The contacts of the Miocene units are often difficult to distinguish from one another, so they are collectively referred to as the "Miocene" aquifers. These units include the Graham Ferry, Pascagoula, Hattiesburg, and Catahoula. These aquifers are the primary source for municipal and industrial water supplies.

## **1.2 ARARs AND SITE-SPECIFIC ACTION LEVEL CHANGES**

The ARARs identified for each site were reviewed as were new federal and state regulations, which may have been promulgated previously. The first NCBC Gulfport DD was signed in December 2004 (Site 8). The other DDs (Site 5 and Site 10) were signed in 2009, and the AM for Site 6 was signed in 2008. The ARARs in place when these documents were finalized are presented in Table 1-1.

Although no state or federal ARAR-driven cleanup criteria changes were noted since these documents were finalized, USEPA released updated Regional Screening Levels (RSLs) in December 2009. USEPA Region 4 recommends use of the RSLs to replace formerly relied upon Region 3 RBCs, which, while not federal ARARs, were reflected To Be Considered (TBC) standards. No other state ARARs affecting these sites have changed during the 5-year period.

## **1.3 FIVE-YEAR REVIEW PROCESS**

### **1.3.1 Administrative Components**

The NCBC Gulfport Five-Year Review team consisted of the following individuals:

- Robert Fisher (NAVFAC SE)
- Gordon Crane (NCBC Gulfport)
- Bob Merrill (MDEQ)
- Greg Roof (Tetra Tech)
- Jon Overholtzer (CH2M Hill)

This five-year review consisted of a review of the actions taken and results of those actions, site inspections, personnel interviews, and a technical assessment of the site and the remedial action.

### **1.3.2 Community Involvement**

The public was notified during the August 9, 2010 RAB meeting. At the conclusion of the review, a fact sheet will be produced and distributed to the Restoration Advisory Board and the public.

#### **1.4        PROGRESS SINCE THE LAST FIVE-YEAR REVIEW**

Because this is the first five-year review for NCBC Gulfport, there are no protectiveness statements, recommendations, or follow-up actions from the last review to evaluate.

#### **1.5        NEXT REVIEW**

The next five-year review for all sites at NCBC Gulfport is required by March 2016 (five years from the date of this review).

TABLE 1-1

**ARARs/TBCs CONSIDERED IN DD/AM FOR SITES 5, 6, 8, AND 10  
FIVE-YEAR REVIEW  
NCBC GULFPORT, MISSISSIPPI**

| NAME AND REGULATORY CITATION   | DESCRIPTION  | CONSIDERATION IN THE REMEDIAL ACTION PROCESS   | TYPE              |
|--|--|--|-------------------|
| <b>FEDERAL</b>   |  |  |                   |
| USEPA Region 3 RBCs  | Provides risk-based concentrations for screening of soil and groundwater.                          | TBC. These guidelines aid in the screening of chemicals in soil and groundwater.   | Chemical-specific |
| USEPA Region 4 Supplemental Guidance to RAGS: Region 4 Bulletins, Ecological Risk Assessment | Provides risk-based concentrations for screening contaminated media for ecological receptors.      | TBC. These levels serve as guidelines for the Ecological Risk Assessment.  | Chemical-specific |
| National Emissions Standards for Hazardous Air Pollutants (40 CFR Part 61)                   | Standards promulgated under the Clean Air Act for significant sources of hazardous air pollutants. | Relevant and appropriate. Remedial action (e.g., soil excavation) may result in release of hazardous air pollutants.                               | Action-specific   |
| RCRA Treatment, Storage, and Disposal of Hazardous Waste (40 CFR 262-266)                    | Regulates the treatment, storage, and disposal of hazardous waste.                                 | Relevant and appropriate. Hazardous waste generated by site remediation must meet RCRA generator and treatment, storage, or disposal requirements. | Action-specific   |
| <b>STATE</b>   |  |  |                   |
| MDEQ TRGs (Mississippi Code Section 49-35-21)  | Default screening levels. Human Health risk-based cleanup goals for soil and groundwater.          | Applicable. These regulations apply to all remedial actions in the State of Mississippi.   | Chemical-specific |
| MDEQ Risk Evaluation Procedures for Voluntary Cleanup and Redevelopment                      | Risk-based procedures and rationale for site evaluation and remediation.                           | TBC. These regulations apply to all Voluntary Cleanup and Brownfield actions in the State of Mississippi.  | Action-specific   |
| MDEQ Office of Pollution Control Hazardous Waste Management Regulations                      | Adopts by reference specific sections of the federal Hazardous Waste regulations.                  | Relevant and Appropriate. These regulations may apply if contaminated media is managed on or removed from a site.                                  | Action-specific   |

TABLE 1-1

**ARARs/TBCs CONSIDERED IN DD/AM FOR SITES 5, 6, 8, AND 10  
FIVE-YEAR REVIEW  
NCBC GULFPORT, MISSISSIPPI**

| <b>NAME AND REGULATORY CITATION</b>  | <b>DESCRIPTION</b>           | <b>CONSIDERATION IN THE REMEDIAL ACTION PROCESS</b>  | <b>TYPE</b>     |
|--|------------------------------|--|-----------------|
| Mississippi Commission on Environmental Quality Regulation SW-2, 2005. Non-hazardous Solid Waste Management Regulations & Criteria, April, 2005. | Landfill closure regulations | Relevant and Appropriate for landfills. These regulations apply because soil covers must meet the permeability requirements for landfill closures. | Action-specific |

CFR = Code of Federal Regulations

MDEQ = Mississippi Department of Environmental Quality

RAGS = Risk Assessment Guidance for Superfund

RBC = Risk-Based Concentration

RCRA = Resource Conservation and Recovery Act

TBC = To be considered

TRG = Target Remediation Goal

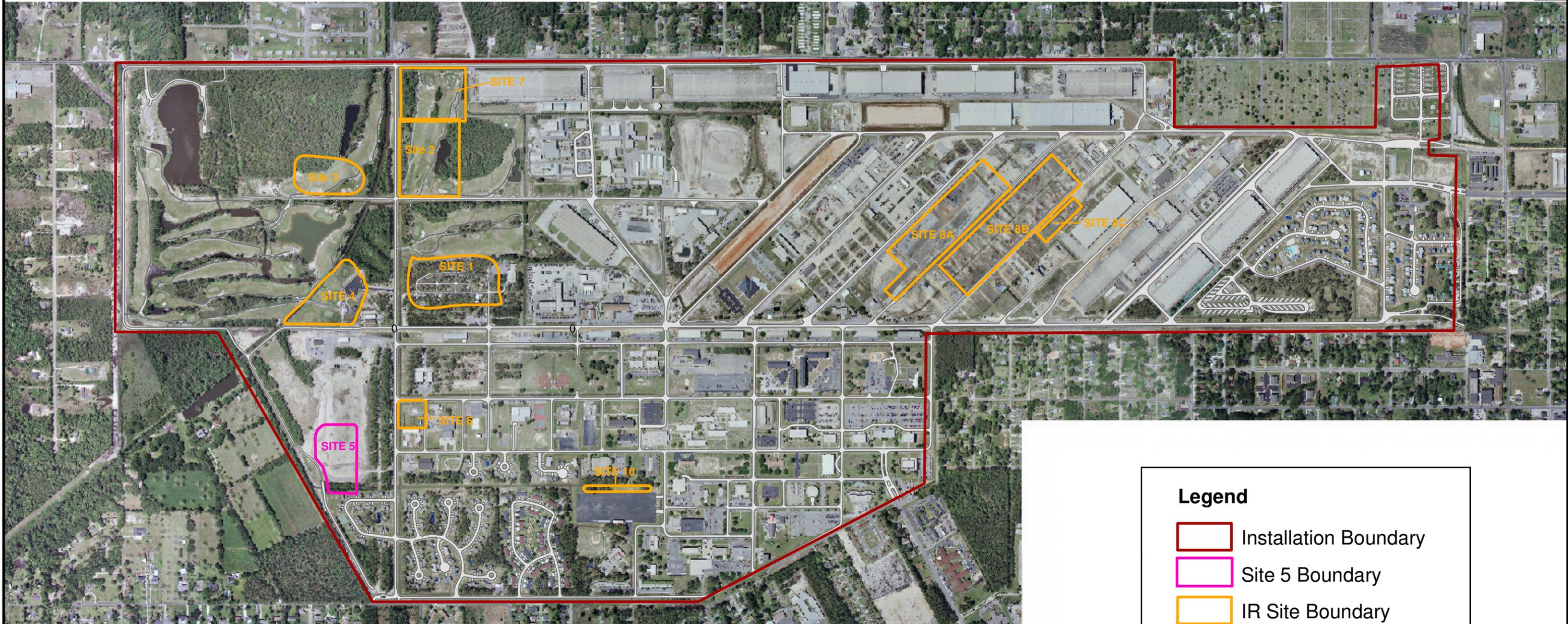
## 2.0 SITE 5

A five-year review was conducted for Site 5 Heavy Equipment Training Area (Figure 2-1) because buried wastes and contaminated soil and groundwater preventing unlimited use and unrestricted exposures remain on site following construction of the selected remedy. Site 5 was operated as a landfill from 1972 to 1976 and used as a training area from 1976 to 2005. Environmental investigation and remedial design activities were conducted from 1985 to 2008. On-site remedial construction was completed in July 2009. The selected remedy for Site 5 followed the USEPA “presumptive remedy” guidance for military landfills. The remedy included a low permeability landfill cap, sediment removal and erosion control in adjacent ditches, landfill gas management, groundwater monitoring, and Land Use Controls (LUCs) (Engineering Controls [ECs] and Institutional Controls [ICs]). Long-term monitoring (LTM) will begin in 2011. The site has been redeveloped as a golf course driving range.

### 2.1 SITE CHRONOLOGY

The relevant Site 5 historical events and dates are presented below:

- 1972 to 1976 – Site 5 was operated as a landfill, and was the only landfill operated on the base at the time. Reports indicate solid waste and drums of the insecticide dichlorodiphenyltrichloroethane (DDT) and other liquid wastes were disposed of in this landfill.
- After 1976 – Site 5 was covered with 4 to 6 feet of fine to medium-grained sand and was used as a heavy equipment training area until 2005.
- 1985 – IAS of NCBC Gulfport – This study evaluated historical records to identify sites at NCBC Gulfport and rank potential threats to human health or the environment. Site 5 was recommended for a confirmation study.
- 1987 – Confirmation Study - To evaluate potential risks identified in the IAS, this study included collection of surface water, groundwater, and soil samples at locations on the southern and western sides of Site 5.
- 1997 – Field Verification Action – Direct-push technology (DPT) sampling of soil and groundwater was conducted near magnetic anomalies identified during a geophysical investigation.
- 1997 – Surface Water and Sediment Dioxin Delineation Report – A comprehensive study of surface water drainage systems at NCBC Gulfport in relation to Site 8 Herbicide Orange (HO) storage. One of the main purposes of the study was to evaluate if landfills active during the period of HO storage at Site 8, including Site 5, received HO drums.



**Legend**

- Installation Boundary
- Site 5 Boundary
- IR Site Boundary



|                        |                  |
|------------------------|------------------|
| DRAWN BY<br>S. STROZ   | DATE<br>12/10/09 |
| CHECKED BY<br>B. OLSON | DATE<br>10/12/10 |
| REVISED BY             | DATE             |
| SCALE<br>AS NOTED      |                  |



LOCATION OF SITE 5  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

|                 |      |
|-----------------|------|
| CONTRACT NUMBER |      |
| APPROVED BY     | DATE |
| APPROVED BY     | DATE |
| FIGURE NO.      | REV  |
| 2-1             | 0    |

- 1999 – Groundwater Monitoring Report – An in-depth study of groundwater conditions at Site 5 was conducted, with a focus on the potential for dioxins and furans.
- June 2008 – Final Remedial Investigation (RI) Report – An RI was performed from 2001 through 2007 to delineate further the nature and extent of soil, groundwater, surface water, and sediment contamination at Site 5 and to characterize risks to human health and the environment.
- August 2008 – Final Feasibility Study (FS) –Evaluated alternatives to address the contaminated media (soil and groundwater) and chemicals of concern (COCs) (dioxins, arsenic, and benzo(a)anthracene). Alternatives were developed and evaluated following the USEPA presumptive remedy guidance for landfills.
- 2008 – Proposed Plan – Based on the FS, the preferred alternative was presented to the community and regulators in the Proposed Plan. The public comment period for the Proposed Plan was from May 13 to June 13, 2008.
- September 2008 – The 90 percent Remedial Design for Site 5- Heavy Equipment Training Area was completed.
- November 2009 – The 100% remedial design package was completed.
- January 2009 – The DD for Site 5 was finalized.
- January 2009 – July 2009 – On-site construction of the remedy for Site 5.

## **2.2 BACKGROUND**

Site 5 was recommended for further investigation in the IAS because of waste disposal activities conducted from 1972 to 1976. Landfill operations at Site 5 occurred during the storage of HO at Site 8, from 1968 to 1976, and material from HO storage potentially could have been disposed of at Site 5.

### **2.2.1 Physical Characteristics of Site 5**

Site 5 is a 6-acre landfill located approximately 200 feet west of the intersection of 4<sup>th</sup> Street and Colby Avenue (Figure 2-1). When used as a training area from 1976 until 2005, the site was flat and predominantly free of vegetation, with trees and undergrowth along the perimeter of the eastern side. A large earthen mound in the middle of the site was used for heavy equipment training.

During the construction of the landfill cover, the site was cleared and regraded to facilitate proper surface water drainage.

An open drainage ditch is located along the southern and western edges of the site with flow to the west and north, respectively. A family housing area is located approximately 50 feet south of the drainage ditch. The western edge of the site is located approximately 40 feet to the east of the base boundary.

The drainage features at Site 5 connect to a primary drainage ditch known as Canal No. 1, which collects storm water runoff from the western end of NCBC Gulfport and conveys the runoff to Outfall 1, located at 28<sup>th</sup> Street.

### **2.2.2 Land and Resource Use at Site 5**

Historic land use at Site 5 includes the following:

- Prior to 1972 – Undeveloped
- 1972 to 1976 – Landfill
- 1976 – 2005 – Heavy Equipment Training Area
- 2009 – Construction of remedy
- 2010 – Golf Course Driving Range

After landfill operations were discontinued, the site was covered with 4 to 6 feet of fine to medium-grained sand and was used for heavy equipment training. Access to the site was not restricted and children were known to play frequently around the sand piles in the training area. The presumptive remedy for Site 5 was constructed in 2009 and a golf driving range was built at the site. Land use adjacent to Site 5 includes the following:

- North – Seabee crane training school
- South – Base Housing
- West – Base boundary, adjacent private property to the west is used for pasture
- East – Training buildings and open areas

### **2.3 HISTORY OF CONTAMINATION AT SITE 5**

The Site 5 landfill was operated from 1972 to 1976. An estimated 6,000 cubic yards of solid waste and an unknown quantity of liquid wastes were disposed of in trenches and burned prior to backfilling. Solid wastes disposed of in the landfill included waste from base dumpsters and reportedly 12 pounds of DDT powder. Liquid wastes reportedly included 50 to 100 55-gallon drums of liquid DDT, fuels, oils, solvents, paints, and paint thinners.

### **2.3.1 Initial Response for Site 5**

Environmental investigations began at NCBC Gulfport in 1985 with the IAS to identify sites that might pose risks to human health or the environment. The IAS identified nine sites, including Site 5, at NCBC Gulfport. Site 5 was determined to require additional assessment activities.

To evaluate potential risks identified in the IAS, the Final Verification Study (HLA, 1988) included collection of surface water, groundwater, and soil samples at locations on the southern and western sides of Site 5 based on the assumption that surface water and groundwater flowed south. This assumption was incorrect, resulting in up- or cross-gradient groundwater samples with no contaminants detected at concentrations greater than the action levels established at that time.

In 1997 the Sampling and Analysis Report for Sites 1 and 5 (Morrison-Knudsen, 1997) included DPT sampling of soil and groundwater to evaluate the potential for contamination at magnetic anomalies identified in the waste disposal area during a geophysical investigation. Arsenic was detected in excess of Tier 1 Screening Levels for soil, and low levels of dioxins and furans were also detected.

Also in 1997, the Surface Water and Sediment Dioxin Delineation Report (ABB-ES 1997a) presented the results of a comprehensive study of surface water drainage systems at NCBC Gulfport in relation to Site 8 HO storage. One of the main purposes of the study was to evaluate if landfills active during the period of HO storage at Site 8, including Site 5, received any HO drums. Surface water, sediment, seep, and groundwater samples were collected from the ditches in and around Site 5. Dioxins were detected with toxic equivalents (TEQ) concentrations ranging from 39.1 parts per quadrillion (ppq) to 42 ppq in water samples. Groundwater potentiometric surface maps indicated that groundwater generally flowed to the northwest, and not to the south as had been previously assumed.

The Groundwater Monitoring Report (HLA, 1999) documented the in-depth study of groundwater conditions at Site 5, with a focus on dioxins and furans. Dioxin levels in groundwater at the southern end of the site were as high as 80 ppq, greater than the maximum contaminant level (MCL) of 30 ppq. Dioxin levels in several other wells in the area were also greater than the dioxin MCL, and a complete delineation of the dioxin plume was recommended.

The RI (Tetra Tech, 2008b) identified dioxins/furans, and benzo(a)anthracene as COCs in Site 5 groundwater and arsenic soil. The Human Health Risk Assessment (HHRA) indicated that groundwater could pose an unacceptable risk to individuals in a residential scenario due to ingestion of groundwater from the shallow aquifer. Migration of groundwater contaminants to surface water was identified as a possibility, supporting implementation of the presumptive remedy (i.e., lining the ditch). Based on

exceedance of environmental screening values, the Screening Level Ecological Risk Assessment supported active remedial action for the surface soil and sediment at Site 5 consistent with the presumptive remedy strategy.

### **2.3.2 Basis for Taking Action at Site 5**

Since the site was documented as a landfill, the CERCLA presumptive remedy for military landfills was the basis for action at the site. Additionally, the HHRA indicated potential adverse health effects associated with future residential use of groundwater at Site 5 due to potential exposure to dioxins and benzo(a)anthracene in groundwater. The HHRA provided a conservative evaluation due to uncertainty in the potential risks. The uncertainties included the following:

- No drinking water wells are currently located downgradient of Site 5.
- Groundwater concentrations of arsenic and dioxins/furans are less than their MCLs.
- No chemicals in soil, groundwater, surface water, or sediment were eliminated as chemicals of potential concern based on comparison to background levels because neither facility nor site-specific background data were available.

Concentrations of several contaminants were greater than default ecological screening levels that have been determined to pose a potential risk to the environment. However, when factors that affect ecological receptors, such as quality and size of the habitat and actual use of the site, are considered, the overall level of ecological risk was determined to be minimal.

## **2.4 REMEDIAL ACTIONS**

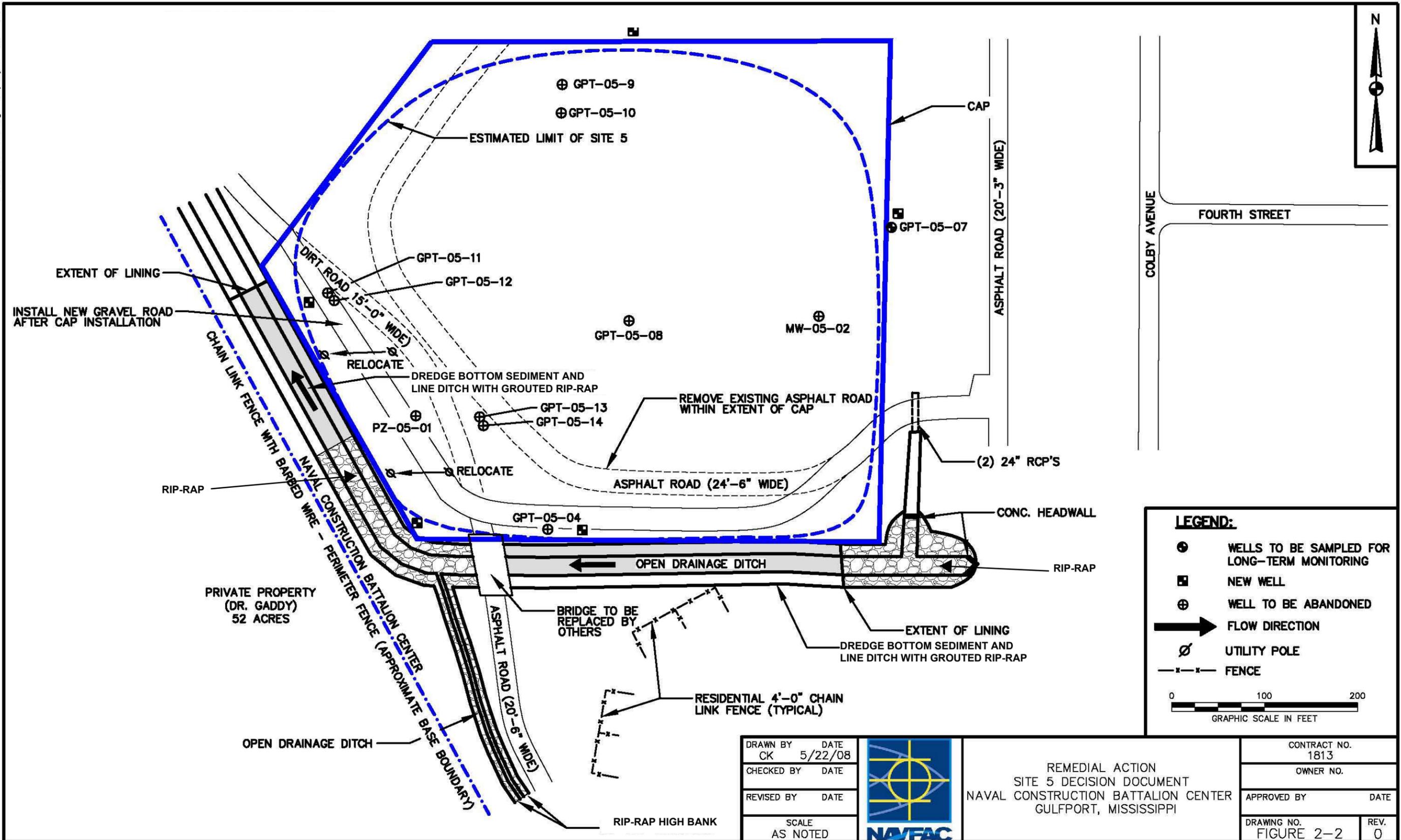
The remedial action selected for implementation at Site 5 is consistent with CERCLA and the NCP. The presumptive remedy of waste containment with site controls will permanently and significantly reduce potential mobility of and possible exposures to on-site residual hazardous substances.

### **2.4.1 Remedy Selection at Site 5**

The FS was completed in 2008 and evaluated alternatives to address those media (soil and groundwater) with COCs (dioxins, arsenic, and benzo(a)anthracene) posing unacceptable risk(s) to human health and the environment. Alternatives were developed and evaluated following the USEPA presumptive remedy guidance for military landfills. The preferred alternative for addressing risks at Site 5 included installing a landfill cap, ditch lining, monitoring, and LUCs. The preferred alternative was selected to achieve the remedial action objectives identified in the FS (see Table 2-1).



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**LEGEND:**

- ⊕ WELLS TO BE SAMPLED FOR LONG-TERM MONITORING
- ⊞ NEW WELL
- ⊕ WELLS TO BE ABANDONED
- ➔ FLOW DIRECTION
- ⊘ UTILITY POLE
- x-x- FENCE

0 100 200  
GRAPHIC SCALE IN FEET

|                   |                 |
|-------------------|-----------------|
| DRAWN BY<br>CK    | DATE<br>5/22/08 |
| CHECKED BY        | DATE            |
| REVISED BY        | DATE            |
| SCALE<br>AS NOTED |                 |



REMEDIAL ACTION  
SITE 5 DECISION DOCUMENT  
NAVAL CONSTRUCTION BATTALION CENTER  
GULFPORT, MISSISSIPPI

|                           |           |
|---------------------------|-----------|
| CONTRACT NO.<br>1813      |           |
| OWNER NO.                 |           |
| APPROVED BY               | DATE      |
| DRAWING NO.<br>FIGURE 2-2 | REV.<br>0 |

#### **2.4.2.1 Landfill Cap**

The soil and waste within the landfill boundary were capped with a low permeability cover system. The cover was a system designed to contain the landfill, manage landfill gas, prevent surface water infiltration, and prevent erosion. The cap included the following components:

- Approximately 7.5 acres of 8-ounce-per-square-yard non-woven needle punched geotextile was placed on the interim grade to isolate the bottom of the gas venting sand layer.
- The geotextile was covered with a gas venting sand layer consisting of two loose lifts totaling 18 inches. Two passive polyvinyl chloride (PVC) vents were installed in the sand layer and mounted at two locations on the peak of the landfill.
- The geosynthetic clay layer (GCL), which provides the low permeability component of the cap design, was placed above the gas management layer and installed into perimeter anchor trenches. Approximately 375,000 square feet of GCL was placed on the landfill footprint.
- Select fill was placed and compacted over the GCL to a final 18-inch-thick layer.
- Above the select fill layer, the 6-inch-thick topsoil layer was placed to provide a layer to sustain native plant growth, which will prevent erosion, minimize ponding of rainwater, and control surface runoff.

#### **2.4.2.2 Sediment**

Approximately 900 cubic yards of sediments were excavated from the canal adjacent to the south and southwest sides of the landfill and placed within the landfill and incorporated into the grade before construction of the landfill cap. The ditch segments were lined with monolithic-grouted rip-rap to prevent direct exposure to the remaining sediment and to prevent erosion.

#### **2.4.2.3 Groundwater**

LTM at Site 5, which includes groundwater monitoring, site inspections and landfill gas monitoring is included as part of the remedy because landfill wastes have been contained and remain on site. The remedial design (Work Plan) for the LTM is currently in review. The monitoring will begin once the Work Plan is approved.

Monitoring requirements for Site 5 include collecting, analyzing and interpreting the results for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), pesticides, and dioxins/furans.

Groundwater samples will be collected from the five monitoring wells surrounding the capping area at Site 5, as shown on Figure 2-2; other wells may be added to the program as necessary. The sampling intervals were planned to be quarterly (baseline) for the first year, semi-annually for 2 more years, and annually thereafter until MDEQ agrees that the contaminant concentrations have stabilized and no migration is occurring.

**TABLE 2-2**  
**MONITORING PROGRAM AT SITE 5**  
**FIVE YEAR REVIEW**  
**NCBC GULFPORT, MISSISSIPPI**

| Monitoring Location           | Depth (relative) | Screened Interval (feet below surface) | Purpose of Sampling                             |
|-------------------------------|------------------|--|---|
| <b>Groundwater Monitoring</b> |                  |  |   |
| MW-1                          | Shallow          | 15-20                                  | Northeastern corner of landfill                 |
| MW-2                          | Shallow          | 15-20                                  | Northern side of landfill                       |
| MW-3                          | Shallow          | 15-20                                  | Western side of landfill, west of canal         |
| MW-4                          | Shallow          | 15-20                                  | Southwestern corner of landfill, south of canal |
| MW-5                          | Shallow          | 15-20                                  | Southeastern corner of landfill, south of canal |

Reports will be prepared at the end of each sampling event and will include the monitoring data generated during the event. In addition, long-term trends will be presented and potential modifications to the monitoring plan will be recommended.

If monitoring data for two consecutive quarters indicates that concentrations of COCs in groundwater were greater than the TRGs (Table 2-3), then actions to control groundwater migration may be required.

**TABLE 2-3**  
**TRIGGER LEVELS FOR CONTINGENT ACTION AT SITE 5**  
**FIVE-YEAR REVIEW**  
**NCBC GULFPORT, MISSISSIPPI**

| COC in Groundwater                  | Concentration Triggering Contingent Action <sup>1</sup> |
|-------------------------------------|---|
| <b><u>Dioxins/Furans (pg/L)</u></b> |   |
| Dioxin TEQ                          | 30  |
| <b><u>SVOCs (µg/L)</u></b>          |   |
| Benzo(a)anthracene                  | 0.0917  |

Notes:

TEQ = toxic equivalent

µg/L = microgram per liter

<sup>1</sup> Concentrations triggering contingent action are the MDEQ groundwater TRGs

### **2.4.3 System Operations/Operation and Maintenance (O&M) at Site 5**

The Navy has issued contracts to perform the LTM and maintenance for Site 5. The work is to be conducted as directed by the DD and the Long-term Monitoring Plan (LTMP). A Basic Order Agreement contractor is currently responsible for the inspections of the landfill and groundwater sampling program. Additionally, informal LUCs have been implemented, where the IR manager and others are aware of the limitations associated with Site 5 and conduct periodic visual observations of the site.

### **2.4.4 Cost of System Operations/O&M at Site 5**

Capital costs for the remedial action at Site 5 were estimated at \$3,722,000 and O&M costs were estimated to have a net present worth (NPW) of \$ 765,000. The actual cost for remedy construction was \$3,050,000. O&M (LTM and LUC inspections) is scheduled to begin in 2011; therefore, no O&M costs have been incurred to date.

## **2.5 FIVE-YEAR REVIEW PROCESS**

This five-year review consisted of a site inspection, personnel interviews, and a technical assessment of the site and the remedial actions underway. More detailed interview and inspection dates are included in the following sections. Interview and inspection records are included in Appendix A. Photos of Site 5 taken in February 2011 are included in Appendix B.

### **2.5.1 Document Review**

This five-year review consisted of a review of relevant documents including the RI (Tetra Tech, 2008b), FS (Tetra Tech, 2008d), DD (Tetra Tech, 2009a), and the Construction Completion Report (CCI, 2010). Applicable groundwater cleanup standards listed in the DD were reviewed.

### **2.5.2 Data Review**

#### **2.5.2.1 Review of COC Data for Groundwater**

Groundwater data for Site 5 have not been collected since the RI field investigation. The LTM of Site 5 groundwater is scheduled to commence in 2011. The monitoring program will be protective once implemented by detecting if migration of groundwater contamination from the site does occur.

#### **2.5.2.2 LUC Inspections**

NAVFAC SE is currently working with the MDEQ to develop a Memorandum of Agreement (MOA) that will establish suitable terms for final LUC implementation at all installation restoration sites on NCBC Gulfport.

Once the MOA is completed and signed by the two parties, site-specific LUC Implementation Plans (LUCIPs) will be prepared and the formal inspection process begun. Formal LUC Inspections for Site 5 are scheduled to begin in 2011.

### **2.5.3 Site Inspection and Interviews**

Tetra Tech conducted a site inspection of Site 5 on September 29, 2010. Prior to initiating the inspection, the inspector interviewed Mr. Gordon Crane, the IR Manager for NCBC Gulfport and Mr. Chad Baldwin, the Morale, Welfare, and Recreation (MWR) operations manager for NCBC Gulfport. The site inspection included visual observations of the landfill cover, signs, and groundwater monitoring wells. Access to and use of the site was noted.

The landfill cover was designed with a vegetation layer to prevent erosion. The IR manager indicated that previous attempts to establish the grass for the vegetation layer have not been successful. Current plans are to install sod at the site. Visual observations of the area found evidence of erosion on the edges of the cap and shallow depressions with evidence of ponding (accumulated debris and algae growth). No signs that the cap has been breached were evident, and the MWR operations manager indicated that there have been no complaints, violations, or incidents. The rip-rap installed along the banks of the drainage canals was intact and there was no evidence of bank erosion.

Warning signs were clearly marked and in good condition. The gas management layer vents were in good condition and clearly marked with warning signs. The monitoring wells around the perimeter of the site were intact and in good condition.

The initial visit to the site was shortly after the construction was completed and the vegetation was in the developmental phase from seed. During a subsequent site visit in January 2011, Tetra Tech observed that sod had been placed to cover completely the cap area and earlier erosion and ponding issues were corrected. Additionally the areas where ponding was observed had no ponded water from the previous day's rain event.

The site is currently used as a driving range and is maintained by MWR. Site access is not controlled. Site maintenance includes mowing the grass and operating a golf ball retrieval machine.

## 2.6 TECHNICAL ASSESSMENT

### 2.6.1 Question A: Is the remedy functioning as intended by the DD?

The review of documents, ARARs, risk assumptions, and the results of the site inspection indicates that the completed portions of the remedy are functioning as intended in the DD.

- **Health and Safety Plan (HASP)/Contingency Plan:** An inspection and monitoring plan are part of the LUCs and LTM and will be sufficient to control risks when implemented.
- **Implementation of Institutional Controls and Other Measures:** Final ICs will be implemented as part of the LUC program at NCBC Gulfport. MWR, the current users of the site, are aware of interim LUC requirements that affect MWR operations at Site 5. Additionally, Mr. Crane performs periodic informal drive by observations of the LUC sites to ensure no unauthorized activities are occurring. There are no known current or planned land use changes at this time that would render the LUCs ineffective. The signs on site are maintained and in good condition. No water supply wells are allowed in the restricted area. Long-term LUC implementation will be complete with the preparation of the LUCIP.
- **Remedial Action Performance:** The landfill cover system appears effective at isolating waste and contaminants.
- **System Operations/O&M:** The landfill cap and monitoring wells are in good condition and maintained. O&M, which consists of LTM and LUC inspections, are scheduled to begin in 2011.
- **Opportunities for Optimization:** There have been no known opportunities for optimization.
- **Early Indicators of Potential Remedy Failure:** There are no current indicators of potential remedy failure. Early indicators of potential remedy failure noted during this review were limited to the failure to establish the vegetative layer in September 2010. Since then sod was placed at the site and the issues appear to have been corrected. As such, this is not an issue.

**2.6.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and Remedial Action Objectives (RAOs) used at the time of the remedy selection still valid?**

**2.6.2.1 Exposure Assumptions**

Construction of the remedy has changed physical conditions at the site that were used in the risk assessments. Direct exposure to soil at the landfill is prevented by the cap. Direct exposure to sediment in the ditch is prevented by the sediment removal and rip-rap installation. Final LUCs will prevent exposure to groundwater and disturbance of the cap and rip-rap once fully implemented. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy.

**2.6.2.2 Changes in Standards and To Be Considered Criteria**

Chemical-specific ARARs identified for the site following remedial construction apply to the LTM of groundwater. The following standards were identified as chemical-specific ARARs or TBC criteria in the DD. The following were reviewed for changes that could affect protectiveness:

- USEPA Region 3 Risk-based Concentrations (RBCs)
- Safe Drinking Water Act MCLs (40 CFR 140-143)
- MDEQ TRGs

USEPA has released the updated RSL Table in December of 2009. USEPA Region 4 recommends the use of the RSL Table to replace the Region 3 RBC Table, which was a TBC chemical-specific ARAR.

The National Primary Drinking Water Regulations in 40 CFR Part 141 cite the MCLs for the several COCs monitored in the groundwater at this site. Those particular MCLs have not changed.

The action-specific ARARs for Site 5, governing actions such as the maintenance and monitoring of landfill covers, have not changed since the signing of the DD.

**2.6.2.3 Changes in Exposure Pathways, Toxicity, and other Contaminant Characteristics**

The exposure assumptions used to develop the HHRA included both current exposures and future exposures to site conditions that were present before construction of the remedy. The exposure pathways and assumptions identified under those site conditions are no longer appropriate. Because contaminants remain on site, there is an inherent risk if the remedy is not maintained.

There have been no changes in the toxicity factors for the COCs that were used in the baseline risk assessment. These assumptions are considered conservative and reasonable in evaluating risk and

developing risk-based cleanup levels. No change to these assumptions or the cleanup levels developed from them is warranted. There has been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy.

**2.6.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?**

There is no other information that would alter the effectiveness determination at Site 5.

**2.7 ISSUES**

No issues were noted for Site 5.

**2.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

There are no recommendations or follow-up actions for Site 5.

**2.9 PROTECTIVENESS STATEMENT**

The completed portions of the remedy, stabilization and capping of contaminated soil and sediments and installation of warning signs, are protective. The remaining portion of remedial action at Site 5, ICs and monitoring, will be protective once implemented. ICs and long-term monitoring are in the design phase and should be in place in 2011. Long-term protectiveness of the remedial action will be verified by LUC inspections and groundwater sampling after the remedial design for that portion of the corrective action is complete. Additionally, informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 5 and conduct periodic visual observations of the site.

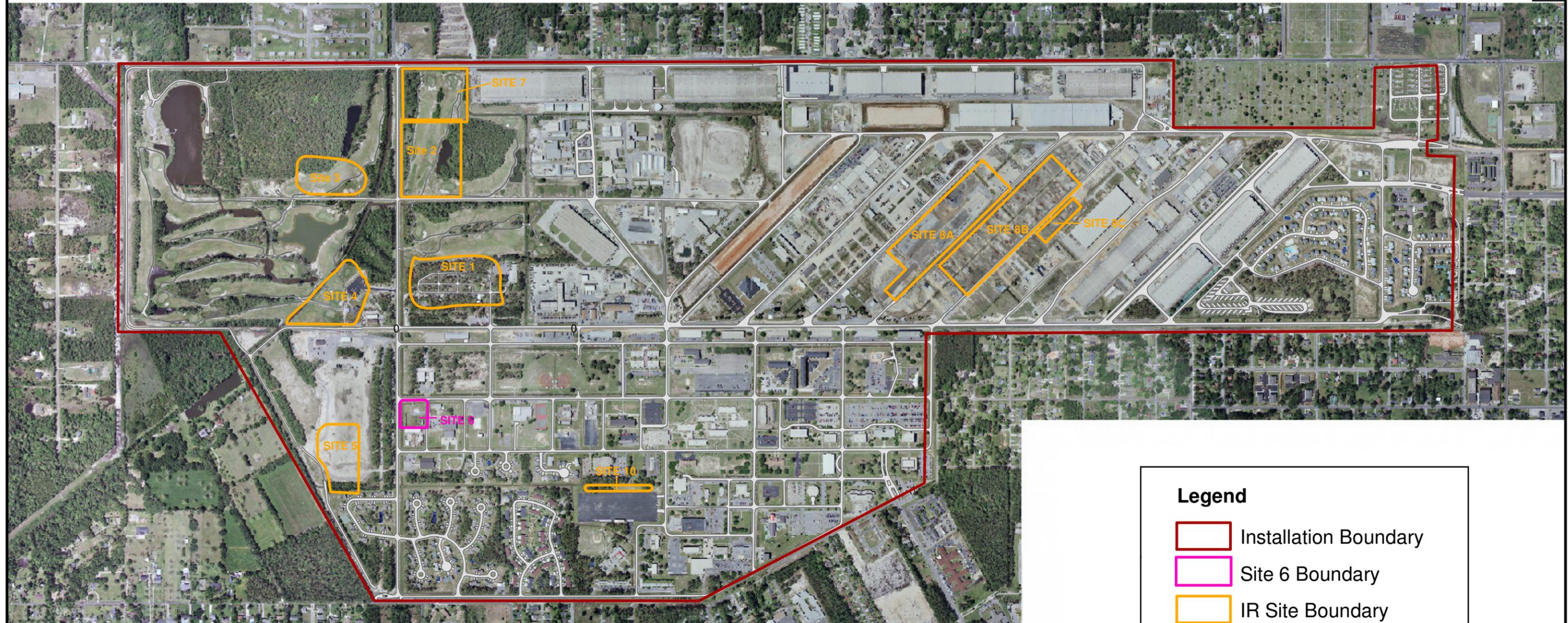
### 3.0 SITE 6

This five-year review is being conducted for Site 6 Former Fire Fighter Training Area (Figure 3-1) because contaminated subsurface soil and groundwater are still contained on site and do not allow for unlimited use and unrestricted exposure. Site 6 was used as a fire-fighting training area from 1966 to 1975. A free product plume was identified in 1991. Removal actions were conducted from 1995 to 1999 and from 2001 to 2004. LTM began in 2008 and is ongoing. Buildings at the site have been removed and the site is currently an open field adjacent to a parking lot.

#### 3.1 SITE CHRONOLOGY

The relevant Site 6 historical events and dates are as follows:

- 1966 to 1975 – Site 6 was used as a fire-fighting training area.
- 1975 – Fire-fighting training activities concluded and the burn pits were backfilled.
- 1985 – The IAS identified Site 6 as a potential risk to human health and the environment.
- 1988 – The Verification Study found “no significant chemical contamination” in soil, sediment, or groundwater at Site 6.
- 1991 – A light, non-aqueous phase liquid (LNAPL) plume was discovered.
- 1994 – Product delineation identified an LNAPL plume of approximately 100 by 140 feet with product thickness of up to 3 feet. The estimated recoverable LNAPL volume was 10,000 to 15,000 gallons.
- 1995 to 1999 – A trench interceptor recovery system was installed and operated. An estimated 5,000 gallons of LNAPL were removed and the thickness of LNAPL in site wells was reduced by nearly 50 percent. After 4 years of intermittent operation, continued recovery of LNAPL became impractical using this system.
- October 2001 to October 2004 – A multi-phase extraction (MPE) system was installed to remove the remaining LNAPL. The MPE system recovered approximately 2,330 gallons of LNAPL during this operation period. Operation was stopped when recovery of LNAPL declined to a couple of gallons per day.
- June 2004 – Battelle issued a “Dissolved-Phase Plume Delineation Investigation for Site 6” report. The intent of the delineation was to identify the COCs in the source area and define the extent of dissolved-phase contamination. The following COCs were detected in excess of either the federal MCL or the MDEQ Level I TRG: chloroethane, 1,1-dichloroethene (DCE), naphthalene, 1,2,4-trimethylbenzene, vinyl chloride, and total petroleum hydrocarbons (TPH) diesel range organics (DRO).



**Legend**

- Installation Boundary
- Site 6 Boundary
- IR Site Boundary



|                        |                  |
|------------------------|------------------|
| DRAWN BY<br>S. STROZ   | DATE<br>12/10/09 |
| CHECKED BY<br>B. OLSON | DATE<br>10/12/10 |
| REVISED BY             | DATE             |
| SCALE<br>AS NOTED      |                  |



LOCATION OF SITE 6  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

|                 |       |
|-----------------|-------|
| CONTRACT NUMBER |       |
| APPROVED BY     | DATE  |
| APPROVED BY     | DATE  |
| FIGURE NO. 3-1  | REV 0 |

- February and August 2005 – Post Removal Action Monitoring identified naphthalene and DRO as COCs due to concentrations greater than TRGs. Free product was still present at Site 6.
- February 2006 – The Site Closure Report was issued stating that COC concentrations were less than Federal MCLs and Mississippi Underground Storage Tank (UST) standards and that no further active remediation was warranted.
- October 2006 – A site investigation was performed to gather soil chemical concentration data.
- December 2006 – The Final AM was prepared specifying an LTM program for site groundwater and recommending removal of the MPE system.
- January/February 2008 – The MPE system, extraction wells, and selected monitoring wells were removed.
- January 2008 – LTM Sampling Event 1.
- April 2008 – LTM Sampling Event 2.
- July 2008 – LTM Sampling Event 3.
- August 2008 – The AM detailing the continuation of monitoring of the removal action was issued.
- October 2008 – LTM Sampling Event 4 and Annual Summary Report.
- October 2009 – LTM Sampling Event 5.
- January 2010 – LTM Sampling Event 6.
- July 2010 – LTM Sampling Event 7. Three additional monitoring wells were installed (north and south of the plume and downgradient) and the monitoring program was altered to include these wells and to delete sampling of wells located in the plume when free product was present.

### **3.2 BACKGROUND**

Site 6 is a former fire-fighting training area that was operational from 1966 to 1975. The burn pits were backfilled with sand and gravel when fire-fighting training activities concluded in 1975.

#### **3.2.1 Physical Characteristics of Site 6**

Site 6 occupies less than 2 acres in the west-central part of NCBC Gulfport (Figure 3-1). The site was formerly bounded by Building 383 and Fifth Street to the north, Colby Avenue to the west, Simms Avenue to the east, and Building 391 to the south. Buildings 383 and 391 have since been removed and Simms Avenue has been realigned and widened with a parking area. The site is bordered to the north and west by drainage ditches that converge south of the intersection of Fifth Street and Colby Avenue. A single

ditch then passes beneath Fifth Street and extends northward away from the site. Topography at the site is flat with slopes adjacent to these ditches.

### **3.2.2 Land and Resource Use at Site 6**

The site is currently an open field with the professional development training building to the east, open areas to the north and south, and Site 5 to the west. Several buildings were built on the site after 1975, including a generator and electrical training building and metal work shop. These buildings have since been demolished.

### **3.3 HISTORY OF CONTAMINATION AND INITIAL RESPONSES AT SITE 6**

From 1966 to 1975, Site 6 was used as a fire-fighting training area. Various flammable liquids were used in two burn pits at the site. Up to 500,000 gallons of waste oils, solvents, paint thinners, and cleaning compounds are suspected to have been released in the pits and burned. In 1975, fire-fighting training activities are concluded, and the burn pits were backfilled with sand and gravel. The IAS (Envirodyne, 1985) identified Site 6 as a potential risk to human health and the environment and recommended further investigation. The Verification Study conducted in 1987 found “no significant chemical contamination” in soil, sediment, or groundwater at Site 6, but additional groundwater monitoring was recommended (HLA, 1987).

#### **3.3.1 Initial Response for Site 6**

An LNAPL plume was discovered in 1991 (ABB-ES, 1994). Removal of this LNAPL was initiated as part of the Navy’s IR Program under a CERCLA non-time critical removal action (Morrison Knudsen, 1996).

##### **3.3.1.1 Removal Action – Interceptor Trench**

A trench interceptor recovery system with three recovery wells and an aboveground treatment system was installed in 1995 and operated until 1999. Although this system was not operated at design specifications for extraction rate and treatment efficiency, an estimated 5,000 gallons of LNAPL were removed and the thickness of LNAPL in site wells was reduced by approximately 50 percent. After 4 years of intermittent operation, continued recovery of LNAPL became impractical using this system (Battelle, 2007).

### **3.3.1.2 Removal Action – Multi-Phase Extraction System**

A Bioslurper MPE system was installed in 2001 to remove the remaining LNAPL. The MPE system recovered 2,330 gallons of LNAPL during this operation period. Operation was stopped in 2004 when recovery of LNAPL declined to a couple of gallons per day (Battelle, 2007).

### **3.3.2 Basis for Taking Action at Site 6**

The post removal action monitoring identified naphthalene, vinyl chloride, and DRO as COCs with concentrations greater than TRGs and that free product was still present at Site 6. The LNAPL plume and dissolved phase COCs prevent unrestricted site use and unlimited exposure to receptors. The AM (Tetra Tech, 2008) detailed remedial actions necessary to maintain protectiveness at this site.

## **3.4 REMEDIAL ACTIONS**

Monitoring data indicated that the groundwater plume is limited in size and that concentrations along the plume axis were decreasing (Tetra Tech, 2008e). The low chemical concentrations indicate that the LNAPL largely has been depleted and is no longer acting as a significant source of contamination to the groundwater. Sampling results also confirmed that natural attenuation is occurring at the site.

### **3.4.1 Remedy Selection at Site 6**

Two source removals were completed prior to the AM (Tetra Tech, 2008e). Because the source of contamination at Site 6 was removed to the extent practicable, contamination in the groundwater was expected to decline over time. Recent monitoring data indicate that the groundwater plume is limited in size and that concentrations along the plume axis are decreasing. Thus, there is no evidence for ongoing plume expansion/migration which would have been made evident by increasing concentrations. The low chemical concentrations indicate the LNAPL has been depleted and is no longer acting as a significant source of contamination to the groundwater. Sampling results also confirmed that natural attenuation is occurring at the site. It was determined that LTM and LUCs would achieve the RAOs for Site 6 (Table 3-1). The LTM is underway and the LUCs are in the design phase.

### **3.4.2 Remedy Implementation at Site 6**

The LTM was initiated in 2008 and seven sampling events have been completed to date.

**TABLE 3-1  
REMEDIAL ACTION OBJECTIVES FOR SITE 6  
FIVE-YEAR REVIEW  
NCBC GULFPORT, MISSISSIPPI**

| Medium      | Contaminants Causing Unacceptable Risk | Remedial Action Objectives   |
|-------------|--|--|
| Soil        | DRO                                    | Prevent direct exposure to contaminated soil, therefore eliminating unacceptable human exposure.   |
| Groundwater | DRO, naphthalene, vinyl chloride       | Prevent exposure to and consumption of groundwater.<br><br>Comply with federal and state legal requirements and guidelines, referred to as ARARs and TBC guidelines. |

Notes:  
DRO = Diesel Range Organics

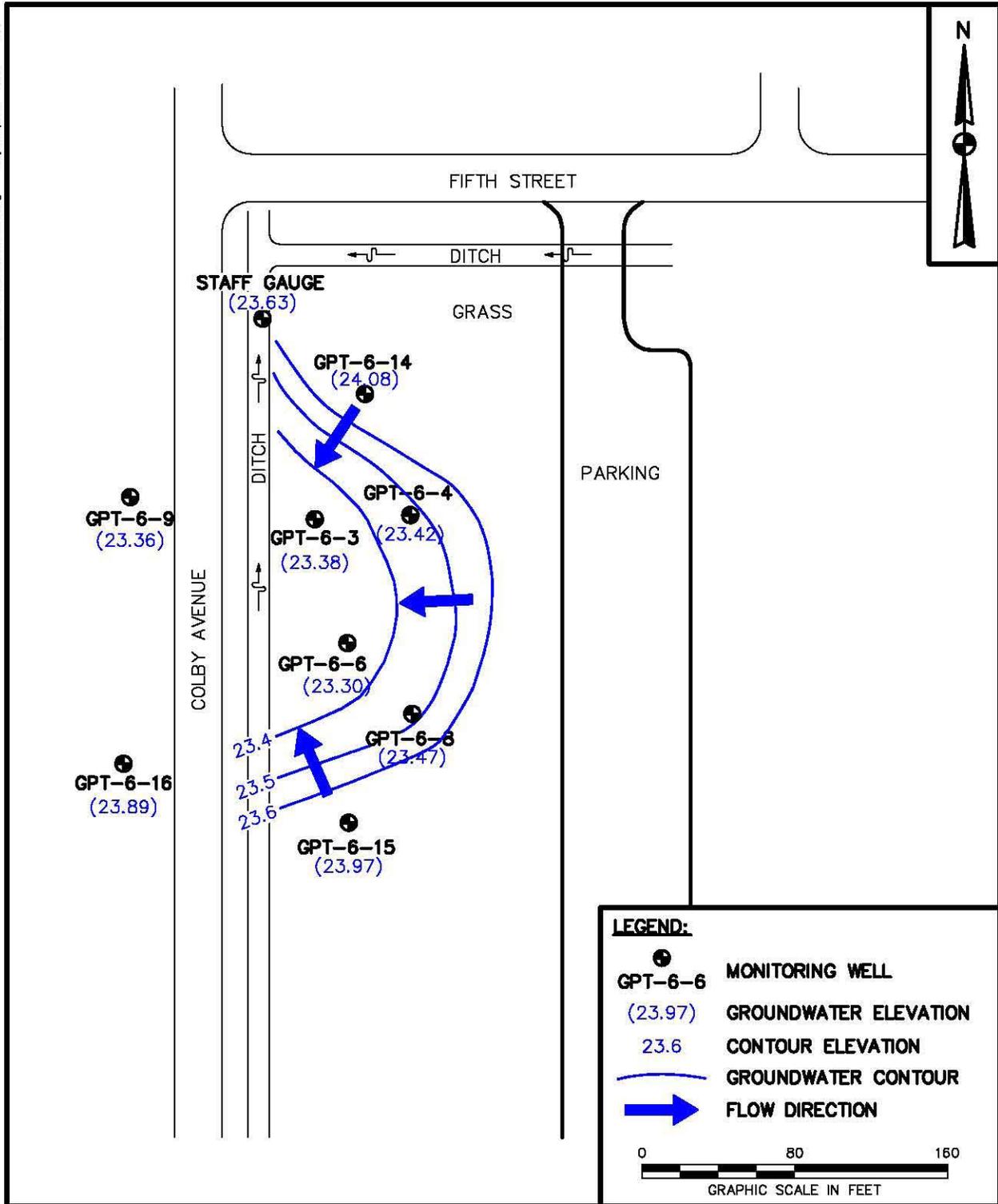
**3.4.2.1 Groundwater**

Long-term groundwater monitoring at Site 6 is the main component of the remedy (see Table 3-2). Implementation of the LTMP (Tetra Tech, 2008e) included the collection and analysis of groundwater samples for TPH-DRO, VOCs and SVOCs, as well as natural attenuation parameters on a quarterly basis for two years. When the contaminant concentrations showed a stable trend, the sampling frequency was reduced to semi-annually. This groundwater monitoring program will be evaluated every two years to determine the appropriate chemical analyses and sampling frequency. Well locations are shown on Figure 3-2.

**TABLE 3-2  
MONITORING PROGRAM AT SITE 6  
FIVE YEAR REVIEW  
NCBC GULFPORT, MISSISSIPPI**

| Monitoring Location           | Depth (relative) | Screened Interval (feet below surface) | Purpose of Sampling          |
|-------------------------------|------------------|--|------------------------------|
| <b>Groundwater Monitoring</b> |                  |  |                              |
| GPT-6-3                       | Shallow          | 6-22                                   | Downgradient – North Pit     |
| GPT-6-4                       | Shallow          | 2.5-12.5                               | Source – North Pit           |
| GPT-6-6                       | Shallow          | 2.5-12.5                               | Source – South Pit           |
| GPT-6-8                       | Shallow          | 2.5-12.5                               | Downgradient – South Pit     |
| GPT-6-9                       | Intermediate     | 20-30                                  | Downgradient – West of Ditch |
| GPT-6-14                      | Shallow          | 2.5-12.5                               | Side Gradient – North Pit    |
| GPT-6-15                      | Shallow          | 5-15                                   | Side Gradient – South Pit    |
| GPT-6-16                      | Shallow          | 2.5-12.5                               | Downgradient – West of Ditch |

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| CHECKED BY        | DATE             |
| REVISED BY        | DATE             |
| SCALE<br>AS NOTED |                  |



GROUNDWATER CONTOUR MAP  
JULY 21, 2010  
SITE 6  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

|                           |           |
|---------------------------|-----------|
| CONTRACT NO.<br>0892      |           |
| OWNER NO.                 |           |
| APPROVED BY               | DATE      |
| DRAWING NO.<br>FIGURE 3-2 | REV.<br>0 |

### **3.4.2.2 Institutional Controls**

Final ICs for Site 6 will be developed through a MOA/LUCIP to ensure compliance with LUCs to protect human health and the environment from exposure to contaminated media at Site 6. As stated earlier, the LUCIP will be created after the MOA is agreed to by NAVFAC SE and MDEQ.

### **3.4.3 System Operations/O&M at Site 6**

Remediation system O&M is no longer required at Site 6. Groundwater LTM is ongoing. Semi-annual and eventually only annual sampling events are planned for LTM.

Results of the groundwater monitoring are discussed in Section 3.5.2.2 to provide additional information.

### **3.4.4 Cost of System O&M**

To date, the sum of the costs for the removal actions, informal LUCs and LTM has been approximately \$1,300,000.

## **3.5 FIVE-YEAR REVIEW PROCESS**

This five-year review consisted of a site inspection, personnel interviews, and a technical assessment of the site and the remedial actions underway. More detailed interview and inspection dates are included in the following sections. Interview and inspection records are included in Appendix A. Photos of Site 6 taken in February 2011 are included in Appendix B.

### **3.5.1 Document Review**

This five-year review consisted of a review of relevant documents including groundwater monitoring reports. The ARARs for groundwater cleanup at Site 6 were also reviewed for changes to the applicable groundwater cleanup standards.

### **3.5.2 Data Review**

The Site 6 documents covering the post-remedial monitoring were reviewed to determine if natural attenuation of contaminants is achieving cleanup standards and to determine if new information has come to light since the AM was approved. Selected data from the LTM reports are included in Appendix C.

### 3.5.2.1 Groundwater Flow at Site 6

Groundwater elevation data was collected during each event, and the groundwater flow direction was established for each event. Groundwater flow direction has been found to trend to the west. Potentiometric contour maps from each of the LTM events are included in Appendix C.

### 3.5.2.2 Site 6 Monitoring Results

Appendix C contains a summary table of the seven monitoring events conducted from 2008 through 2010. Figure 3-3 shows the results for the July 2010 LTM event. Review of free product and groundwater analytical data indicated the following:

- GPT-6-3 – No free product has been detected in this well. Vinyl chloride and chloroethane concentrations have been greater than TRGs since October 2008. Additionally, 1,1-DCE is slightly greater than its Tier I TRG since January 2010.
- GPT-6-4 – Free product was present in Events 2, 3, 4, 6, and 7. DRO concentrations have been greater than the TRG in the first six sampling events. Additionally, in 2008 and 2009 1,1-dichloroethane, 1,1-DCE, benzene, chloroethane, and vinyl chloride exceeded their respective Tier I TRGs. However, the results from the two most recent events indicate that only chloroethane slightly exceeds its TRG. This well was not sampled since January 2010 due to the presence of free product.
- GPT-6-6 – Free product was present in Events 3 and 7. Naphthalene and DRO concentrations were greater than TRGs in Events 1 through 6. The concentration range for naphthalene increased slightly and decreased during the last sampling event. The DRO concentration was relatively consistent and varied higher and lower randomly. This well was not sampling due to the presence of free product.
- GPT-6-8 – Free product was present in all seven sampling events. DRO concentrations have been greater than the TRG in sampling events 1, 3, 4, 5, and 6. Naphthalene concentrations were greater than TRGs in sampling events 1 through 5, and were less than the TRG in Event 6. This well was not sampled in July 2010 due to the presence of free product.
- GPT-6-9 – Free product has not been reported in this monitoring well. COC concentrations have been less than screening criteria in Events 1 through 6. GPT-6-9 was removed from the sampling schedule in July 2010 because the screened interval was too deep to monitor the aquifer interval of interest and was replaced as the downgradient well by GPT-6-16.
- GPT-6-14/GPT-6-15/GPT-6-16 – These wells were installed and sampled July 2010 as part of Event 7 to improve monitoring at the edges of the plume. Free product was not present in these wells in July 2010. Contaminant concentrations were less than the TRGs.

ACAD: 0892CM30.dwg 11/23/10 ND PIT

| GPT-6-9 (20-30)       | JAN-08 | APR-08 | JUL-08 | OCT-08  | OCT-09  | JAN-10  |
|-----------------------|--------|--------|--------|---------|---------|---------|
| NAPHTHALENE           | 9.2(U) | 9.3(U) | 9.2(U) | 0.42(U) | 0.42(U) | 0.43(U) |
| DIESEL RANGE ORGANICS | 92(U)  | 100(U) | 100    | 160(J)  | 92.6(U) | 280(U)  |
| VINYL CHLORIDE        | 1(U)   | 1(U)   | 1(U)   | 0.18(U) | 0.19(U) | 0.20(U) |

FIFTH STREET



STAFF GAUGE (NS)

GRASS

| GPT-6-14              | JUL-10   |
|-----------------------|----------|
| NAPHTHALENE           | 1.92 (J) |
| DIESEL RANGE ORGANICS | 121 (J)  |
| VINYL CHLORIDE        | 0.20 (U) |

| GPT-6-4 (2.5-12.5)    | JAN-08  | APR-08 | JUL-08 | OCT-08 | OCT-09 | JAN-10  |
|-----------------------|---------|--------|--------|--------|--------|---------|
| NAPHTHALENE           | 5.5(J)  | 5.4(J) | 20     | 14     | 1.5(J) | 0.43(U) |
| DIESEL RANGE ORGANICS | 920     | 660    | 2000   | 5500   | 2610   | 1510    |
| VINYL CHLORIDE        | 1.5 (U) | 2.3    | 330    | 340    | 1.8    | 0.45(J) |

PARKING

| GPT-6-3 (3-22)        | JAN-08  | APR-08  | JUL-08  | OCT-08 | OCT-09  | JAN-10  | JUL-10   |
|-----------------------|---------|---------|---------|--------|---------|---------|----------|
| NAPHTHALENE           | 1.1(J)  | 0.76(J) | 1.4(J)  | 2(J)   | 0.43(U) | 0.43(U) | 0.421(U) |
| DIESEL RANGE ORGANICS | 380     | 280     | 760     | 420    | 350     | 183(J)  | 92.6(U)  |
| VINYL CHLORIDE        | 0.69(J) | 0.22(J) | 0.47(J) | 4.5    | 7.3     | 16.9    | 22 (J)   |

| GPT-6-6 (2.5-12.5)    | JAN-08 | APR-08 | JUL-08 | OCT-08  | OCT-09  | JAN-10  |
|-----------------------|--------|--------|--------|---------|---------|---------|
| NAPHTHALENE           | 6.9 J  | 9.9    | 18     | 19      | 25      | 15.8    |
| DIESEL RANGE ORGANICS | 3400   | 3100   | 3800   | 1900    | 4120    | 2030    |
| VINYL CHLORIDE        | 1(U)   | 1(U)   | 1(U)   | 0.18(U) | 0.27(J) | 0.20(U) |

| GPT-6-8 (2.5-12.5)    | JAN-08 | APR-08  | JUL-08 | OCT-08  | OCT-09  | JAN-10  |
|-----------------------|--------|---------|--------|---------|---------|---------|
| NAPHTHALENE           | 44     | 28      | 47     | 48      | 15      | 0.71(J) |
| DIESEL RANGE ORGANICS | 9200   | 8700(J) | 13000  | 8700    | 11800   | 2930    |
| VINYL CHLORIDE        | 1(U)   | 1(U)    | 1(U)   | 0.18(U) | 0.19(U) | 0.20(U) |

| GPT-6-16              | JUL-10    |
|-----------------------|-----------|
| NAPHTHALENE           | 0.417 (U) |
| DIESEL RANGE ORGANICS | 92.6 (U)  |
| VINYL CHLORIDE        | 0.20 (U)  |

| GPT-6-15              | JUL-10    |
|-----------------------|-----------|
| NAPHTHALENE           | 0.417 (U) |
| DIESEL RANGE ORGANICS | 92.6 (U)  |
| VINYL CHLORIDE        | 0.20 (U)  |

COLBY AVENUE

DITCH

DITCH

**NOTES:**

CONCENTRATIONS IN BOLD EXCEED THE TIER 1 TRG. ALL CONCENTRATIONS ARE IN µg/L.

**LEGEND:**

- ⊙ MONITORING WELL
- J ESTIMATED
- U LESS THAN VALUE
- µg/L MICROGRAMS PER LITER
- (NS) NOT SAMPLED

0 80 160

GRAPHIC SCALE IN FEET

**KEY:**

| ANALYTE               | METHOD | TRG | UNITS |
|-----------------------|--------|-----|-------|
| NAPHTHALENE           | 8260B  | 6.2 | µg/L  |
| DIESEL RANGE ORGANICS | 8015D  | 650 | µg/L  |
| VINYL CHLORIDE        | 8260B  | 2   | µg/L  |

DRAWN BY DATE  
ND 11/16/10

CHECKED BY DATE

REVISED BY DATE

SCALE  
AS NOTED



COC CONCENTRATIONS  
IN GROUNDWATER  
JULY 2010 – SITE 6  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

CONTRACT NO.  
0892

OWNER NO.

APPROVED BY DATE

DRAWING NO. REV.  
FIGURE 3-3 0

### 3.5.3 Site Inspection and Interviews

Tetra Tech conducted a site inspection of Site 6 on September 29, 2010. Prior to initiating the inspection, the inspector interviewed Mr. Gordon Crane, the IR Manager for NCBC Gulfport and Mr. Matt Schultz, the Public Works Department (PWD) production division director for NCBC Gulfport. The site inspection included visual observations and evaluation of groundwater monitoring wells for Site 6. The ground cover at Site 6 is in good condition, and the IR Manager reports that no intrusive activities have been conducted at the site and that the PWD is aware of the boundaries of the site.

## 3.6 TECHNICAL ASSESSMENT

### 3.6.1 Question A: Is the remedy functioning as intended by the AM?

The review of documents, ARARs, risk assumptions, and the results of the site inspection indicates that the remedy is functioning as intended by the AM.

- **HASP/Contingency Plan:** A HASP is in place for the groundwater monitoring at this time. The contingency plan for the current remedy consists of continuing the groundwater monitoring for up to 30 years or until groundwater contamination levels decrease to less than the applicable groundwater standards.
- **Implementation of Institutional Controls and Other Measures:** Final ICs will be complete with preparation of the MOA/LUCIP for the Site 6. However, informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 6 and conduct periodic visual observations of the site.
- **Remedial Action Performance:** See Section 3.4 for the results of LTM to date.
- **System Operations/O&M:** LTM sampling events are being conducted on a semi-annual schedule.
- **Opportunities for Optimization:** Additional wells were added in 2010 and the monitoring schedule was adjusted. Additional data will be required to determine if these changes provide optimal monitoring for Site 6, which will be completed after the MOA is signed.
- **Early Indicators of Potential Remedy Failure:** No early indicators of potential remedy failure were noted during this five-year review.

**3.6.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?**

The criteria established in the AM for Site 6 is still valid.

**3.6.2.1 Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics**

A quantitative risk assessment has not been performed for Site 6. The clean up levels are the default screening concentrations that have been used to determine if a threat to human health or the environment is likely. No change to these screening concentrations or the cleanup levels developed from them that could affect the protectiveness of the remedy has occurred.

**3.6.2.2 Changes in Standards and TBC Criteria**

In accordance with the AM, the only chemical-specific ARARs identified for the site are the MDEQ TRGs, which have not changed. The AM identified no location-specific or action-specific ARARs for Site 6.

**3.6.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?**

No other information has come to light that would call into question the protectiveness of the remedy.

**3.7 ISSUES**

No issues were noted for Site 6.

**3.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

There are no recommendations or follow-up actions for Site 6.

**3.9 PROTECTIVENESS STATEMENT**

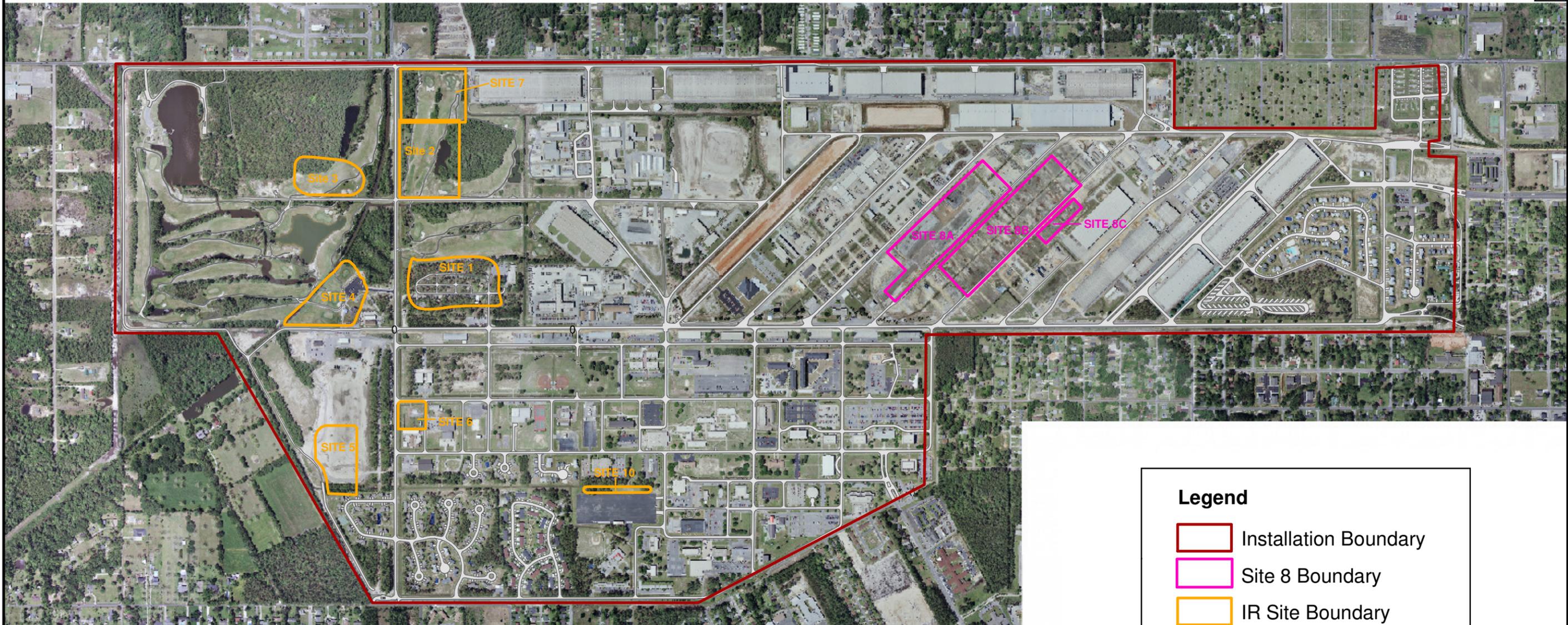
The remedial action at Site 6 consists of long-term monitoring and a LUC program. The monitoring program has been implemented and is protective. The LUC portion of the remedy is still in the design phase and will be protective once complete. Additionally, informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 6 and conduct periodic visual observations of the site.

## 4.0 SITE 8

This five-year review is being conducted for Site 8 HO Storage Area (Figure 4-1) because contaminated soil is still contained on site and does not allow for unlimited use and unrestricted exposure. Site 8 was used by the Air Force to store drums containing 850,000 gallons of HO from 1968 to 1977. Leaks and spills from the drums resulted in release of the herbicides 2,4-dichlorophenoxyacetic acid and 2,4,5-trichlorophenoxyacetic acid to soil at the site. In 1997, Mississippi Commission on Environmental Quality issued an Agreed Order establishing requirements to address HO related contamination at and near NCBC Gulfport.

### 4.1 SITE CHRONOLOGY

- Prior to 1968 – Site 8 was used as a heavy equipment storage and staging area. In 1961, surface soils were stabilized with Portland cement to provide a hardened surface for heavy equipment operation and storage.
- 1968 to 1977 – Site 8 was used by the Air Force as a storage area for drums containing HO.
- 1977 to 1984 – The HO drums were removed from Site 8 and the release of dioxins was confirmed. Site 8 was fenced and left inactive until 1985.
- 1985 to 1987 – Soil at Site 8 was incinerated on site to achieve the 1 part per billion (ppb) dioxin standard current at that time. Two additional areas (designated 8B and 8C) outside of the original boundaries of Site 8 (now designated 8A) were identified as HO drum storage locations. Excavated soil was incinerated and the resulting ash was stockpiled on Site 8A. The drainage systems that connected Site 8 to the local drainage basins were not remediated.
- 1987 to January 2001 – Access to Site 8 was restricted and no base operations were conducted within the site boundaries.
- May 1994 to August 1995 – Technical Memorandums 1 through 6 were prepared to document multiple groundwater sampling events.
- April 1995 – Sediment recovery traps were installed as an interim corrective measure to reduce migration of dioxin-contaminated sediments in drainage systems connected to Site 8.
- July 1995 – A time-critical removal action (TCRA) was conducted at the surface water outfalls on 28<sup>th</sup> Street. Approximately 300 cubic yards of soil and sediment were excavated from ditches adjacent to 28<sup>th</sup> Street and brought to Site 8 for storage and future remediation.



**Legend**

- Installation Boundary
- Site 8 Boundary
- IR Site Boundary



|                        |                  |
|------------------------|------------------|
| DRAWN BY<br>S. STROZ   | DATE<br>12/10/09 |
| CHECKED BY<br>B. OLSON | DATE<br>10/12/10 |
| REVISED BY             | DATE             |
| SCALE<br>AS NOTED      |                  |



LOCATION OF SITE 8  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

|                   |          |
|-------------------|----------|
| CONTRACT NUMBER   |          |
| APPROVED BY       | DATE     |
| APPROVED BY       | DATE     |
| FIGURE NO.<br>4-1 | REV<br>0 |

- 1995 to 1999 – Dioxin delineation studies were performed in 6 phases. Included in this effort were two interim corrective measures involving the construction of two new sediment recovery traps (SRTs) and replacement of two existing SRTs.
- January 1997 – An AM was issued describing the TCRA for 28th Street.
- July 1997 – The Final Agreed Order for NCBC Gulfport was issued by the Mississippi Commission on Environmental Quality.
- 1997 – Surface Water and Sediment Dioxin Delineation Report – A comprehensive study of surface water drainage systems at NCBC Gulfport to identify dioxin contamination linked to Site 8 HO storage. One of the main purposes of the study was to evaluate if landfills active during the period of HO storage at Site 8 received any HO drums.
- January 2001 – A new rail loading ramp was constructed on the south side of Site 8A in anticipation of future site use as a storage/staging facility.
- July and August 2001 – As part of a Pilot Scale remediation study, soil and sediment were brought to Site 8 and different mixtures of waste and stabilizers were tested for mechanical and chemical properties.
- November and December 2001 – During the Phase II pilot study, the drainage pathway at the off-base Edward's property was excavated and sampled. 1,287 cubic yards of sediment and soil were brought to Site 8 and stockpiled.
- February 2002 – The Proposed Plan for Site 8 presenting the preferred alternative for Site 8A and the Off-Base Areas of Concern was released.
- April 4 to May 4, 2002 – The public comment period for the Site 8 Proposed Plan. The comment period was extended by public request to June 7, 2002.
- May 2002 – An AM detailing the need for a TCRA for drainage features at and around Site 8 and a surface soil hot spot at Site 8B was finalized.
- September and October 2002 – The TCRA was conducted for Site 8 ditches and the Site 8B soil hot spot. 3,800 cubic yards of material was stockpiled at Site 8A for remediation.
- March 2003 – A Focused Feasibility Study for Site 8 and associated areas was issued.
- October 2004 – The 100% Remedial Design Site 8 – HO Storage Area and Off-Base Area of Contamination was issued.
- December 2004 – The Decision Document for Site 8 and associated areas was issued. The remediation of soil, ash, and sediment from Areas B and C, the on-base surface drainage ditches, and the off-base Brownfield properties were addressed in this document.

- March 2006 – Remedial construction begins. Contaminated soil and sediment from the off base Arndt and Bennett properties and on base ditches were transported to Site 8A, consolidated, and chemically stabilized along with contaminated material already at Site 8A. A concrete cap was built to contain the stabilized material and prevent exposure.
- April 2008 – Canal Road removal action begins. Surface soil at Site 8B was prepared and the excavated spoils from the Canal Road piles (adjacent to Canal 1) were brought to Site 8B and chemically stabilized. These materials contained dioxin at concentrations less than the restricted TRG, allowing controlled reuse of Site 8B and 8C.

## **4.2 BACKGROUND**

Site 8 was discussed in the IAS but was not recommended for further study because of remedial activities planned by the Air Force.

### **4.2.1 Physical Characteristics of Site 8**

Site 8 occupies approximately 31 acres in the north-central portion of the base north of 7th Street between Goodier Avenue and Lee Avenue. Site 8 was divided into three areas (8A, 8B, and 8C), based on the level of storage and handling of HO (Figure 4-1). Site 8A is approximately 13 acres. Sites 8B and 8C occupy a combined area of approximately 18 acres. The areas are relatively flat with little vegetation. The surface soils consist of a fine to medium sand with approximately one-third of these areas stabilized with cement.

Site 8 is located at the head of local drainage basins. Surface water from Site 8A flows northwest and exits the base at Outfalls 1 and 3, surface water from Site 8B flows north and exits the base at Outfall 4, and surface water from Site 8C drains to the southeast exiting the base at Outfall 2 (south) into Brickyard Bayou.

### **4.2.2 Land and Resource Use at Site 8**

Prior to storage of HO, Site 8 was used as an equipment storage area. Following the removal of HO and the soil remediation in 1987, Site 8 was fenced and construction debris, ash from the incineration of dioxin-contaminated soil, and dioxin-contaminated sediments that were excavated from on-base drainage ditches and off-base areas were stockpiled at Site 8A.

In 2007, dioxin contaminated material at Site 8A was stabilized and capped. The concrete covered area at Site 8A is currently used for vehicle storage by MWR, Construction Equipment Department (CED) and Seabee units.

In 2008, material from the Canal Road piles was brought to Site 8B and solidified. Sites 8B and 8C are currently open areas. Dioxin concentrations in the surface soil are less than the restricted TRG and restricted, non-intrusive use is allowed. Area 8A was continually in use and 8B and 8C are periodically used as overflow storage areas.

#### **4.3 HISTORY OF CONTAMINATION AT SITE 8**

Between 1968 and 1977, Site 8 was used by the United States Air Force for the storage of HO in 55-gallon drums. Soil contamination resulted from spills and leaks during the years that HO was stored at Site 8. The dioxin-contaminated soils at Site 8 were eroded and transported via ditches on base to Canal No. 1 and to off base wetlands adjacent to the northwest portion of the base.

##### **4.3.1 Initial Response for Site 8**

Under an Air Force program, the HO was removed from Site 8 in 1977 and transferred to an incinerator ship for destruction at sea. Soil remediation was conducted at Site 8 following the removal of the HO drums. Soil at Site 8 was incinerated on site to achieve the 1 ppb dioxin standard current at that time. Two additional areas (designated 8B and 8C) outside of the original boundaries of Site 8 (now designated 8A) were identified as HO drum storage locations. Excavated soil was incinerated and the resulting ash was stockpiled on Site 8A.

Interim corrective measures and removal actions have been performed at Site 8 and associated drainage features after the soil incineration to manage dioxin contaminated sediment transported by erosion from Site 8.

- April 1995 – Sediment recovery traps were installed in drainage ditches on the base and at 28<sup>th</sup> Street as an interim corrective measure to reduce migration of dioxin contaminated sediments in drainage systems connected to Site 8.
- July 1995 – a TCRA was conducted to remove contaminated sediment at the surface water outfalls on 28<sup>th</sup> Street. 300 cubic yards of soil and sediment were excavated from ditches adjacent to 28<sup>th</sup> Street and brought to Site 8 for storage and future remediation.
- March 2001 – As part of the Pilot Scale remediation study, soil and sediment were brought to Site 8 and different mixtures of waste and stabilizers were tested for mechanical and chemical properties. During the Phase II pilot study, the drainage pathway at the off base Edwards property was excavated and sampled. 1,287 cubic yards of sediment and soil were brought to Site 8 and stockpiled.

- September and October 2002 – The TCRA was conducted for Site 8 ditches and a Site 8B soil hot spot. 3,800 cubic yards of material was stockpiled at Site 8A for remediation.

#### **4.3.2 Basis for Taking Action at Site 8**

In July 1997, the Final Agreed Order for NCBC Gulfport was issued by the Mississippi Commission on Environmental Quality which required "...a focused yet comprehensive strategy to be implemented for the further delineation and, if warranted, environmental remediation of the dioxin and/or dioxin-related contamination attributable to the prior storage and handling of Herbicide Orange on NCBC Gulfport that may now be present in surface soils, sediment and/or groundwaters on, beneath, or in proximity to, that facility."

The Focused FS (Tetra Tech, 2003) summarized the risk assessments for Site 8.

- Unacceptable human health risks from direct exposure to surface soil or sediment based on current or future uses of Site 8 and the associated ditch system.
- Unacceptable risks from exposure to groundwater based on current and future uses of Site 8.

#### **4.4 REMEDIAL ACTIONS FOR SITE 8**

The overall strategy at Site 8 was to implement cleanup remedies, which prevent exposure to dioxin-contaminated media at concentrations greater than the restricted TRG. RAOs for groundwater were established to verify that dioxin in soil was not leaching to groundwater (see Table 4-1).

##### **4.4.1 Remedy Selections at Site 8**

The following sections detail the remedies chosen for each portion of Site 8.

###### **4.4.1.1 Site 8A Soil**

The Focused FS estimated that the following volumes of material would have dioxin concentrations greater than the restricted TRG and would require stabilization and capping;

- Site 8A Incinerated Soil Ash: 21,000 cubic yards
- On-Base Ditches Contaminated Sediment: 24,000 cubic yards
- Off-Base Swampland Contaminated Sediment: 26,000 cubic yards

**TABLE 4-1  
REMEDIAL ACTION OBJECTIVES FOR SITE 8  
FIVE-YEAR REVIEW  
NCBC GULFPORT, MISSISSIPPI**

| Medium            | Contaminants Causing Unacceptable Risk | Remedial Action Objectives  |
|-------------------|--|---|
| Soil and Sediment | HO Dioxins                             | Protect human health from the carcinogenic and noncarcinogenic risks associated with incidental ingestion of, inhalation of, and dermal contact with contaminated surface soil and sediment.  |
| Groundwater       | HO Dioxins                             | Protect human health from the carcinogenic risks associated with ingestion of and dermal contact with on-site and off-site groundwater.<br><br>Comply with federal and state ARARs and TBC guidance criteria in accordance with accepted USEPA and MDEQ guidelines. |

**4.4.1.2 Sites 8B and 8C Soil**

Because the dioxin concentrations in soil at Sites 8B and 8C, including the material excavated from the Canal Road piles, were less than the restricted TRG, soil stabilization and LUCs were chosen as the preferred remedial alternative to prevent soil erosion and unacceptable exposure to surface soil. In 2008, the excavated spoils from the Canal Road piles were transported to Site 8B and chemically stabilized, allowing restricted reuse of the site in accordance with the LUCs.

**4.4.1.3 Site 8 Groundwater**

The DD stipulated that annual monitoring of the groundwater for dioxins at sentinel locations would allow for the detection of migration of contaminants from stabilized/capped areas at Site 8.

Implementation of groundwater use restrictions until RAOs have been achieved was also selected to provide protection of human health.

**4.4.2 Remedy Implementation at Site 8**

The remedial actions selected for implementation at Site 8 are consistent with CERCLA and the NCP. The selected remedies satisfy the statutory preference for treatment to the extent practicable, which permanently and significantly reduces the mobility, toxicity, and/or volume of hazardous substances as a principle element.

#### **4.4.2.1 Site 8A Soil**

Approximately 73,000 cubic yards, or 100,946 tons, of material contaminated with dioxin was stabilized with Portland Type I cement and compacted into a mound at Site 8A. This material was collected from three source areas: 45,623 tons from off-base areas, 30,646 tons from on-base ditches, and 24,677 tons of soil ash.

Portland Type I cement was added at a 4.7 percent (%) by weight (cement to soil) ratio for the sub-base course layers and at a 14 % by weight ratio for the base course layer. A roller-compacted concrete cap was placed over the stabilized soil mound.

#### **4.4.2.2 Sites 8B and 8C Soil**

Because the dioxin concentrations in soil at Sites 8B and 8C and the material excavated from the Canal Road piles were less than the restricted TRG, soil stabilization and LUCs were chosen in the December 2004 DD as the preferred remedial alternative to prevent soil erosion and unacceptable exposure to surface soil. In 2008, the excavated soils from the Canal Road piles were transported to Site 8B and chemically stabilized, allowing restricted reuse of the site in accordance with the LUCs.

#### **4.4.2.3 Long-term Monitoring**

LTM at Site 8 includes groundwater monitoring, sediment sampling, and site inspections as part of the remedy because landfill wastes have been contained and remain on site (see Table 4-2).

Monitoring requirements for Site 8 include collecting, analyzing and interpreting the results for dioxins/furans in groundwater and sediment. Groundwater samples will be collected from four monitoring wells surrounding Site 8, as shown on Figure 4-2. It is contemplated that the sampling interval will continue on an annual basis until MDEQ agrees that the contaminant concentrations have stabilized and no migration is occurring.

Reports will be prepared to document of each sampling event and will include the monitoring data generated during the event. In addition, long-term trends will be presented and potential modifications to the monitoring plan will be recommended.

**TABLE 4-2  
MONITORING PROGRAM AT SITE 8  
FIVE YEAR REVIEW  
NCBC GULFPORT, MISSISSIPPI**

| <b>Monitoring Location</b>    | <b>Depth (relative)</b> | <b>Screened Interval (feet below surface)</b> | <b>Purpose of Sampling</b>    |
|-------------------------------|-------------------------|---|-------------------------------|
| <b>Groundwater Monitoring</b> |                         |   |                               |
| GPT-8-5                       | Shallow                 | 15-25   | Southeast Sites 8 B/C         |
| GPT-8-6                       | Shallow                 | 15-25   | Northeast of Sites 8B/C.      |
| GPT-8-9                       | Shallow                 | 5-15  | Northwestern side of Site 8A. |
| GPT-6-13                      | Intermediate            | 25-35   | Southwest of Site 8A          |

Sediment samples will be collected from four locations in ditches surrounding Site 8 (Figure 4-2) and one location downstream of Site 8A.

If concentrations of COCs are less than MDEQ Tier 1 TRG levels for two consecutive monitoring periods, the Navy will formally seek MDEQ concurrence to change the monitoring schedule.

If monitoring data for two consecutive events indicates that concentrations of COCs in groundwater and were greater than the TRGs (Table 4-3), then actions to control groundwater migration may be required.

**TABLE 4-3  
TRIGGER LEVELS FOR CONTINGENT ACTION AT SITE 8  
FIVE-YEAR REVIEW  
NCBC GULFPORT, MISSISSIPPI**

| <b>COC</b>                           | <b>Concentration Triggering Contingent Action<sup>1</sup></b> |
|--------------------------------------|---|
| <b><u>Dioxins/Furans (pg/L)</u></b>  |   |
| Groundwater Dioxin TEQ               | 30  |
| <b><u>Dioxins/Furans (ng/kg)</u></b> |   |
| Sediment Dioxin TEQ                  | 38  |

Notes:

pg/L = picogram per liter

ng/kg = nanogram per kilogram

<sup>1</sup> Concentrations triggering contingent action are the MDEQ TRGs



NOTES:  
1. Boundaries for sites 8B and 8C are approximate.  
2. Widths across drainage channels are not to scale.

|                    |          |
|--------------------|----------|
| DRAWN BY           | DATE     |
| S. STROZ           | 9/30/10  |
| CHECKED BY         | DATE     |
| B. OLSEN           | 10/12/10 |
| COST SCHEDULE AREA |          |

SCALE  
AS NOTED



LONG TERM MONITORING LOCATIONS  
SITE 8  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

**Legend**

- Sediment Sampled for LTM
- Monitoring Well Sampled for LTM
- Monitoring Well
- Drainage Area
- Approximate Site Boundary
- Installation Boundary
- Sediment or Soil Excavated

|                          |          |
|--------------------------|----------|
| CONTRACT NUMBER<br>CTO   |          |
| APPROVED BY              | DATE     |
| APPROVED BY              | DATE     |
| FIGURE NO.<br>FIGURE 4-2 | REV<br>0 |

#### **4.4.3 System Operations/O&M at Site 8**

The Navy has issued contracts to perform the LTM and inspections for Site 8. Work plans are in development. The work is to be conducted as directed by the DD and the LTMP. A Basic Order Agreement contractor is currently responsible for the inspections of the cap and groundwater sampling program.

Final site LUCs will be implemented upon completion of the MOA between the Navy and MDEQ. Once the MOA is signed, site-specific LUCIPs will be prepared and final LUCs will be implemented. Interim LUC inspections and control processes have been in the plan and will continue until the formal LUCs are completed.

#### **4.4.4 Cost of System Operations/O&M**

Capitol costs for construction of the remedial action were estimated in the 2004 DD for Site 8 and Associated Areas at \$10,714,000. The actual cost for remedial construction was approximately \$9,000,000. In the DD, the 30-year NPW cost for O&M was estimated to be \$277,000. To date, O&M costs have not been incurred because LTM has not started. Capitol costs were approximately 20% higher than estimated. Deviations of this nature are not uncommon and do not provide information indicating potential remedy problems.

### **4.5 FIVE-YEAR REVIEW PROCESS**

This five-year review consisted of a site inspection, personnel interviews, and a technical assessment of the site and the remedial actions underway. More detailed interviews and inspection dates are included in the following sections. Interview and inspection records are included in Appendix A. Photos of Site 8 taken in February 2011 are included in Appendix B.

#### **4.5.1 Document Review**

Documents including the Site 8 DD, the Sites 8B and 8C AM, remedial construction reports, were reviewed during this five-year review. The reference list at the end of this report catalogues these documents.

#### **4.5.2 Data Review**

Since the remedial design phase for the monitoring/LUC program is still in development, data for Site 8 have not been collected since the Canal Road removal action. Figures and tables summarizing the

verification results from the on-site TCRA, the off-base removals, the Canal Road removal action and groundwater sampling are included in Appendix D.

#### **4.5.3 Site Inspection and Interviews**

Tetra Tech conducted a site inspection of Site 8 on September 29, 2010. Prior to initiating the inspection, the inspector interviewed Mr. Gordon Crane, IR Manager, and Mr. Kim Reinicke, CED Deputy Director. The site inspection included visual observations of site activities at Sites 8A, 8B, and 8C, the condition of the concrete cap at Site 8A, and the stabilized soil surface at Sites 8B and 8C.

Site 8A is currently used for vehicle and equipment storage by CED and other activities and for car and boat storage by MWR. The landfill cover at Site 8A was designed to bear wheeled traffic. The CED Deputy Director indicated that personnel in his department were aware of restrictions regarding operation of tracked vehicles on the cap. Other activities do have access to the area for vehicle storage and bulldozers were observed parked on the western edge of the cap during the site inspection. Superficial spalling and minor cracks in the concrete cap were observed, but no signs that the cap has been compromised were evident. The IR Manager indicated that there have been no complaints, violations, or incidents. The rip-rap installed along the banks of the drainage ditches adjacent to the cap was intact and there was no evidence of bank erosion.

At Site 8B and 8C, warning signs were clearly marked and in good condition on the east side of 8B and a fence was present along the west side. No signs of activity were observed at Site 8B. Some material storage was observed in the northeast corner of Site 8C.

The monitoring wells around the perimeter of the site were inspected in July 2010 and were found to be intact.

Formal LUCs for Site 8 were delayed to allow for a MOA to be signed between NAVFAC SE and the MDEQ in September 2010. However, informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 8 and conduct periodic visual observations of the site. The land use for the site has remained unchanged. The contractor for LTM and site inspections is preparing design and planning documents for the first year of LTM and LUC inspections. The LTM and LUC inspection activities are scheduled to begin in 2011.

## 4.6 TECHNICAL ASSESSMENT

This five-year review consisted of a site inspection, personnel interviews, and a technical assessment of the site and the remedial actions underway. More detailed interview and inspection dates are included in the following sections.

### 4.6.1 Question A: Is the remedy functioning as intended by the DD?

The review of documents, ARARs, risk assumptions, and the results of the site inspection indicates that the remedy is functioning as intended by the DD (Site 8A) and AM (Site 8B and 8C).

- **HASP/Work Plans:** HASPs and work plans are being developed by the contractor conducting LTM and LUC inspections.
- **Implementation of Institutional Controls and Other Measures:** ICs for Sites 8A, 8B, and 8C were included in the 2004 DD. The DD also specifies groundwater use restrictions for groundwater areas. Final implementation of these controls will be complete with the preparation of the LUCIP for Site 8.
- **Remedial Action Performance:** The performance of the remedy will be determined by the results of the LTM.
- **System Operations/O&M:** No system O&M will be required other than to ensure the cap integrity remains as designed. Annual sampling events are planned for groundwater and surface water sediment.
- **Opportunities for Optimization:** There currently appear to be no opportunities for optimization at Site 8. Once LTM data becomes available, there may be future opportunities to enhance the LTM program.
- **Early Indicators of Potential Remedy Failure:** No early indicators of potential remedy failure were noted during this review.

### 4.6.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?

The construction of the remedy has changed the exposure assumptions if the remedy is maintained. Direct exposure to dioxin concentrations greater than the restricted TRG is prevented by the cap over the stabilized material at Site 8A.

#### **4.6.2.1 Changes in Exposure Pathways, Toxicity, and other Contaminant Characteristics**

Site 8 is an industrialized area, and the current land use is intended to remain the same in the future. Construction of the remedy has changed physical conditions at the site that were used in the risk assessments. Direct exposure to soil Site 8A is prevented by the cap. Direct exposure to sediment in the ditches is prevented by the sediment removal. LUCs will prevent exposure to groundwater, disturbance of the cap at Site 8A, and unacceptable reuse of Sites 8B and 8C. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy.

These assumptions are considered to be conservative and reasonable in evaluating risk and developing risk-based cleanup levels. No change to these assumptions or the cleanup levels developed from them is warranted. There has been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy.

#### **4.6.2.2 Changes in Standards and TBC Criteria**

Chemical-specific ARARs identified in the DD were the MDEQ TRGs and USEPA Region 3 RBCs. They were reviewed for changes that could affect protectiveness. The USEPA has released the updated RSL Table in December of 2009. USEPA Region 4 recommends the use of the RSL Table to replace the Region 3 RBC Table. The levels provided in these documents have not changed for the Site 8 COCs to create a potential protectiveness issue.

The action-specific ARARs for Site 8 have not changed since the signing of the DD.

#### **4.6.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?**

No other information has become known that would affect the protectiveness of this remedy.

#### **4.7 ISSUES**

Issues were discovered during the five-year review and are noted in Table 4-4. None of these are sufficient to warrant a finding of not protective as long as corrective actions are taken.

**TABLE 4-4**  
**ISSUES FOR SITE 8**  
**FIVE-YEAR REVIEW**  
**NCBC GULFPORT, MISSISSIPPI**

| Issue Number | Issue  | Affects Protectiveness (Y/N) |        |
|--------------|--|------------------------------|--------|
|              |  | Current                      | Future |
| 1            | Spalling of the concrete covering Site 8 due to tracked vehicle operations on the pad. | N                            | N      |

**4.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

The recommendations and follow-up actions are outlined in Table 4-5.

**TABLE 4-5**  
**RECOMMENDATIONS AND FOLLOW-UP ACTIONS FOR SITE 8**  
**FIVE-YEAR REVIEW**  
**NCBC GULFPORT, MISSISSIPPI**

| ISSUES   | RECOMMENDATIONS   | PARTY RESPONSIBLE | OVERSIGHT AGENCY | MILESTONE DATE | AFFECTS PROTECTIVENESS (Y/N) |        |
|--|---|-------------------|------------------|----------------|------------------------------|--------|
|  |   |                   |                  |                | CURRENT                      | FUTURE |
| Spalling of the concrete covering Site 8 due to tracked vehicle operations on the pad. | Inspect the integrity of the concrete cover and make any necessary repairs.   | Navy              | MDEQ             | 30-Sep-11      | N                            | N      |
|  | Ensure the unit commanders using this area to park vehicles are aware of the issue and will ensure that proper safeguards are used to prevent damage to the concrete. | Navy              | MDEQ             | 30-Sep-11      | N                            | N      |

**4.9 PROTECTIVENESS STATEMENT**

The stabilization and capping of contaminated soil and sediments portion of the Site 8 remedy is completed and protective. The ICs and monitoring phase of the selected remedy for Site 8 will be protective when fully implemented. This portion of the remedy is in the design phase and is expected to begin in 2011. Additionally, informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 8 and conduct periodic visual observations of the site.

The only issue noted at Site 8 during the review was spalling of the concrete due to the parking of tracked vehicles on the concrete cap. As stated above, the spalling has not affected the protectiveness of the

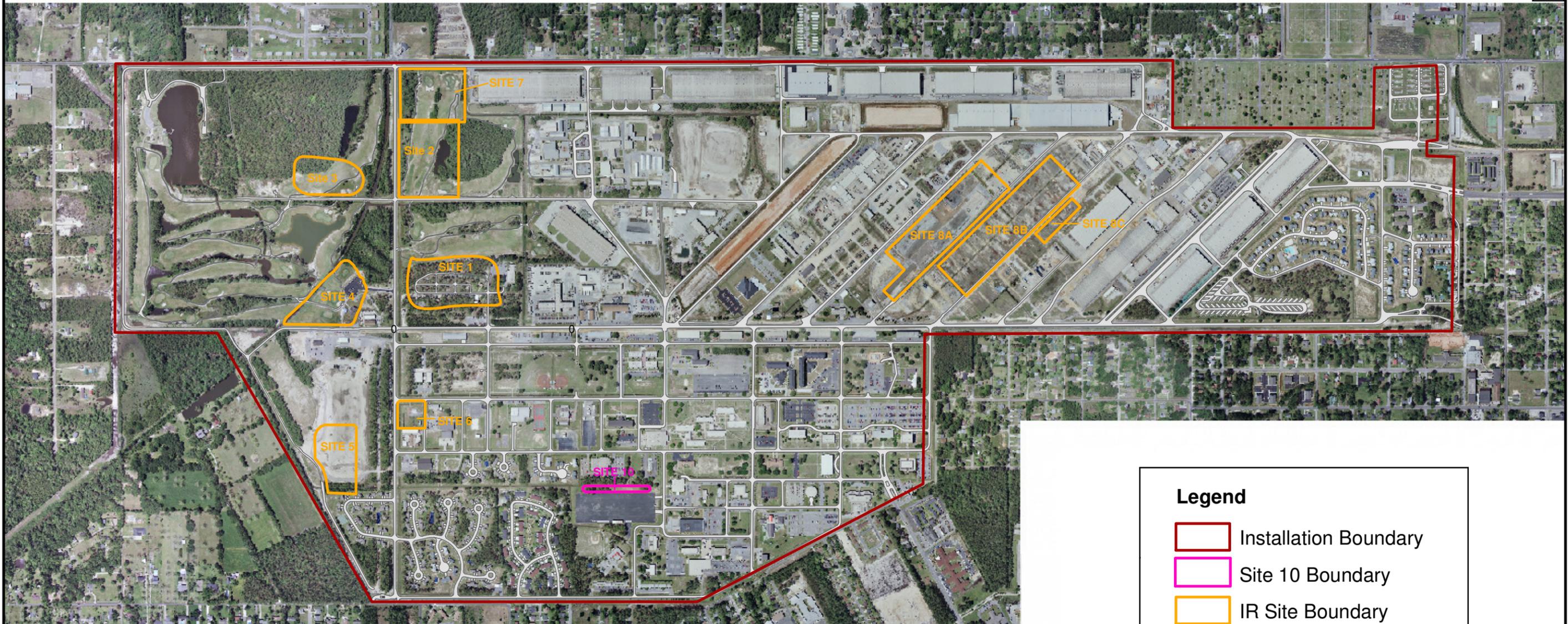
remedy; however, the affected portion of the pad should be inspected and repaired as necessary. Although the concrete cap was designed to handle heavy equipment, continued operation of tracked vehicles without proper additional protection will shorten the life of the concrete cover.

## 5.0 SITE 10

This five-year review is being conducted for Site 10 Parade Field Ditch (Figure 5-1) because contaminated soil remains on site following construction of the selected remedy preventing unlimited use and unrestricted exposure. Site 10 was identified in 1997 during basewide surface drainage studies. Environmental investigations and remedial design were conducted from 1997 to 2010. A source removal action was conducted in 2000. Remedial construction was completed in May 2010. The selected remedy for Site 10 includes a concrete cover to prevent direct exposure and for erosion control, LUCs, and sediment monitoring.

### 5.1 SITE CHRONOLOGY FOR SITE 10

- July 1997 – Dioxin delineation studies conducted for on- and off-site surface water drainage features identified PCB contamination in the ditch at Site 10.
- August 1999 – The concentrations of polychlorinated biphenyls (PCBs) and chlorobenzene in the sediments at Site 10 prompted a source removal excavation.
- 2002 – A Site Evaluation was conducted following the source removal excavation. PCBs were still present in subsurface soil at concentrations greater than acceptable levels.
- 2003 – The RI/FS was begun, which included a more comprehensive investigation and the evaluation of remedial alternatives.
- 2007 – The RI/FS was finalized.
- June 2007 – A Proposed Plan was presented recommending excavation and off-site disposal of the PCB contaminated soil. The public comment period was from June 12, 2007 to July 12, 2007.
- July 2007 – The Remedial Design for Site 10, Parade Field Ditch was completed.
- 2008 – The Navy optimization initiative determined that successful implementation of the excavation remedy was unlikely because the source removal excavation was not successful.
- August 2009 – A Proposed Plan was presented recommending a concrete lining in the ditch to prevent direct exposure to and erosion of PCB contaminated soil. The public comment period was from August 10, 2009 to September 10, 2009.
- September 2009 – The Decision Document was completed.
- April/May 2010 – Construction of the ditch lining component of the selected remedy was performed and the Remedial Action Contractor demobilized from the site on May 21, 2010.



**Legend**

- Installation Boundary
- Site 10 Boundary
- IR Site Boundary



|                        |                  |
|------------------------|------------------|
| DRAWN BY<br>S. STROZ   | DATE<br>12/10/09 |
| CHECKED BY<br>B. OLSON | DATE<br>10/12/10 |
| REVISED BY             | DATE             |
| SCALE<br>AS NOTED      |                  |



LOCATION OF SITE 10  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

|                   |          |
|-------------------|----------|
| CONTRACT NUMBER   |          |
| APPROVED BY       | DATE     |
| APPROVED BY       | DATE     |
| FIGURE NO.<br>5-1 | REV<br>0 |

## **5.2 BACKGROUND**

Site 10 was not identified in the IAS (Envirodyne, 1985); contamination was first detected at this site during the basewide investigation of surface water drainage features.

### **5.2.1 Physical Characteristics of Site 10**

Site 10 is a short section of primary drainage ditch located in the south-central section of NCBC Gulfport adjacent to the Parade Field (Figure 5-2). The site is bordered to the north by a parking area (the location of the Building 295) and to the south by the Parade Field. The site topography is relatively flat. A sidewalk leading south from the location of Building 295 crosses the ditch via a footbridge and continues south to the Parade Field.

The drainage ditch at Site 10 is approximately 10 feet wide and 4 feet deep. Storm water runoff from the paved areas that surround Site 10 flows into various tributary ditches that feed into the larger primary ditch. Surface water runoff in the primary ditch is conveyed to the west into Canal No. 1, which collects the runoff from Drainage Area 5. Surface water in Canal No. 1 flows north and eventually leaves NCBC Gulfport at Outfall 1, located at 28<sup>th</sup> Street (Tetra Tech, 2007b).

Except for the construction of the concrete liner in a portion of the primary ditch, physical characteristics of Site 10 have not been changed since the RI.

### **5.2.2 Land and Resource Use at Site 10**

Site 10 is located in the developed part of the base and activities in the area include training, recreation, and residential housing for military personnel. Facilities near Site 10 include:

- North – NCBC Gulfport medical/dental clinic (Building 295) and a fast-food restaurant
- South – The NCBC Gulfport parade field
- East – Administration and training buildings
- West – Housing

The ditch at Site 10 is crossed by a foot bridge near the eastern end of the site. Land and resource use at Site 10 have not changed significantly since the RI.

## **5.3 HISTORY OF CONTAMINATION AT SITE 10**

Contamination was first detected at the area designated as Site 10 during the dioxin delineation activities for on- and off-site surface water drainage features conducted in 1997 (ABB-ES, 1997a). Preliminary

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| DRAWN BY           | DATE     |
| C. FOSTER          | 12/08/04 |
| CHECKED BY         | DATE     |
| M. JAYNES          | 2/02/07  |
| COST/SCHEDULE-AREA |          |
| SCALE<br>AS NOTED  |          |



ALTERNATIVE 3 - SURFACE WATER CONTROLS, EXCAVATION, SURFACE PROTECTION, INSTITUTIONAL CONTROLS, AND MONITORING  
 SITE 10 REMEDIAL INVESTIGATION AND FEASIBILITY STUDY REPORT  
 NCBC GULFPORT  
 GULFPORT, MISSISSIPPI

**LEGEND**

- Excavation Area
- Concrete and/or Riprap
- Pavement
- Proposed Surface Water/Sediment Sample Location

50 0 50  
SCALE IN FEET

|                         |      |
|-------------------------|------|
| CONTRACT NUMBER<br>1831 |      |
| APPROVED BY             | DATE |
| ---                     | ---  |
| APPROVED BY             | DATE |
| ---                     | ---  |
| DRAWING NO.             | REV  |
| FIGURE 5-2              | 0    |

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02/22/11

analytical results from the samples collected for this investigation at Drainage Area 5 (in the southwestern corner of NCBC Gulfport) indicated elevated levels of dioxins and furans, particularly hexachlorinated-dibenzo-furans (HxCDFs). Further evaluation of the laboratory data indicated that the responses interpreted as HxCDFs were actually caused by octachlorinated-biphenyl ethers (OCBEs), which are commonly found in transformer oils manufactured in the 1940s and 1950s. Two of the samples collected during this study were analyzed for PCBs. Aroclor-1260 was detected at concentrations exceeding screening levels in these samples. Analysis of sediment samples for VOCs also detected elevated levels of chlorobenzene, another common ingredient in transformer oil.

The detections of OCBE, chlorobenzene, and Aroclor-1260 indicated the probable release or releases of electrical transformer oil adjacent to or directly into the drainage ditch near the footbridge as the source of contamination at Site 10.

### **5.3.1 Initial Response for Site 10**

The concentrations of PCB and chlorobenzene contamination in the sediments in the ditch at Site 10 prompted a source removal excavation in August 1999 (CCI, 2000). Approximately 80 cubic yards (120 tons) of sediment and soil with PCB concentrations exceeding the MDEQ unrestricted Tier 1 TRG of 1 part per million (ppm) were removed from the source area during this excavation (Phase I). Confirmation sampling from the bottom of the excavation indicated that PCB concentrations up to 1,240 ppm remained in the subsurface soil below the area of excavation. Therefore, an additional 1.5-foot layer of soil was removed and additional confirmation samples were collected (the Phase II excavation). Results of the Phase II confirmation sampling identified PCB concentrations up to 16,300 ppm. Excavation activities were suspended and further delineation sampling was conducted using DPT sampling methods. Results showed that PCB concentrations exceeding the Tier 1 TRG continued to a depth of 22 feet with PCB concentrations declining with depth. Based on these results, the Phase III excavation was conducted. An additional 3 to 6 feet of soil was removed from the excavation area, with a maximum excavation depth of 14.5 feet near the footbridge. Confirmation samples collected from three locations at the bottom of the Phase III excavation indicated PCB concentrations exceeding the screening level.

Following the source removal excavations and site restoration, additional samples were collected to evaluate the effectiveness of the remedial action (Tetra Tech, 2002). These samples were analyzed for VOCs, pesticides and PCBs, and ethylene dibromide. The continued presence of PCB concentrations exceeding the screening level in subsurface soil samples prompted the Navy to conduct a more comprehensive RI/FS and to use these data for evaluation of remedial alternatives.

### **5.3.2 Basis for Taking Action at Site 10**

The only COC identified in the RI/FS was the PCB, Aroclor-1260. PCB concentrations exceeding screening levels were reported for subsurface soil samples collected near the footbridge. Concentrations of PCBs detected in sediment were less than the MDEQ Tier I unrestricted TRG. Regardless, sediment was retained as a medium of concern, because of the possibility of contamination being spread by erosion and transport. Therefore, by addressing sediment and subsurface soil, surface water concerns were also addressed.

The results of the ecological screening indicated that the highest level of ecological risk was associated with PCBs. Potential ecological risks from PCBs were identified at the majority of sediment sampling locations. Potential ecological risks from other contaminants were only found in isolated locations.

## **5.4 REMEDIAL ACTIONS**

The remedial action selected for implementation at Site 10 is consistent with CERCLA and the NCP. The remedy of installing a concrete cap to prevent exposure to the sediment and soils and prevent erosion will permanently and significantly reduce potential mobility of and possible exposures to on-site residual hazardous substances. LUCs, sediment monitoring, and inspections will verify the protectiveness once implemented.

PCBs remaining in subsurface soil at the site presented potential risk to human or ecological receptors. The purpose of the remedial action at Site 10 was to eliminate the direct exposure pathway and to prevent migration of PCB-contaminated soil or sediment to areas downstream of Site 10. The RAOs are from the FS are presented in Table 5-1.

The Proposed Plan presented in August 2009 following the optimization initiative recommended a concrete lining in the ditch to prevent direct exposure to and erosion of PCB contaminated soil. The public comment period was from August 10, 2009 to September 10, 2009. The DD was issued in September 2009 and included the remedy described in Section 5.4.1 of this document for Site 10.

**TABLE 5-1**  
**REMEDIAL ACTION OBJECTIVES FOR SITE 10**  
**FIVE-YEAR REVIEW**  
**NCBC GULFPORT, MISSISSIPPI**

| Medium                       | Contaminants Causing Unacceptable Risk | Remedial Action Objectives  |
|------------------------------|--|---|
| Soil                         | Aroclor-1260                           | Prevent direct exposure to soil with concentrations of Aroclor-1260 greater than 1,000 micrograms per kilogram (µg/kg).   |
| Soil/Sediment, Surface water | Aroclor-1260                           | Prevent the erosion and transport of Aroclor-1260 contaminated media through the drainage channel system.<br><br>Comply with federal and state ARARs and TBC guidance criteria in accordance with accepted USEPA and MDEQ guidelines. |

**5.4.1 Remedy Selection at Site 10**

Four remedial alternatives were evaluated in the FS for Site 10 to address the RAOs. The selected remedial action for Site 10 in the DD included:

- Construction of a concrete cap to prevent exposure to sediment and soils and to prevent erosion and transport of sediment (Figure 5-2).
- ICs with land use restrictions to be enforced by NCBC Gulfport.
- Installation of advisory signs.
- Monitoring of sediment (see Figure 5-3 for locations).
- Annual LUC inspections.

The remedy is intended to remain in place, as part of the Master Plan, as long as NCBC Gulfport remains a military base. In the event that the base is to be redeveloped, the Master Plan will specify the proper removal, handling, and disposal procedures for the ditch sediments. In the event, NCBC Gulfport is to be decommissioned or sold for other uses, the ICs would be conveyed to the governmental agency that maintains the closed base, or the new property owner, whichever is applicable, as a condition of the property transfer.

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| DRAWN BY           | DATE     |
| C. FOSTER          | 12/08/04 |
| CHECKED BY         | DATE     |
| B. OLSON           | 10/12/10 |
| COST/SCHEDULE-AREA |          |
| SCALE<br>AS NOTED  |          |



REMEDIAL ACTION AND LONG TERM MONITORING LOCATIONS  
 SITE 10  
 NCBC GULFPORT  
 GULFPORT, MISSISSIPPI

|                         |      |
|-------------------------|------|
| CONTRACT NUMBER<br>1831 |      |
| APPROVED BY             | DATE |
| ---                     | ---  |
| APPROVED BY             | DATE |
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| FIGURE 5-3              | 0    |

**5.4.2 Remedy Implementation at Site 10**

Construction of the cap portion remedy was completed in 2010. Construction of the remedy included removal of the foot bridge, removal of sediment and soil from the ditch to provide a stable base, installation of a synthetic barrier layer and the concrete lining, and site restoration (Figure 5-2). Groundwater samples were collected from the existing monitoring wells at the site and no PCB exceedances were found. The remaining portions of the remedy are still in the design phase. However, informal LUCs have been implemented, where the IR manager and others are aware of the limitations associated with Site 10 and conduct periodic visual observations of the site. The work plan for monitoring is in preparation. The MOA is in negotiation with the state. Once complete, the LUCIP will be prepared and the formal LUC maintenance process will begin.

The selected remedy satisfies the statutory requirement for protection of human health and the environment using ECs, ICs, and sediment monitoring. Because the contaminated media will remain in place, maintenance of the engineering and ICs will be required to prevent risks to human and ecological receptors.

**TABLE 5-2  
TRIGGER LEVELS FOR CONTINGENT ACTION AT SITE 10  
FIVE-YEAR REVIEW  
NCBC GULFPORT, MISSISSIPPI**

| COC in Sediment            | Concentration Triggering Contingent Action <sup>1</sup> |
|----------------------------|---|
| <b><u>PCBs (µg/Kg)</u></b> |   |
| Aroclor 1260               | 1,000   |

Notes:  
µg/kg = microgram per kilogram  
<sup>1</sup> Concentration triggering contingent action is the MDEQ soil TRGs

**5.4.3 System Operations/O&M at Site 10**

The administrative actions presented in the DD include incorporation of ICs and monitoring programs into the NCBC Gulfport Master Plan. O&M at the site includes general site maintenance (mowing the grass adjacent to the ditch, maintaining sidewalks and the foot bridge), which is handled by PWD maintenance personnel, LUC inspections, and LTM. LTM sample locations are shown on Figure 5-3.

**5.4.4 Cost of System Operations/O&M**

The capital cost estimated for the remedy construction in the FS was \$41,636. The actual cost for construction was \$300,000. The 30-year NPW cost for O&M was estimated to be \$69,714. To date, O&M costs have not been incurred because LTM is in the design phase. Capitol costs were significantly

higher than estimated. Comparing the FS and information in the construction completion report, it appears the following areas were significantly different during construction:

- The FS did not include disposal of water generated as a result of groundwater seepage, and the RAC collected and disposed of approximately 46,000 gallons.
- The soil to be excavated and disposed was estimated at 45 cubic yards (approximately 63 tons using a density factor of 1.4), and the actual amount of material disposed was 148 tons.
- The concrete required was twice the estimated amount.
- A liner was used to maintain soil isolation in the ditch. This was not included in the design.

Although the cost of implementing the remedy was more than estimated, this does not indicate potential remedy problems.

## **5.5 FIVE-YEAR REVIEW PROCESS**

This five-year review consisted of a site inspection, personnel interviews, and a technical assessment of the site and the remedial actions underway. More detailed interview and inspection dates are included in the following sections. Interview and inspection records are included in Appendix A. Photos of Site 10 taken in February 2011 are included in Appendix B.

### **5.5.1 Document and Data Review**

The LTM specified in the DD to detect migration of contaminated sediment from beneath the cap is in the remedial design phase; therefore, there are no relevant documents providing data that would require a review against applicable cleanup standards or TBCs. The only post-DD document created for Site 10 during the review period was the, "Remedial Action Completion Report Site 10 – Parade Field Ditch", dated September 2010 (CCI). This document describes the remedy construction for Site 10. Based on a review of this report, the construction met the design criteria for the remedial action.

### **5.5.2 Site Inspection and Interviews**

Tetra Tech conducted a site inspection of Site 10 on September 29, 2010. Prior to initiating the inspection, the inspector interviewed Mr. Gordon Crane, IR Manager, and Mr. Matt Schultz, PWD Production Division Director. The site inspection included visual observations of the condition of the ditch lining.

During the inspection, the concrete cap in the ditch was in place as designed. However, the concrete pad to the south of the ditch, which was to be installed to eliminate exposure to approximately 27 square yards of soil, was not installed per the DD. Mr. Robert Fisher, NAVFAC SE RPM, informed Tetra Tech that during the design construction phase a minor change to the remedy for this area was implemented. Prior to the DD, the area was excavated and approximately 2 feet of fill was placed over the contaminated soil. Since the cover was in place, the surface soil no longer posed a threat to human health or the environment. Additionally the bridge over the canal covers the majority of this area. The area will remain in the final LUCIP to prevent unauthorized excavation of the area.

The MOA is being negotiated between the Navy and MDEQ. Once complete, the LUCIP will be prepared and the LUCs will be implemented. LUC inspections are scheduled to begin in 2011. The land use for the site has remained unchanged.

The contractor for LTM and site inspections is preparing planning documents for the first year of LTM and LUC inspections. These activities are scheduled to begin in 2011. The MOA for the LUCs is being prepared by NAVFAC SE.

## 5.6 TECHNICAL ASSESSMENT

### 5.6.1 Question A: Is the remedy functioning as intended by the DD?

The review of documents, ARARs, risk assumptions, and the results of the site inspection indicates that the remedy is functioning as intended by the DD.

- **HASP/Contingency Plan:** HASPs and work plans are being developed by the contractor conducting LTM and LUC inspections.
- **Implementation of Institutional Controls and Other Measures:** ICs are being developed for Site 10 as part of the LUCIP. The implementation will be complete with preparation of the LUCIP.
- **Remedial Action Performance:** The performance of the remedy will be determined by the results of the LTM.
- **System Operations/O&M:** Annual sampling events are planned for LTM.
- **Opportunities for Optimization:** The completed portion of the remedy is functioning as required in the DD, and there appear to be no opportunities for optimization at this time.
- **Early Indicators of Potential Remedy Failure:** None noted.

**5.6.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?**

There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy.

**5.6.2.1 Changes in Exposure Pathways, Toxicity, and other Contaminant Characteristics**

Construction of the remedy has changed physical conditions at the site, which were used in the risk assessments. Direct exposure to sediment in the ditch is prevented by the cover installation. Permanent LUCs will, in the long-term, prevent exposure to groundwater and disturbance of the cover. There have been no changes in the physical conditions of the site to affect the protectiveness of the remedy.

There have been no changes in the toxicity factors for the COCs that were used in the baseline risk assessment. These assumptions are considered to be conservative and reasonable in evaluating risk and developing risk-based cleanup levels. No change to these assumptions or the cleanup levels developed from them is warranted. There has been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy.

**5.6.2.2 Changes in Standard and TBC Criteria**

The chemical-specific ARARs identified in the DD for the site sediment were the MDEQ TRGs, which have not changed. The action-specific ARARs for Site 10 have not changed since the signing of the DD. The DD indicated that no location-specific ARARs were identified for Site 10.

**5.6.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy?**

No other information has become known that would affect the protectiveness of this remedy.

**5.7 ISSUES**

No issues were identified for Site 10. The final LUC and monitoring portions of the remedy are being designed and should begin in 2011.

**5.8 RECOMMENDATIONS AND FOLLOW-UP ACTIONS**

There are no recommendations or follow up actions required.

## **5.9 PROTECTIVENESS STATEMENT**

The completed portions of the Site 10 remedy, installing a concrete cover over the contaminated soil and sediments, and installation of warning signs, are protective. Ecological and human health risks have been addressed through capping/covering of contaminated soil and sediments. The remaining portion of remedial action at Site 10, ICs and monitoring, will be protective once implemented. ICs and monitoring are in the design phase and should be in place in 2011. Informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 10 and conduct periodic visual observations of the site.

## **6.0 SUMMARY OF FIVE YEAR REVIEW**

NAVFAC SE has conducted the five-year review of the remedies implemented at Sites 5, 6, 8, and 10 at NCBC Gulfport in Gulfport, Mississippi. This is the first five-year review for NCBC Gulfport. This five-year review is intended to address Sites 5, 6, 8, and 10, which currently have a signed DD or AM and a removal action or remedial action in place. The trigger date for this statutory review at NCBC Gulfport was on-site remedy mobilization for Site 8 on March 3, 2006. This five-year review is being conducted because hazardous substances, pollutants, and contaminants from past storage, handling, and disposal practices remain at Sites 5, 6, 8, and 10 at concentrations greater than levels that allow for unlimited use and unrestricted exposure. Because this is the first five-year review for NCBC Gulfport, there are no protectiveness statements, recommendations, or follow-up actions from the last review to evaluate. The next five-year review for sites at NCBC Gulfport is required by March 2016 (five years from the date of this review).

### **6.1 SITE 5**

This five-year review was conducted for Site 5 Heavy Equipment Training Area because buried landfill waste, and contaminated soil and groundwater remain on site following construction of the selected remedy and prevent unlimited use and unrestricted exposure.

#### **6.1.1 Issues and Follow-up Actions Site 5**

There were no issues or follow-up actions noted for Site 5.

#### **6.1.2 Protectiveness Statement for Site 5**

The completed portions of the remedy, stabilization and capping of contaminated soil and sediments and installation of warning signs, are protective. The remaining portion of remedial action at Site 5, ICs and monitoring, will be protective once implemented. Final ICs and long-term monitoring are in the design phase and should be in place in 2011. Long-term protectiveness of the remedial action will be verified by LUC inspections and groundwater sampling after the remedial design for that portion of the corrective action is complete. Additionally, informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 5 and conduct periodic visual observations of the site.

**6.2 SITE 6**

This five-year review was conducted for Site 6 Former Fire Fighter Training Area because contaminated subsurface soil and groundwater are still contained on site and do not allow for unlimited use and unrestricted exposure.

**6.2.1 Issues and Follow-up Actions Site 6**

There were no issues noted for Site 6. There are no recommendations or follow-up actions for Site 6.

**6.2.2 Protectiveness Statement Site 6**

The remedial action at Site 6 consists of long-term monitoring and a LUC program. The monitoring program has been implemented and is protective. The LUC portion of the remedy is still in the design/construction phase and will be protective once complete. Additionally, informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 6 and conduct periodic visual observations of the site.

**6.3 SITE 8**

This five-year review was conducted for Site 8 HO Storage Area because contaminated soils are still on site at levels exceeding those allowed for unlimited use and unrestricted exposure.

**6.3.1 Issues and Follow-up Actions Site 8**

One issue was discovered during the five-year review and is noted in Table 6-1. It is not sufficient to warrant a finding of not protective.

**TABLE 6-1  
ISSUES FOR SITE 8  
FIVE-YEAR REVIEW  
NCBC GULFPORT, MISSISSIPPI**

| Issue Number | Issue  | Affects Protectiveness (Y/N) |        |
|--------------|--|------------------------------|--------|
|              |  | Current                      | Future |
| 1            | Spalling of the concrete covering Site 8 due to tracked vehicle operations on the pad. | N                            | N      |

The recommendations and follow-up actions are outlined in Table 6-2.

**TABLE 6-2  
RECOMMENDATIONS AND FOLLOW-UP ACTIONS FOR SITE 8  
FIVE-YEAR REVIEW  
NCBC GULFPORT, MISSISSIPPI**

| ISSUES  | RECOMMENDATIONS   | PARTY RESPONSIBLE | OVERSIGHT AGENCY | MILESTONE DATE | AFFECTS PROTECTIVENESS (Y/N) |        |
|---|---|-------------------|------------------|----------------|------------------------------|--------|
|   |   |                   |                  |                | CURRENT                      | FUTURE |
| Spalling of the concrete covering at Site 8 due to tracked vehicle operations on the pad. | Inspect the integrity of the concrete cover and make any necessary repairs.   | Navy              | MDEQ             | 30-Sep-11      | N                            | N      |
|   | Ensure the unit commanders using this area to park vehicles are aware of the issue and will ensure that proper safeguards are used to prevent damage to the concrete. | Navy              | MDEQ             | 30-Sep-11      | N                            | N      |

**6.3.2 Protectiveness Statement for Site 8**

The stabilization and capping of contaminated soil and sediments portion of the Site 8 remedy is completed and protective. The ICs and monitoring phase of the selected remedy for Site 8 will be protective when fully implemented. This portion of the remedy is in the design phase and is expected to begin in 2011. Additionally, informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 8 and conduct periodic visual observations of the site.

The only issue noted at Site 8 during the review was spalling of the concrete due to the parking of tracked vehicles on the concrete cap. As stated above, the spalling has not affected the protectiveness of the remedy; however, the affected portion of the pad should be inspected and repaired as necessary. Although the concrete cap was designed to handle heavy equipment, continued operation of tracked vehicles without proper additional protection will shorten the life of the concrete cover.

**6.4 SITE 10**

This five-year review was conducted for Site 10 Parade Field Ditch because contaminated soil remains on site following construction of the selected remedy prevents unlimited use and unrestricted exposure.

**6.4.1 Issues and Follow-up Actions Site 10**

No issues were identified for Site 10. There are no recommendations for follow-up actions for Site 10.

#### **6.4.2 Protectiveness Statement for Site 10**

The completed portions of the Site 10 remedy, installing a concrete cover over the contaminated soil and sediments, and installation of warning signs, are protective. Ecological and human health risks have been addressed through capping/covering of contaminated soil and sediments. The remaining portion of remedial action at Site 10, ICs and monitoring, will be protective once implemented. ICs and monitoring are in the design phase and should be in place in 2011. Informal LUCs are already in place, where the IR manager and others are aware of the limitations associated with Site 10 and conduct periodic visual observations of the site.

#### **6.5 NEXT FIVE YEAR REVIEW**

The next five-year review for NCBC Gulfport is required by March 2016, five years from the date of this review.

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**APPENDIX A**

**INTERVIEW AND INSPECTION RECORDS**

## Site Inspection Checklist

| I. SITE INFORMATION  |   |   |   |      |   |  |  |   |  |  |
|--|---|---|---|------|---|--|--|---|--|--|
| Site name: <u>Site 5</u>   | Date of inspection: <u>9-29-10</u>  |   |   |      |   |  |  |   |  |  |
| Location and Region: <u>NCBC Gulfport</u>  | EPA ID: <u>NA</u>   |   |   |      |   |  |  |   |  |  |
| Agency, office, or company leading the five-year review: <u>NAV FAC SE</u>   | Weather/temperature: <u>80° Sunny</u>   |   |   |      |   |  |  |   |  |  |
| Remedy Includes: (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Landfill cover/containment<br/> <input type="checkbox"/> Access controls<br/> <input checked="" type="checkbox"/> Institutional controls<br/> <input type="checkbox"/> Groundwater pump and treatment<br/> <input type="checkbox"/> Surface water collection and treatment<br/> <input checked="" type="checkbox"/> Other <u>Passive gas management</u> </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Monitored natural attenuation<br/> <input type="checkbox"/> Groundwater containment<br/> <input type="checkbox"/> Vertical barrier walls           </td> </tr> </table> |   | <input checked="" type="checkbox"/> Landfill cover/containment<br><input type="checkbox"/> Access controls<br><input checked="" type="checkbox"/> Institutional controls<br><input type="checkbox"/> Groundwater pump and treatment<br><input type="checkbox"/> Surface water collection and treatment<br><input checked="" type="checkbox"/> Other <u>Passive gas management</u> | <input type="checkbox"/> Monitored natural attenuation<br><input type="checkbox"/> Groundwater containment<br><input type="checkbox"/> Vertical barrier walls |      |   |  |  |   |  |  |
| <input checked="" type="checkbox"/> Landfill cover/containment<br><input type="checkbox"/> Access controls<br><input checked="" type="checkbox"/> Institutional controls<br><input type="checkbox"/> Groundwater pump and treatment<br><input type="checkbox"/> Surface water collection and treatment<br><input checked="" type="checkbox"/> Other <u>Passive gas management</u>  | <input type="checkbox"/> Monitored natural attenuation<br><input type="checkbox"/> Groundwater containment<br><input type="checkbox"/> Vertical barrier walls |   |   |      |   |  |  |   |  |  |
| Attachments: <input type="checkbox"/> Inspection team roster attached <input checked="" type="checkbox"/> Site map attached  |   |   |   |      |   |  |  |   |  |  |
| II. INTERVIEWS (Check all that apply)  |   |   |   |      |   |  |  |   |  |  |
| 1. O&M site manager <u>NA</u> <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td style="width: 40%; text-align: center;">Name</td> <td style="width: 20%; text-align: center;">Title</td> <td style="width: 40%; text-align: center;">Date</td> </tr> <tr> <td colspan="3">               Interviewed <input type="checkbox"/> at site   <input type="checkbox"/> at office   <input type="checkbox"/> by phone   Phone no. _____             </td> </tr> <tr> <td colspan="3">               Problems, suggestions; <input type="checkbox"/> Report attached _____             </td> </tr> </table>   |   | Name  | Title   | Date | Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____ |  |  | Problems, suggestions; <input type="checkbox"/> Report attached _____ |  |  |
| Name   | Title   | Date  |   |      |   |  |  |   |  |  |
| Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____  |   |   |   |      |   |  |  |   |  |  |
| Problems, suggestions; <input type="checkbox"/> Report attached _____  |   |   |   |      |   |  |  |   |  |  |
| 2. O&M staff <u>NA</u> <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td style="width: 40%; text-align: center;">Name</td> <td style="width: 20%; text-align: center;">Title</td> <td style="width: 40%; text-align: center;">Date</td> </tr> <tr> <td colspan="3">               Interviewed <input type="checkbox"/> at site   <input type="checkbox"/> at office   <input type="checkbox"/> by phone   Phone no. _____             </td> </tr> <tr> <td colspan="3">               Problems, suggestions; <input type="checkbox"/> Report attached _____             </td> </tr> </table>  |   | Name  | Title   | Date | Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____ |  |  | Problems, suggestions; <input type="checkbox"/> Report attached _____ |  |  |
| Name   | Title   | Date  |   |      |   |  |  |   |  |  |
| Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____  |   |   |   |      |   |  |  |   |  |  |
| Problems, suggestions; <input type="checkbox"/> Report attached _____  |   |   |   |      |   |  |  |   |  |  |

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency NA  
Contact \_\_\_\_\_  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

4. **Other interviews** (optional)  Report attached.

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| III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply) |   |  |  |
|--|---|--|--|
| 1.   | <b>O&amp;M Documents</b><br><input type="checkbox"/> O&M manual<br><input type="checkbox"/> As-built drawings<br><input type="checkbox"/> Maintenance logs<br>Remarks _____   | <input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date<br><input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A   |
| 2.   | <b>Site-Specific Health and Safety Plan</b><br><input type="checkbox"/> Contingency plan/emergency response plan<br>Remarks _____   | <input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date<br><input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A   |
| 3.   | <b>O&amp;M and OSHA Training Records</b><br>Remarks _____   | <input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date<br><input checked="" type="checkbox"/> N/A   |
| 4.   | <b>Permits and Service Agreements</b><br><input type="checkbox"/> Air discharge permit<br><input type="checkbox"/> Effluent discharge<br><input type="checkbox"/> Waste disposal, POTW<br><input type="checkbox"/> Other permits _____<br>Remarks _____ | <input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date<br><input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A |
| 5.   | <b>Gas Generation Records</b><br>Remarks _____  | <input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date<br><input checked="" type="checkbox"/> N/A   |
| 6.   | <b>Settlement Monument Records</b><br>Remarks _____   | <input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date<br><input checked="" type="checkbox"/> N/A   |
| 7.   | <b>Groundwater Monitoring Records</b><br>Remarks _____  | <input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date<br><input type="checkbox"/> N/A  |
| 8.   | <b>Leachate Extraction Records</b><br>Remarks _____   | <input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date<br><input checked="" type="checkbox"/> N/A   |
| 9.   | <b>Discharge Compliance Records</b><br><input type="checkbox"/> Air<br><input type="checkbox"/> Water (effluent)<br>Remarks _____   | <input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date<br><input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A   |
| 10.  | <b>Daily Access/Security Logs</b><br>Remarks _____  | <input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date<br><input checked="" type="checkbox"/> N/A   |

**IV. O&M COSTS**

**1. O&M Organization**

- State in-house                       Contractor for State  
 PRP in-house                          Contractor for PRP  
 Federal Facility in-house          Contractor for Federal Facility  
 Other \_\_\_\_\_

**2. O&M Cost Records**

- Readily available       Up to date  
 Funding mechanism/agreement in place  
 Original O&M cost estimate \_\_\_\_\_  Breakdown attached

Total annual cost by year for review period if available

|            |          |            |   |
|------------|----------|------------|---|
| From _____ | To _____ | _____      | <input type="checkbox"/> Breakdown attached |
| Date       | Date     | Total cost |   |
| From _____ | To _____ | _____      | <input type="checkbox"/> Breakdown attached |
| Date       | Date     | Total cost |   |
| From _____ | To _____ | _____      | <input type="checkbox"/> Breakdown attached |
| Date       | Date     | Total cost |   |
| From _____ | To _____ | _____      | <input type="checkbox"/> Breakdown attached |
| Date       | Date     | Total cost |   |
| From _____ | To _____ | _____      | <input type="checkbox"/> Breakdown attached |
| Date       | Date     | Total cost |   |

**3. Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**V. ACCESS AND INSTITUTIONAL CONTROLS**     Applicable     N/A

**A. Fencing**

1. **Fencing damaged**             Location shown on site map     Gates secured     N/A  
 Remarks \_\_\_\_\_  
 \_\_\_\_\_

**B. Other Access Restrictions**

1. **Signs and other security measures**             Location shown on site map     N/A  
 Remarks \_\_\_\_\_  
 \_\_\_\_\_

**C. Institutional Controls (ICs)**

**1. Implementation and enforcement**

Site conditions imply ICs not properly implemented  Yes  No  N/A  
Site conditions imply ICs not being fully enforced  Yes  No  N/A

Type of monitoring (e.g., self-reporting, drive by) \_\_\_\_\_

Frequency \_\_\_\_\_

Responsible party/agency \_\_\_\_\_

Contact \_\_\_\_\_

Name Title Date Phone no.

Reporting is up-to-date  Yes  No  N/A

Reports are verified by the lead agency  Yes  No  N/A

Specific requirements in deed or decision documents have been met  Yes  No  N/A

Violations have been reported  Yes  No  N/A

Other problems or suggestions:  Report attached

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

**2. Adequacy**  ICs are adequate  ICs are inadequate  N/A

Remarks \_\_\_\_\_

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

**D. General**

**1. Vandalism/trespassing**  Location shown on site map  No vandalism evident

Remarks \_\_\_\_\_

\_\_\_\_\_

**2. Land use changes on site**  N/A

Remarks \_\_\_\_\_

\_\_\_\_\_

**3. Land use changes off site**  N/A

Remarks \_\_\_\_\_

\_\_\_\_\_

**VI. GENERAL SITE CONDITIONS**

**A. Roads**  Applicable  N/A

**1. Roads damaged**  Location shown on site map  Roads adequate  N/A

Remarks \_\_\_\_\_

\_\_\_\_\_

**B. Other Site Conditions**

Remarks \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VII. LANDFILL COVERS**  Applicable  N/A

**A. Landfill Surface**

1. **Settlement** (Low spots)  Location shown on site map  Settlement not evident  
Areal extent \_\_\_\_\_ Depth \_\_\_\_\_  
Remarks \_\_\_\_\_

2. **Cracks**  Location shown on site map  Cracking not evident  
Lengths \_\_\_\_\_ Widths \_\_\_\_\_ Depths \_\_\_\_\_  
Remarks \_\_\_\_\_

3. **Erosion**  Location shown on site map  Erosion not evident  
Areal extent 50 ft<sup>2</sup> Depth 2'  
Remarks at edge of cap

4. **Holes**  Location shown on site map  Holes not evident  
Areal extent \_\_\_\_\_ Depth \_\_\_\_\_  
Remarks \_\_\_\_\_

5. **Vegetative Cover**  Grass  Cover properly established  No signs of stress  
 Trees/Shrubs (indicate size and locations on a diagram)  
Remarks \_\_\_\_\_

6. **Alternative Cover (armored rock, concrete, etc.)**  N/A  
Remarks \_\_\_\_\_

7. **Bulges**  Location shown on site map  Bulges not evident  
Areal extent \_\_\_\_\_ Height \_\_\_\_\_  
Remarks \_\_\_\_\_

8. **Wet Areas/Water Damage**  Wet areas/water damage not evident  
 Wet areas  Location shown on site map Areal extent \_\_\_\_\_  
 Ponding  Location shown on site map Areal extent \_\_\_\_\_  
 Seeps  Location shown on site map Areal extent \_\_\_\_\_  
 Soft subgrade  Location shown on site map Areal extent \_\_\_\_\_  
Remarks \_\_\_\_\_

|  |                             |   |  |  |
|--|-----------------------------|---|--|--|
| 9.   | <b>Slope Instability</b>    | <input type="checkbox"/> Slides                     | <input type="checkbox"/> Location shown on site map            | <input checked="" type="checkbox"/> No evidence of slope instability |
| Areal extent _____   |                             |   |  |  |
| Remarks _____  |                             |   |  |  |
| <b>B. Benches</b>  |                             |   |  |  |
| <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A  |                             |   |  |  |
| (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)                                   |                             |   |  |  |
| 1.   | <b>Flows Bypass Bench</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                           |  |
| Remarks _____  |                             |   |  |  |
| 2.   | <b>Bench Breached</b>       | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                           |  |
| Remarks _____  |                             |   |  |  |
| 3.   | <b>Bench Overtopped</b>     | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                           |  |
| Remarks _____  |                             |   |  |  |
| <b>C. Letdown Channels</b>   |                             |   |  |  |
| <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A  |                             |   |  |  |
| (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.) |                             |   |  |  |
| 1.   | <b>Settlement</b>           | <input type="checkbox"/> Location shown on site map | <input checked="" type="checkbox"/> No evidence of settlement  |  |
| Areal extent _____    Depth _____  |                             |   |  |  |
| Remarks _____  |                             |   |  |  |
| 2.   | <b>Material Degradation</b> | <input type="checkbox"/> Location shown on site map | <input checked="" type="checkbox"/> No evidence of degradation |  |
| Material type _____    Areal extent _____  |                             |   |  |  |
| Remarks _____  |                             |   |  |  |
| 3.   | <b>Erosion</b>              | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of erosion                |  |
| Areal extent _____    Depth _____  |                             |   |  |  |
| Remarks _____  |                             |   |  |  |

|  |  |   |   |
|--|--|---|---|
| 4.   | <b>Undercutting</b>  | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of undercutting  |
|  | Areal extent _____   | Depth _____   |   |
|  | Remarks _____  |   |   |
| 5.   | <b>Obstructions</b>  | Type _____  | <input type="checkbox"/> No obstructions  |
|  | <input type="checkbox"/> Location shown on site map                    | Areal extent _____                                  |   |
|  | Size _____   |   |   |
|  | Remarks _____  |   |   |
| 6.   | <b>Excessive Vegetative Growth</b>                                     | Type _____  |   |
|  | <input type="checkbox"/> No evidence of excessive growth               |   |   |
|  | <input type="checkbox"/> Vegetation in channels does not obstruct flow |   |   |
|  | <input type="checkbox"/> Location shown on site map                    | Areal extent _____                                  |   |
|  | Remarks _____  |   |   |
| <b>D. Cover Penetrations</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A |  |   |   |
| 1.   | <b>Gas Vents</b>   | <input type="checkbox"/> Active                     | <input checked="" type="checkbox"/> Passive   |
|  | <input type="checkbox"/> Properly secured/locked                       | <input checked="" type="checkbox"/> Functioning     | <input type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition |
|  | <input type="checkbox"/> Evidence of leakage at penetration            | <input type="checkbox"/> Needs Maintenance          |   |
|  | <input type="checkbox"/> N/A   |   |   |
|  | Remarks _____  |   |   |
| 2.   | <b>Gas Monitoring Probes</b>   | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition |
|  | <input checked="" type="checkbox"/> Properly secured/locked            | <input type="checkbox"/> Needs Maintenance          | <input type="checkbox"/> N/A  |
|  | <input type="checkbox"/> Evidence of leakage at penetration            |   |   |
|  | Remarks <u>At Perimeter</u>  |   |   |
| 3.   | <b>Monitoring Wells</b> (within surface area of landfill)              | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition            |
|  | <input type="checkbox"/> Properly secured/locked                       | <input type="checkbox"/> Needs Maintenance          | <input checked="" type="checkbox"/> N/A   |
|  | <input type="checkbox"/> Evidence of leakage at penetration            |   |   |
|  | Remarks <u>wells located outside of cover perimeter</u>                |   |   |
| 4.   | <b>Leachate Extraction Wells</b>                                       | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition            |
|  | <input type="checkbox"/> Properly secured/locked                       | <input type="checkbox"/> Needs Maintenance          | <input checked="" type="checkbox"/> N/A   |
|  | <input type="checkbox"/> Evidence of leakage at penetration            |   |   |
|  | Remarks _____  |   |   |
| 5.   | <b>Settlement Monuments</b>  | <input type="checkbox"/> Located                    | <input type="checkbox"/> Routinely surveyed <input checked="" type="checkbox"/> N/A           |
|  | Remarks _____  |   |   |

|   |  |  |
|---|--|--|
| <b>E. Gas Collection and Treatment</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A  |  |  |
| 1.  | <b>Gas Treatment Facilities</b><br><input type="checkbox"/> Flaring <input type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse<br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br>Remarks _____<br>_____ |  |
| 2.  | <b>Gas Collection Wells, Manifolds and Piping</b><br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br>Remarks _____<br>_____  |  |
| 3.  | <b>Gas Monitoring Facilities</b> (e.g., gas monitoring of adjacent homes or buildings)<br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A<br>Remarks _____<br>_____  |  |
| <b>F. Cover Drainage Layer</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A          |  |  |
| 1.  | <b>Outlet Pipes Inspected</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks _____<br>_____  |  |
| 2.  | <b>Outlet Rock Inspected</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks _____<br>_____   |  |
| <b>G. Detention/Sedimentation Ponds</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A |  |  |
| 1.  | <b>Siltation</b> Areal extent _____      Depth _____ <input type="checkbox"/> N/A<br><input type="checkbox"/> Siltation not evident<br>Remarks _____<br>_____  |  |
| 2.  | <b>Erosion</b> Areal extent _____      Depth _____<br><input type="checkbox"/> Erosion not evident<br>Remarks _____<br>_____   |  |
| 3.  | <b>Outlet Works</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks _____<br>_____  |  |
| 4.  | <b>Dam</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks _____<br>_____   |  |

|  |  |   |  |
|--|--|---|--|
| <b>H. Retaining Walls</b>                      |  | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A          |
| 1.   | <b>Deformations</b>                                      | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Deformation not evident |
|  | Horizontal displacement_____                             | Vertical displacement_____                          |  |
|  | Rotational displacement_____                             |   |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| 2.   | <b>Degradation</b>                                       | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Degradation not evident |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| <b>I. Perimeter Ditches/Off-Site Discharge</b> |  | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A          |
| 1.   | <b>Siltation</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Siltation not evident   |
|  | Areal extent_____  | Depth_____  |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| 2.   | <b>Vegetative Growth</b>                                 | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A                     |
|  | <input type="checkbox"/> Vegetation does not impede flow |   |  |
|  | Areal extent_____  | Type_____   |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| 3.   | <b>Erosion</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Erosion not evident     |
|  | Areal extent_____  | Depth_____  |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| 4.   | <b>Discharge Structure</b>                               | <input type="checkbox"/> Functioning                | <input type="checkbox"/> N/A                     |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| <b>VIII. VERTICAL BARRIER WALLS</b>            |  | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A          |
| 1.   | <b>Settlement</b>  | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Settlement not evident  |
|  | Areal extent_____  | Depth_____  |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| 2.   | <b>Performance Monitoring</b>                            | Type of monitoring_____                             |  |
|  | G Performance not monitored                              |   |  |
|  | Frequency_____   | <input type="checkbox"/> Evidence of breaching      |  |
|  | Head differential_____                                   |   |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |

|                            |   |                                     |   |
|----------------------------|---|-------------------------------------|---|
| <b>C. Treatment System</b> |   | <input type="checkbox"/> Applicable | <input checked="" type="checkbox"/> N/A |
| 1.                         | <b>Treatment Train</b> (Check components that apply)<br><input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation<br><input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers<br><input type="checkbox"/> Filters _____<br><input type="checkbox"/> Additive (e.g., chelation agent, flocculent) _____<br><input type="checkbox"/> Others _____<br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br><input type="checkbox"/> Sampling ports properly marked and functional<br><input type="checkbox"/> Sampling/maintenance log displayed and up to date<br><input type="checkbox"/> Equipment properly identified<br><input type="checkbox"/> Quantity of groundwater treated annually _____<br><input type="checkbox"/> Quantity of surface water treated annually _____<br>Remarks _____<br>_____ |                                     |   |
| 2.                         | <b>Electrical Enclosures and Panels</b> (properly rated and functional)<br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br>Remarks _____<br>_____  |                                     |   |
| 3.                         | <b>Tanks, Vaults, Storage Vessels</b><br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance<br>Remarks _____<br>_____  |                                     |   |
| 4.                         | <b>Discharge Structure and Appurtenances</b><br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br>Remarks _____<br>_____   |                                     |   |
| 5.                         | <b>Treatment Building(s)</b><br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair<br><input type="checkbox"/> Chemicals and equipment properly stored<br>Remarks _____<br>_____   |                                     |   |
| 6.                         | <b>Monitoring Wells</b> (pump and treatment remedy)<br><input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition<br><input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A<br>Remarks _____<br>_____  |                                     |   |
| <b>D. Monitoring Data</b>  |   |                                     |   |
| 1.                         | Monitoring Data<br><input type="checkbox"/> Is routinely submitted on time <input type="checkbox"/> Is of acceptable quality  |                                     |   |
| 2.                         | Monitoring data suggests:<br><input type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining  |                                     |   |

**D. Monitored Natural Attenuation**

1. **Monitoring Wells** (natural attenuation remedy)

- Properly secured/locked       Functioning     Routinely sampled     Good condition  
 All required wells located     Needs Maintenance     N/A

Remarks monitoring scheduled to begin in 2011

**X. OTHER REMEDIES**

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

**XI. OVERALL OBSERVATIONS**

**A. Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The remedy is designed to prevent direct contact with waste/soil, minimize infiltration and prevent erosion by canals on south and west sides.

The remedy appears to be effective and operating as designed

**B. Adequacy of O&M**

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

At this time the vegetation layer to prevent erosion has not been established, The RAC is planning to install sod.

**C. Early Indicators of Potential Remedy Problems**

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

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**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

NA

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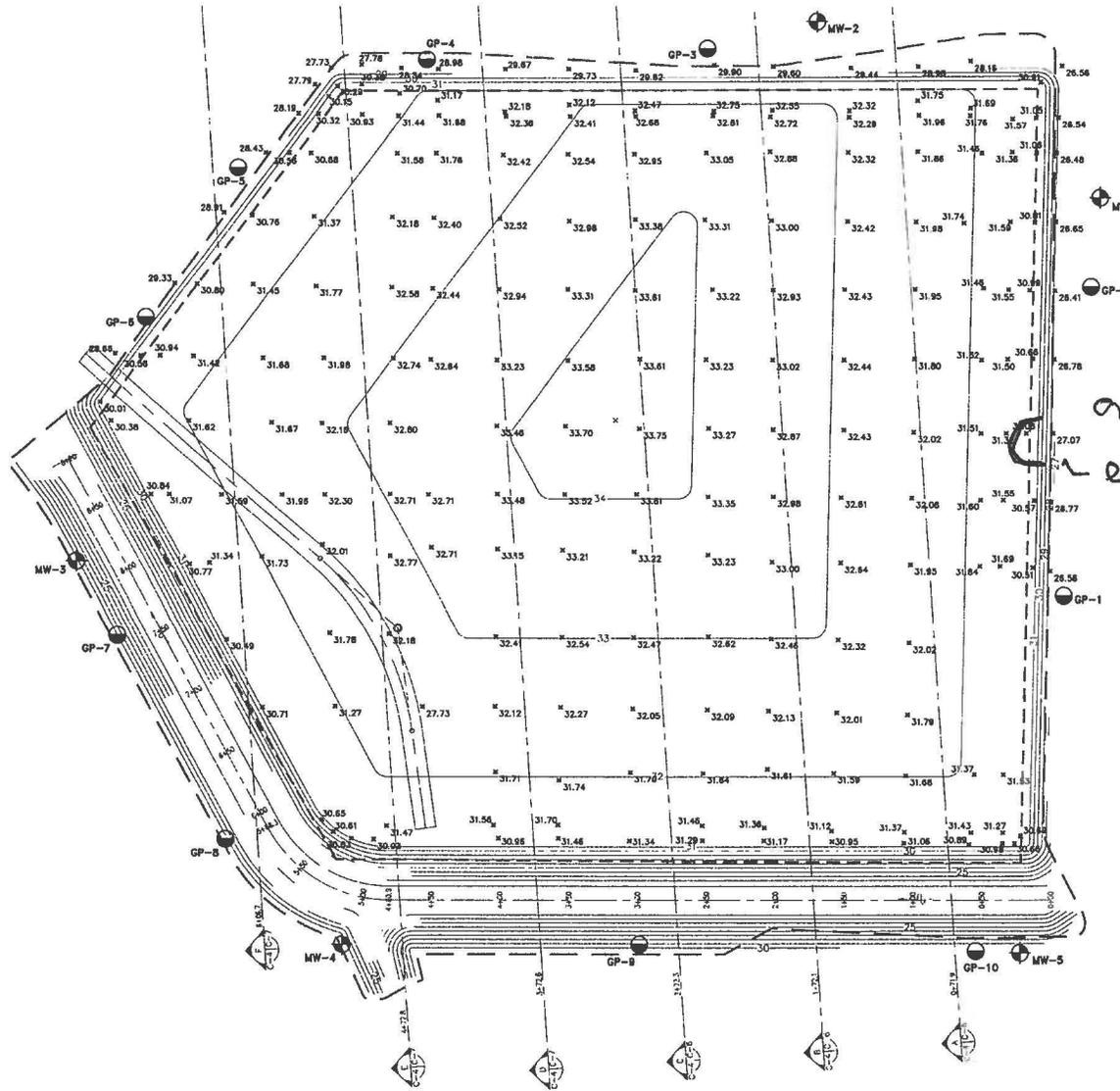
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| INTERVIEW RECORD   |                               |   |
|--|-------------------------------|---|
| Site Name: <u>Site 5NCBC Gulfport</u>  |                               | EPA ID No.: <u>NA</u>   |
| Subject: <u>Site Use</u>   |                               | Time: <u>0930</u> Date: <u>9/29/00</u>                              |
| Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other  |                               | <input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing |
| Location of Visit:   |                               |   |
| Contact Made By:   |                               |   |
| Name: <u>W.D. Olson</u>  | Title: <u>Geologist</u>       | Organization: <u>T+NOS</u>  |
| Individual Contacted:  |                               |   |
| Name: <u>Chad Baldwin</u>  | Title: <u>Operations Mgr.</u> | Organization: <u>MWR</u>  |
| Telephone No:  | Street Address:               |   |
| Fax No:  | City, State, Zip:             |   |
| E-Mail Address:  |                               |   |
| Summary Of Conversation  |                               |   |
| <p>Grass issues - vegetation layer not established, leading to erosion of conf.</p> <p>Pilings for ball nets installed outside of the LAF perimeter</p> <p>Signs in place on perimeter</p> <p>Operations at site limited to grass mowing and ball retrieval</p> <p>Gas vent pipes noticeable, but have not been damaged.</p> |                               |   |

# AS-BUILT FINAL GRADES FOR SITE 5 - HEAVY EQUIPMENT TRAINING AREA NAVAL CONSTRUCTION BATTALION CENTER GULFPORT GULFPORT, MISSISSIPPI



- MONITORING WELLS**
- MW-1 CONCRETE PAD ELEV=28.26'  
TOP OF VALVE ELEV=30.38'  
TOP OF BOX ELEV=30.87'
  - MW-2 CONCRETE PAD ELEV=29.54'  
TOP OF VALVE ELEV=31.65'  
TOP OF BOX ELEV=32.19'
  - MW-3 CONCRETE PAD ELEV=27.10'  
TOP OF VALVE ELEV=29.21'  
TOP OF BOX ELEV=29.83'
  - MW-4 CONCRETE PAD ELEV=28.14'  
TOP OF VALVE ELEV=30.23'  
TOP OF BOX ELEV=30.72'
  - MW-5 CONCRETE PAD ELEV=29.08'  
TOP OF VALVE ELEV=31.20'  
TOP OF BOX ELEV=31.71'
- GAS PROBES**
- GP-1 ELEV=26.94'
  - GP-2 ELEV=27.89'
  - GP-3 ELEV=29.96'
  - GP-4 ELEV=28.61'
  - GP-5 ELEV=28.77'
  - GP-6 ELEV=29.38'
  - GP-7 ELEV=26.88'
  - GP-8 ELEV=27.24'
  - GP-9 ELEV=27.59'
  - GP-10 ELEV=29.27'

- SURVEYOR'S NOTES:**
1. Published National Geodetic Survey Benchmarks "Gulfport Reef" and "S 181" were the benchmarks used to establish Mississippi State Plane NAD (83) coordinates (East Zone-2301) and NAVD '88 elevations.
  2. The contours shown are the proposed final grade.
  3. Copies of this plot without an original signature and seal in blue ink are not valid. Any alteration of this plot, in whole or in part, without prior written permission of Knesel Engineering Services, Inc. is prohibited.
  4. All units shown are in U.S. Survey Feet.

CONTROL POINT NO. 1090  
 N=317438.250  
 E=888514.720  
 Z=27.50  
 COMBINED FACTOR=0.999959171  
 CONVERGENCE ANGLE=0°09'12.59542"



Robert J. Colter, P.E.  
 Field Surveyed July 17, 2009



| <b>INTERVIEW RECORD</b>   |   |  |
|---|---|--|
| Site Name: <u>NCRC Gulfport 3</u>   |   | EPA ID No.:                            |
| Subject: <u>Sites 5/6/8/10</u>  |   | Time: <u>0800</u> Date: <u>9-29/10</u> |
| Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other   | <input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing |  |
| Location of Visit:  |   |  |
| <b>Contact Made By:</b>   |   |  |
| Name: <u>W.D. Olson</u>   | Title: <u>Geologist</u>   | Organization: <u>T+NUS</u>             |
| <b>Individual Contacted:</b>  |   |  |
| Name: <u>Gordon Crane</u>   | Title: <u>IR Coordinator</u>  | Organization: <u>NCRC GFI</u>          |
| Telephone No:   | Street Address:   |  |
| Fax No:   | City, State, Zip:   |  |
| E-Mail Address:   |   |  |
| <b>Summary Of Conversation</b>  |   |  |
| <p>Mr. Crane is familiar with the remedies for sites 5/6/8/10,</p> <p>Has no knowledge that the remedies have been disturbed)</p> <p>LUCs are not in the base master plan yet, therefore no LUC inspections to date</p> |   |  |

## Site Inspection Checklist

| I. SITE INFORMATION   |  |  |  |      |   |  |  |   |  |  |
|---|--|--|--|------|---|--|--|---|--|--|
| Site name: <u>Site 6</u>  | Date of inspection: <u>9-29-10</u>   |  |  |      |   |  |  |   |  |  |
| Location and Region: <u>NCRC GOLFOAK</u>  | EPA ID: <u>ND</u>  |  |  |      |   |  |  |   |  |  |
| Agency, office, or company leading the five-year review: <u>NAVRAC SE</u>   | Weather/temperature: <u>80° Sunny</u>  |  |  |      |   |  |  |   |  |  |
| <b>Remedy Includes:</b> (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Landfill cover/containment<br/> <input type="checkbox"/> Access controls<br/> <input type="checkbox"/> Institutional controls<br/> <input type="checkbox"/> Groundwater pump and treatment<br/> <input type="checkbox"/> Surface water collection and treatment<br/> <input type="checkbox"/> Other _____             </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Monitored natural attenuation<br/> <input type="checkbox"/> Groundwater containment<br/> <input type="checkbox"/> Vertical barrier walls             </td> </tr> </table> |  | <input type="checkbox"/> Landfill cover/containment<br><input type="checkbox"/> Access controls<br><input type="checkbox"/> Institutional controls<br><input type="checkbox"/> Groundwater pump and treatment<br><input type="checkbox"/> Surface water collection and treatment<br><input type="checkbox"/> Other _____ | <input checked="" type="checkbox"/> Monitored natural attenuation<br><input type="checkbox"/> Groundwater containment<br><input type="checkbox"/> Vertical barrier walls |      |   |  |  |   |  |  |
| <input type="checkbox"/> Landfill cover/containment<br><input type="checkbox"/> Access controls<br><input type="checkbox"/> Institutional controls<br><input type="checkbox"/> Groundwater pump and treatment<br><input type="checkbox"/> Surface water collection and treatment<br><input type="checkbox"/> Other _____  | <input checked="" type="checkbox"/> Monitored natural attenuation<br><input type="checkbox"/> Groundwater containment<br><input type="checkbox"/> Vertical barrier walls |  |  |      |   |  |  |   |  |  |
| <b>Attachments:</b> <input type="checkbox"/> Inspection team roster attached <input checked="" type="checkbox"/> Site map attached  |  |  |  |      |   |  |  |   |  |  |
| II. INTERVIEWS (Check all that apply)   |  |  |  |      |   |  |  |   |  |  |
| 1. O&M site manager <u>NA</u> <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td style="width: 40%; text-align: center;">Name</td> <td style="width: 20%; text-align: center;">Title</td> <td style="width: 40%; text-align: center;">Date</td> </tr> <tr> <td colspan="3">               Interviewed <input type="checkbox"/> at site   <input type="checkbox"/> at office   <input type="checkbox"/> by phone   Phone no. _____             </td> </tr> <tr> <td colspan="3">               Problems, suggestions; <input type="checkbox"/> Report attached _____             </td> </tr> </table>  |  | Name   | Title  | Date | Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____ |  |  | Problems, suggestions; <input type="checkbox"/> Report attached _____ |  |  |
| Name  | Title  | Date   |  |      |   |  |  |   |  |  |
| Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____   |  |  |  |      |   |  |  |   |  |  |
| Problems, suggestions; <input type="checkbox"/> Report attached _____   |  |  |  |      |   |  |  |   |  |  |
| 2. O&M staff <u>NA</u> <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td style="width: 40%; text-align: center;">Name</td> <td style="width: 20%; text-align: center;">Title</td> <td style="width: 40%; text-align: center;">Date</td> </tr> <tr> <td colspan="3">               Interviewed <input type="checkbox"/> at site   <input type="checkbox"/> at office   <input type="checkbox"/> by phone   Phone no. _____             </td> </tr> <tr> <td colspan="3">               Problems, suggestions; <input type="checkbox"/> Report attached _____             </td> </tr> </table>   |  | Name   | Title  | Date | Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____ |  |  | Problems, suggestions; <input type="checkbox"/> Report attached _____ |  |  |
| Name  | Title  | Date   |  |      |   |  |  |   |  |  |
| Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____   |  |  |  |      |   |  |  |   |  |  |
| Problems, suggestions; <input type="checkbox"/> Report attached _____   |  |  |  |      |   |  |  |   |  |  |

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency WVA  
Contact \_\_\_\_\_  
Name \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_ Phone no. \_\_\_\_\_  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_ Phone no. \_\_\_\_\_  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_ Phone no. \_\_\_\_\_  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_ Phone no. \_\_\_\_\_  
Problems; suggestions;  Report attached \_\_\_\_\_

4. **Other interviews** (optional)  Report attached.

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**III. ON-SITE DOCUMENTS & RECORDS VERIFIED** (Check all that apply)

|     |   |  |  |  |
|-----|---|--|--|--|
| 1.  | <b>O&amp;M Documents</b><br><input type="checkbox"/> O&M manual<br><input type="checkbox"/> As-built drawings<br><input type="checkbox"/> Maintenance logs<br>Remarks _____   | <input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date  | <input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A  |
| 2.  | <b>Site-Specific Health and Safety Plan</b><br><input type="checkbox"/> Contingency plan/emergency response plan<br>Remarks _____   | <input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available   | <input checked="" type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date  | <input type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A  |
| 3.  | <b>O&amp;M and OSHA Training Records</b><br>Remarks _____   | <input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date  | <input checked="" type="checkbox"/> N/A  |
| 4.  | <b>Permits and Service Agreements</b><br><input type="checkbox"/> Air discharge permit<br><input type="checkbox"/> Effluent discharge<br><input type="checkbox"/> Waste disposal, POTW<br><input type="checkbox"/> Other permits _____<br>Remarks _____ | <input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A |
| 5.  | <b>Gas Generation Records</b><br>Remarks _____  | <input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date  | <input checked="" type="checkbox"/> N/A  |
| 6.  | <b>Settlement Monument Records</b><br>Remarks _____   | <input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date  | <input checked="" type="checkbox"/> N/A  |
| 7.  | <b>Groundwater Monitoring Records</b><br>Remarks _____  | <input type="checkbox"/> Readily available   | <input checked="" type="checkbox"/> Up to date   | <input type="checkbox"/> N/A   |
| 8.  | <b>Leachate Extraction Records</b><br>Remarks _____   | <input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date  | <input checked="" type="checkbox"/> N/A  |
| 9.  | <b>Discharge Compliance Records</b><br><input type="checkbox"/> Air<br><input type="checkbox"/> Water (effluent)<br>Remarks _____   | <input type="checkbox"/> Readily available<br><input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date<br><input type="checkbox"/> Up to date   | <input checked="" type="checkbox"/> N/A<br><input checked="" type="checkbox"/> N/A   |
| 10. | <b>Daily Access/Security Logs</b><br>Remarks _____  | <input type="checkbox"/> Readily available   | <input type="checkbox"/> Up to date  | <input checked="" type="checkbox"/> N/A  |





**B. Other Site Conditions**

Remarks \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VII. LANDFILL COVERS**    Applicable    N/A

**A. Landfill Surface**

1.     **Settlement** (Low spots)             Location shown on site map     Settlement not evident  
Areal extent \_\_\_\_\_            Depth \_\_\_\_\_  
Remarks \_\_\_\_\_  
\_\_\_\_\_

2.     **Cracks**                                     Location shown on site map     Cracking not evident  
Lengths \_\_\_\_\_    Widths \_\_\_\_\_    Depths \_\_\_\_\_  
Remarks \_\_\_\_\_  
\_\_\_\_\_

3.     **Erosion**                                     Location shown on site map     Erosion not evident  
Areal extent \_\_\_\_\_            Depth \_\_\_\_\_  
Remarks \_\_\_\_\_  
\_\_\_\_\_

4.     **Holes**                                     Location shown on site map     Holes not evident  
Areal extent \_\_\_\_\_            Depth \_\_\_\_\_  
Remarks \_\_\_\_\_  
\_\_\_\_\_

5.     **Vegetative Cover**             Grass             Cover properly established     No signs of stress  
 Trees/Shrubs (indicate size and locations on a diagram)  
Remarks \_\_\_\_\_  
\_\_\_\_\_

6.     **Alternative Cover (armored rock, concrete, etc.)**     N/A  
Remarks \_\_\_\_\_  
\_\_\_\_\_

7.     **Bulges**                                     Location shown on site map     Bulges not evident  
Areal extent \_\_\_\_\_            Height \_\_\_\_\_  
Remarks \_\_\_\_\_  
\_\_\_\_\_

8.     **Wet Areas/Water Damage**             Wet areas/water damage not evident  
 Wet areas                                     Location shown on site map    Areal extent \_\_\_\_\_  
 Ponding                                     Location shown on site map    Areal extent \_\_\_\_\_  
 Seeps                                         Location shown on site map    Areal extent \_\_\_\_\_  
 Soft subgrade                             Location shown on site map    Areal extent \_\_\_\_\_  
Remarks \_\_\_\_\_  
\_\_\_\_\_

|  |                                     |   |   |   |
|--|-------------------------------------|---|---|---|
| 9.   | <b>Slope Instability</b>            | <input type="checkbox"/> Slides                     | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of slope instability |
|  | Areal extent _____                  |   |   |   |
|  | Remarks _____                       |   |   |   |
| <b>B. Benches</b>  |                                     |   |   |   |
|  | <input type="checkbox"/> Applicable | <input checked="" type="checkbox"/> N/A             |   |   |
| (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)                                   |                                     |   |   |   |
| 1.   | <b>Flows Bypass Bench</b>           | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                |   |
|  | Remarks _____                       |   |   |   |
| 2.   | <b>Bench Breached</b>               | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                |   |
|  | Remarks _____                       |   |   |   |
| 3.   | <b>Bench Overtopped</b>             | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                |   |
|  | Remarks _____                       |   |   |   |
| <b>C. Letdown Channels</b>   |                                     |   |   |   |
|  | <input type="checkbox"/> Applicable | <input checked="" type="checkbox"/> N/A             |   |   |
| (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.) |                                     |   |   |   |
| 1.   | <b>Settlement</b>                   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of settlement  |   |
|  | Areal extent _____                  | Depth _____   |   |   |
|  | Remarks _____                       |   |   |   |
| 2.   | <b>Material Degradation</b>         | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of degradation |   |
|  | Material type _____                 | Areal extent _____                                  |   |   |
|  | Remarks _____                       |   |   |   |
| 3.   | <b>Erosion</b>                      | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of erosion     |   |
|  | Areal extent _____                  | Depth _____   |   |   |
|  | Remarks _____                       |   |   |   |

|  |   |   |   |
|--|---|---|---|
| 4.   | <b>Undercutting</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of undercutting                                |
|  | Areal extent _____  | Depth _____   |   |
|  | Remarks _____   |   |   |
|  |   |   |   |
| 5.   | <b>Obstructions</b> Type _____  | <input type="checkbox"/> No obstructions            |   |
|  | <input type="checkbox"/> Location shown on site map                               | Areal extent _____                                  |   |
|  | Size _____  |   |   |
|  | Remarks _____   |   |   |
|  |   |   |   |
| 6.   | <b>Excessive Vegetative Growth</b> Type _____                                     |   |   |
|  | <input type="checkbox"/> No evidence of excessive growth                          |   |   |
|  | <input type="checkbox"/> Vegetation in channels does not obstruct flow            |   |   |
|  | <input type="checkbox"/> Location shown on site map                               | Areal extent _____                                  |   |
|  | Remarks _____   |   |   |
|  |   |   |   |
| <b>D. Cover Penetrations</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A |   |   |   |
|  |   |   |   |
| 1.   | <b>Gas Vents</b> <input type="checkbox"/> Active <input type="checkbox"/> Passive |   |   |
|  | <input type="checkbox"/> Properly secured/locked                                  | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition  |
|  | <input type="checkbox"/> Evidence of leakage at penetration                       | <input type="checkbox"/> Needs Maintenance          |   |
|  | <input type="checkbox"/> N/A  |   |   |
|  | Remarks _____   |   |   |
|  |   |   |   |
| 2.   | <b>Gas Monitoring Probes</b>  |   |   |
|  | <input type="checkbox"/> Properly secured/locked                                  | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition  |
|  | <input type="checkbox"/> Evidence of leakage at penetration                       | <input type="checkbox"/> Needs Maintenance          | <input checked="" type="checkbox"/> N/A   |
|  | Remarks _____   |   |   |
|  |   |   |   |
| 3.   | <b>Monitoring Wells</b> (within surface area of landfill)                         |   |   |
|  | <input type="checkbox"/> Properly secured/locked                                  | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition  |
|  | <input type="checkbox"/> Evidence of leakage at penetration                       | <input type="checkbox"/> Needs Maintenance          | <input checked="" type="checkbox"/> N/A   |
|  | Remarks _____   |   |   |
|  |   |   |   |
| 4.   | <b>Leachate Extraction Wells</b>  |   |   |
|  | <input type="checkbox"/> Properly secured/locked                                  | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition  |
|  | <input type="checkbox"/> Evidence of leakage at penetration                       | <input type="checkbox"/> Needs Maintenance          | <input checked="" type="checkbox"/> N/A   |
|  | Remarks _____   |   |   |
|  |   |   |   |
| 5.   | <b>Settlement Monuments</b>   | <input type="checkbox"/> Located                    | <input type="checkbox"/> Routinely surveyed <input checked="" type="checkbox"/> N/A |
|  | Remarks _____   |   |   |
|  |   |   |   |

|   |  |  |  |   |
|---|--|--|--|---|
| <b>E. Gas Collection and Treatment</b>  |  |  | <input type="checkbox"/> Applicable          | <input checked="" type="checkbox"/> N/A       |
| 1.                                      | <b>Gas Treatment Facilities</b>  | <input type="checkbox"/> Flaring           | <input type="checkbox"/> Thermal destruction | <input type="checkbox"/> Collection for reuse |
|   | <input type="checkbox"/> Good condition  | <input type="checkbox"/> Needs Maintenance |  |   |
|   | Remarks _____  |  |  |   |
| 2.                                      | <b>Gas Collection Wells, Manifolds and Piping</b>                                      | <input type="checkbox"/> Good condition    | <input type="checkbox"/> Needs Maintenance   |   |
|   | Remarks _____  |  |  |   |
| 3.                                      | <b>Gas Monitoring Facilities</b> (e.g., gas monitoring of adjacent homes or buildings) | <input type="checkbox"/> Good condition    | <input type="checkbox"/> Needs Maintenance   | <input type="checkbox"/> N/A                  |
|   | Remarks _____  |  |  |   |
| <b>F. Cover Drainage Layer</b>          |  |  | <input type="checkbox"/> Applicable          | <input checked="" type="checkbox"/> N/A       |
| 1.                                      | <b>Outlet Pipes Inspected</b>  | <input type="checkbox"/> Functioning       | <input checked="" type="checkbox"/> N/A      |   |
|   | Remarks _____  |  |  |   |
| 2.                                      | <b>Outlet Rock Inspected</b>   | <input type="checkbox"/> Functioning       | <input checked="" type="checkbox"/> N/A      |   |
|   | Remarks _____  |  |  |   |
| <b>G. Detention/Sedimentation Ponds</b> |  |  | <input type="checkbox"/> Applicable          | <input type="checkbox"/> N/A                  |
| 1.                                      | <b>Siltation</b> Areal extent _____  | Depth _____                                | <input checked="" type="checkbox"/> N/A      |   |
|   | <input type="checkbox"/> Siltation not evident   |  |  |   |
|   | Remarks _____  |  |  |   |
| 2.                                      | <b>Erosion</b> Areal extent _____  | Depth _____                                |  |   |
|   | <input type="checkbox"/> Erosion not evident   |  |  |   |
|   | Remarks _____  |  |  |   |
| 3.                                      | <b>Outlet Works</b>  | <input type="checkbox"/> Functioning       | <input checked="" type="checkbox"/> N/A      |   |
|   | Remarks _____  |  |  |   |
| 4.                                      | <b>Dam</b>   | <input type="checkbox"/> Functioning       | <input checked="" type="checkbox"/> N/A      |   |
|   | Remarks _____  |  |  |   |

|  |  |   |  |
|--|--|---|--|
| <b>H. Retaining Walls</b>                      |  | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A          |
| 1.   | <b>Deformations</b>                                      | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Deformation not evident |
|  | Horizontal displacement_____                             | Vertical displacement_____                          |  |
|  | Rotational displacement_____                             |   |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| 2.   | <b>Degradation</b>                                       | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Degradation not evident |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| <b>I. Perimeter Ditches/Off-Site Discharge</b> |  | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A          |
| 1.   | <b>Siltation</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Siltation not evident   |
|  | Areal extent_____  | Depth_____  |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| 2.   | <b>Vegetative Growth</b>                                 | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A                     |
|  | <input type="checkbox"/> Vegetation does not impede flow |   |  |
|  | Areal extent_____  | Type_____   |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| 3.   | <b>Erosion</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Erosion not evident     |
|  | Areal extent_____  | Depth_____  |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| 4.   | <b>Discharge Structure</b>                               | <input type="checkbox"/> Functioning                | <input type="checkbox"/> N/A                     |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| <b>VIII. VERTICAL BARRIER WALLS</b>            |  | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A          |
| 1.   | <b>Settlement</b>  | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Settlement not evident  |
|  | Areal extent_____  | Depth_____  |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |
| 2.   | <b>Performance Monitoring</b>                            | Type of monitoring_____                             |  |
|  | G Performance not monitored                              |   |  |
|  | Frequency_____   | <input type="checkbox"/> Evidence of breaching      |  |
|  | Head differential_____                                   |   |  |
|  | Remarks_____   |   |  |
|  | _____  |   |  |

|                            |  |  |  |
|----------------------------|--|--|--|
| <b>C. Treatment System</b> |  | <input type="checkbox"/> Applicable  | <input checked="" type="checkbox"/> N/A  |
| 1.                         | <b>Treatment Train</b> (Check components that apply)                           |  |  |
|                            | <input type="checkbox"/> Metals removal  | <input type="checkbox"/> Oil/water separation                                | <input type="checkbox"/> Bioremediation  |
|                            | <input type="checkbox"/> Air stripping   | <input type="checkbox"/> Carbon adsorbers                                    |  |
|                            | <input type="checkbox"/> Filters _____   |  |  |
|                            | <input type="checkbox"/> Additive (e.g., chelation agent, flocculent) _____    |  |  |
|                            | <input type="checkbox"/> Others _____  |  |  |
|                            | <input type="checkbox"/> Good condition  | <input type="checkbox"/> Needs Maintenance                                   |  |
|                            | <input type="checkbox"/> Sampling ports properly marked and functional         |  |  |
|                            | <input type="checkbox"/> Sampling/maintenance log displayed and up to date     |  |  |
|                            | <input type="checkbox"/> Equipment properly identified                         |  |  |
|                            | <input type="checkbox"/> Quantity of groundwater treated annually _____        |  |  |
|                            | <input type="checkbox"/> Quantity of surface water treated annually _____      |  |  |
|                            | Remarks _____  |  |  |
|                            | _____  |  |  |
| 2.                         | <b>Electrical Enclosures and Panels</b> (properly rated and functional)        |  |  |
|                            | <input type="checkbox"/> N/A   | <input type="checkbox"/> Good condition                                      | <input type="checkbox"/> Needs Maintenance   |
|                            | Remarks _____  |  |  |
|                            | _____  |  |  |
| 3.                         | <b>Tanks, Vaults, Storage Vessels</b>  |  |  |
|                            | <input type="checkbox"/> N/A   | <input type="checkbox"/> Good condition                                      | <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance |
|                            | Remarks _____  |  |  |
|                            | _____  |  |  |
| 4.                         | <b>Discharge Structure and Appurtenances</b>                                   |  |  |
|                            | <input type="checkbox"/> N/A   | <input type="checkbox"/> Good condition                                      | <input type="checkbox"/> Needs Maintenance   |
|                            | Remarks _____  |  |  |
|                            | _____  |  |  |
| 5.                         | <b>Treatment Building(s)</b>   |  |  |
|                            | <input type="checkbox"/> N/A   | <input type="checkbox"/> Good condition (esp. roof and doorways)             | <input type="checkbox"/> Needs repair  |
|                            | <input type="checkbox"/> Chemicals and equipment properly stored               |  |  |
|                            | Remarks _____  |  |  |
|                            | _____  |  |  |
| 6.                         | <b>Monitoring Wells</b> (pump and treatment remedy)                            |  |  |
|                            | <input type="checkbox"/> Properly secured/locked                               | <input type="checkbox"/> Functioning   | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition               |
|                            | <input type="checkbox"/> All required wells located                            | <input type="checkbox"/> Needs Maintenance                                   | <input type="checkbox"/> N/A   |
|                            | Remarks _____  |  |  |
|                            | _____  |  |  |
| <b>D. Monitoring Data</b>  |  |  |  |
| 1.                         | <b>Monitoring Data</b>   |  |  |
|                            | <input checked="" type="checkbox"/> Is routinely submitted on time             | <input checked="" type="checkbox"/> Is of acceptable quality                 |  |
| 2.                         | <b>Monitoring data suggests:</b>   |  |  |
|                            | <input checked="" type="checkbox"/> Groundwater plume is effectively contained | <input checked="" type="checkbox"/> Contaminant concentrations are declining |  |

**D. Monitored Natural Attenuation**

1. **Monitoring Wells** (natural attenuation remedy)

- Properly secured/locked       Functioning       Routinely sampled       Good condition  
 All required wells located       Needs Maintenance       N/A

Remarks Lid for ~~well~~ GPT-6-3 is missing, needs locking cap

**X. OTHER REMEDIES**

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

**XI. OVERALL OBSERVATIONS**

**A. Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Remedy @ site 6 is groundwater LTM to monitor plume size and concentration  
7 LTM sampling events conducted to date

**B. Adequacy of O&M**

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

**C. Early Indicators of Potential Remedy Problems**

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

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**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

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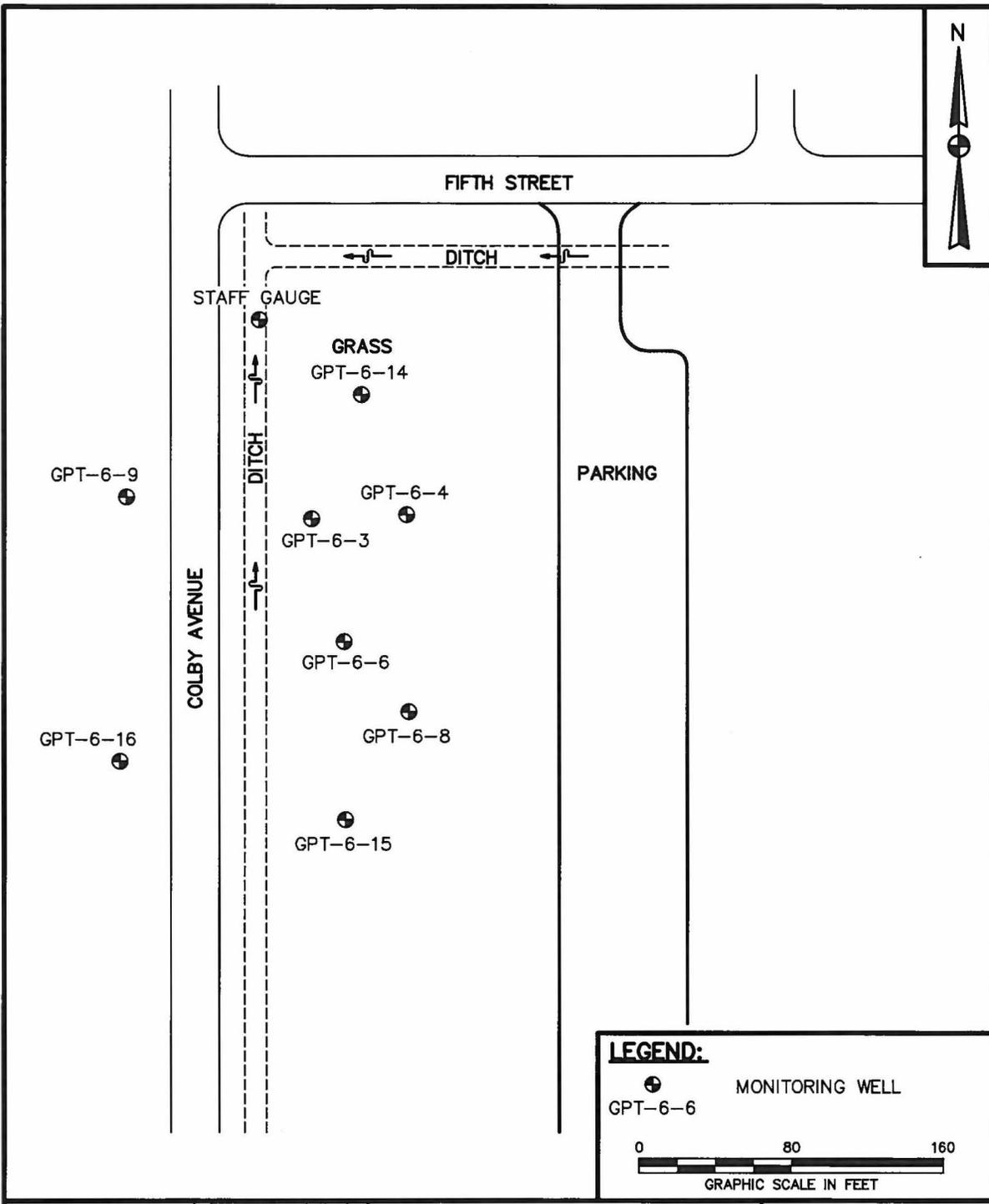
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**LEGEND:**

⊕ MONITORING WELL  
 GPT-6-6

0 80 160  
 GRAPHIC SCALE IN FEET

|                   |                  |
|-------------------|------------------|
| DRAWN BY<br>ND    | DATE<br>11/15/10 |
| CHECKED BY        | DATE             |
| REVISED BY        | DATE             |
| SCALE<br>AS NOTED |                  |



CURRENT SITE FEATURES QUARTERLY  
 GROUNDWATER MONITORING REPORT  
 SITE 6-FIRE FIGHTING TRAINING AREA  
 NCBC GULFPORT  
 GULFPORT, MISSISSIPPI

|                         |           |
|-------------------------|-----------|
| CONTRACT NO.<br>0892    |           |
| OWNER NO.               |           |
| APPROVED BY             | DATE      |
| DRAWING NO.<br>FIGURE 1 | REV.<br>0 |

| <b>INTERVIEW RECORD</b>  |   |  |
|--|---|--|
| Site Name: <u>NEBC Gulfport 2</u>  |   | EPA ID No.:                            |
| Subject: <u>Sites 5/6/8/10</u>   |   | Time: <u>0800</u> Date: <u>9-29/10</u> |
| Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other  | <input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing |  |
| Location of Visit:   |   |  |
| <b>Contact Made By:</b>  |   |  |
| Name: <u>W.D. Olson</u>  | Title: <u>Geologist</u>   | Organization: <u>T+NUS</u>             |
| <b>Individual Contacted:</b>   |   |  |
| Name: <u>Gordon Crane</u>  | Title: <u>IR coordinator</u>  | Organization: <u>NEBC GFI</u>          |
| Telephone No:  | Street Address:   |  |
| Fax No:  | City, State, Zip:   |  |
| E-Mail Address:  |   |  |
| <b>Summary Of Conversation</b>   |   |  |
| <p>Mr. Crane is familiar with the remedies for sites 5/6/8/10.</p> <p>Has no knowledge that the remedies have been disturbed</p> <p>LUCs are not in the base master plan yet, therefore no LUC inspections to date</p> |   |  |

| INTERVIEW RECORD   |                                    |   |
|--|------------------------------------|---|
| Site Name: <u>Site 8B/8C NCBC GPT</u>  |                                    | EPA ID No.: <u>NA</u>   |
| Subject: <u>Site 6 / Site 10</u>   |                                    | Time: <u>08:30</u> Date: <u>9-29/10</u>                             |
| Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other  |                                    | <input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing |
| Location of Visit:   |                                    |   |
| Contact Made By:   |                                    |   |
| Name: <u>W.D. Olson</u>  | Title: <u>geologist</u>            | Organization: <u>T+NOS</u>  |
| Individual Contacted:  |                                    |   |
| Name: <u>Matt Schultz</u>  | Title: <u>Production Div. Dir.</u> | Organization: <u>PWD</u>  |
| Telephone No:  | Street Address:                    |   |
| Fax No:  | City, State, Zip:                  |   |
| E-Mail Address:  |                                    |   |
| Summary Of Conversation  |                                    |   |
| <p>Current signs and fencing at 8B/C are occasionally inspected. Planning to install Jersey Barrier to isolate 8B/C, possibly additional fencing/signs</p> <p>Part of the stabilized soil areas may be paved</p> <p>Site 6 has had no intrusive activity</p> <p>Site 10, no disturbances noted.</p> <p>Maintenance crews are trained on the boundaries of IR sites and allowable activities</p> <p>Construction/maintenance projects are reviewed by PWD Environmental</p> |                                    |   |

## Site Inspection Checklist

| I. SITE INFORMATION   |  |  |  |
|---|--|--|--|
| Site name: <u>Site 8</u>  | Date of inspection: <u>9-29-10</u>   |  |  |
| Location and Region: <u>NCBC Gulfport</u>   | EPA ID: <u>NA</u>  |  |  |
| Agency, office, or company leading the five-year review: <u>NAVFAC SE</u>   | Weather/temperature: <u>80° sunny</u>  |  |  |
| <b>Remedy Includes:</b> (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Landfill cover/containment<br/> <input type="checkbox"/> Access controls<br/> <input checked="" type="checkbox"/> Institutional controls<br/> <input type="checkbox"/> Groundwater pump and treatment<br/> <input type="checkbox"/> Surface water collection and treatment<br/> <input type="checkbox"/> Other _____             </td> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Monitored natural attenuation<br/> <input type="checkbox"/> Groundwater containment<br/> <input type="checkbox"/> Vertical barrier walls             </td> </tr> </table> |  | <input checked="" type="checkbox"/> Landfill cover/containment<br><input type="checkbox"/> Access controls<br><input checked="" type="checkbox"/> Institutional controls<br><input type="checkbox"/> Groundwater pump and treatment<br><input type="checkbox"/> Surface water collection and treatment<br><input type="checkbox"/> Other _____ | <input checked="" type="checkbox"/> Monitored natural attenuation<br><input type="checkbox"/> Groundwater containment<br><input type="checkbox"/> Vertical barrier walls |
| <input checked="" type="checkbox"/> Landfill cover/containment<br><input type="checkbox"/> Access controls<br><input checked="" type="checkbox"/> Institutional controls<br><input type="checkbox"/> Groundwater pump and treatment<br><input type="checkbox"/> Surface water collection and treatment<br><input type="checkbox"/> Other _____  | <input checked="" type="checkbox"/> Monitored natural attenuation<br><input type="checkbox"/> Groundwater containment<br><input type="checkbox"/> Vertical barrier walls |  |  |
| <b>Attachments:</b> <input type="checkbox"/> Inspection team roster attached <input checked="" type="checkbox"/> Site map attached  |  |  |  |
| II. INTERVIEWS (Check all that apply)   |  |  |  |
| 1. O&M site manager <u>NA</u>   |  |  |  |
| Name  | Title  |  |  |
| Date  |  |  |  |
| Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone no. _____  |  |  |  |
| Problems, suggestions; <input type="checkbox"/> Report attached _____   |  |  |  |
| _____   |  |  |  |
| 2. O&M staff <u>NA</u>  |  |  |  |
| Name  | Title  |  |  |
| Date  |  |  |  |
| Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone no. _____  |  |  |  |
| Problems, suggestions; <input type="checkbox"/> Report attached _____   |  |  |  |
| _____   |  |  |  |

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency NA  
 Contact \_\_\_\_\_  
 Name \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_ Phone no. \_\_\_\_\_  
 Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_ Phone no. \_\_\_\_\_  
 Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_ Phone no. \_\_\_\_\_  
 Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_ Phone no. \_\_\_\_\_  
 Problems; suggestions;  Report attached \_\_\_\_\_

4. **Other interviews (optional)**  Report attached.

|  |
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|  |

**III. ON-SITE DOCUMENTS & RECORDS VERIFIED** (Check all that apply)

|       |   |  |                                     |   |
|-------|---|--|-------------------------------------|---|
| 1.    | <b>O&amp;M Documents</b>  |  |                                     |   |
|       | <input type="checkbox"/> O&M manual                               | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | <input type="checkbox"/> As-built drawings                        | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | <input type="checkbox"/> Maintenance logs                         | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | Remarks _____   |  |                                     |   |
| <hr/> |   |  |                                     |   |
| 2.    | <b>Site-Specific Health and Safety Plan</b>                       | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | <input type="checkbox"/> Contingency plan/emergency response plan | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | Remarks _____   |  |                                     |   |
| <hr/> |   |  |                                     |   |
| 3.    | <b>O&amp;M and OSHA Training Records</b>                          | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | Remarks _____   |  |                                     |   |
| <hr/> |   |  |                                     |   |
| 4.    | <b>Permits and Service Agreements</b>                             |  |                                     |   |
|       | <input type="checkbox"/> Air discharge permit                     | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | <input type="checkbox"/> Effluent discharge                       | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | <input type="checkbox"/> Waste disposal, POTW                     | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | <input type="checkbox"/> Other permits _____                      | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | Remarks _____   |  |                                     |   |
| <hr/> |   |  |                                     |   |
| 5.    | <b>Gas Generation Records</b>                                     | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | Remarks _____   |  |                                     |   |
| <hr/> |   |  |                                     |   |
| 6.    | <b>Settlement Monument Records</b>                                | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | Remarks _____   |  |                                     |   |
| <hr/> |   |  |                                     |   |
| 7.    | <b>Groundwater Monitoring Records</b>                             | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | Remarks <i>LTM for GWA and Sediment to begin in 2011</i>          |  |                                     |   |
| <hr/> |   |  |                                     |   |
| 8.    | <b>Leachate Extraction Records</b>                                | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | Remarks _____   |  |                                     |   |
| <hr/> |   |  |                                     |   |
| 9.    | <b>Discharge Compliance Records</b>                               |  |                                     |   |
|       | <input type="checkbox"/> Air                                      | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | <input type="checkbox"/> Water (effluent)                         | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | Remarks _____   |  |                                     |   |
| <hr/> |   |  |                                     |   |
| 10.   | <b>Daily Access/Security Logs</b>                                 | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|       | Remarks _____   |  |                                     |   |
| <hr/> |   |  |                                     |   |



**C. Institutional Controls (ICs)**

**1. Implementation and enforcement**

Site conditions imply ICs not properly implemented  Yes  No  N/A  
 Site conditions imply ICs not being fully enforced  Yes  No  N/A

Type of monitoring (e.g., self-reporting, drive by) \_\_\_\_\_  
 Frequency \_\_\_\_\_  
 Responsible party/agency \_\_\_\_\_  
 Contact \_\_\_\_\_

|      |       |      |           |
|------|-------|------|-----------|
| Name | Title | Date | Phone no. |
|------|-------|------|-----------|

Reporting is up-to-date  Yes  No  N/A  
 Reports are verified by the lead agency  Yes  No  N/A

Specific requirements in deed or decision documents have been met  Yes  No  N/A  
 Violations have been reported  Yes  No  N/A

Other problems or suggestions:  Report attached  
*Non-CEM activities operating tracked vehicles on road*

**2. Adequacy**  ICs are adequate  ICs are inadequate  N/A

Remarks \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**D. General**

**1. Vandalism/trespassing**  Location shown on site map  No vandalism evident

Remarks \_\_\_\_\_  
 \_\_\_\_\_

**2. Land use changes on site**  N/A

Remarks \_\_\_\_\_  
 \_\_\_\_\_

**3. Land use changes off site**  N/A

Remarks \_\_\_\_\_  
 \_\_\_\_\_

**VI. GENERAL SITE CONDITIONS**

**A. Roads**  Applicable  N/A

**1. Roads damaged**  Location shown on site map  Roads adequate  N/A

Remarks \_\_\_\_\_  
 \_\_\_\_\_

**B. Other Site Conditions**

Remarks \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VII. LANDFILL COVERS**    Applicable    N/A

**A. Landfill Surface**

1.   **Settlement** (Low spots)    Location shown on site map    Settlement not evident  
Areal extent \_\_\_\_\_   Depth \_\_\_\_\_  
Remarks \_\_\_\_\_

2.   **Cracks**    Location shown on site map    Cracking not evident  
Lengths \_\_\_\_\_   Widths \_\_\_\_\_   Depths \_\_\_\_\_  
Remarks minor cracks and spalls of concrete

3.   **Erosion**    Location shown on site map    Erosion not evident  
Areal extent \_\_\_\_\_   Depth \_\_\_\_\_  
Remarks \_\_\_\_\_

4.   **Holes**    Location shown on site map    Holes not evident  
Areal extent \_\_\_\_\_   Depth \_\_\_\_\_  
Remarks \_\_\_\_\_

5.   **Vegetative Cover**    Grass    Cover properly established    No signs of stress  
 Trees/Shrubs (indicate size and locations on a diagram)  
Remarks \_\_\_\_\_

6.   **Alternative Cover (armored rock, concrete, etc.)**    N/A  
Remarks perimeter ditches armored with riprap

7.   **Bulges**    Location shown on site map    Bulges not evident  
Areal extent \_\_\_\_\_   Height \_\_\_\_\_  
Remarks \_\_\_\_\_

8.   **Wet Areas/Water Damage**    Wet areas/water damage not evident  
 Wet areas    Location shown on site map   Areal extent \_\_\_\_\_  
 Ponding    Location shown on site map   Areal extent \_\_\_\_\_  
 Seeps    Location shown on site map   Areal extent \_\_\_\_\_  
 Soft subgrade    Location shown on site map   Areal extent \_\_\_\_\_  
Remarks \_\_\_\_\_

|  |                             |   |   |  |
|--|-----------------------------|---|---|--|
| 9.   | <b>Slope Instability</b>    | <input type="checkbox"/> Slides                     | <input type="checkbox"/> Location shown on site map | <input checked="" type="checkbox"/> No evidence of slope instability |
| Areal extent _____   |                             |   |   |  |
| Remarks _____  |                             |   |   |  |
| <b>B. Benches</b>  |                             |   |   |  |
| <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A  |                             |   |   |  |
| (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)                                   |                             |   |   |  |
| 1.   | <b>Flows Bypass Bench</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                |  |
| Remarks _____  |                             |   |   |  |
| 2.   | <b>Bench Breached</b>       | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                |  |
| Remarks _____  |                             |   |   |  |
| 3.   | <b>Bench Overtopped</b>     | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                |  |
| Remarks _____  |                             |   |   |  |
| <b>C. Letdown Channels</b>   |                             |   |   |  |
| <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A  |                             |   |   |  |
| (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.) |                             |   |   |  |
| 1.   | <b>Settlement</b>           | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of settlement  |  |
| Areal extent _____ Depth _____   |                             |   |   |  |
| Remarks _____  |                             |   |   |  |
| 2.   | <b>Material Degradation</b> | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of degradation |  |
| Material type _____ Areal extent _____   |                             |   |   |  |
| Remarks _____  |                             |   |   |  |
| 3.   | <b>Erosion</b>              | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of erosion     |  |
| Areal extent _____ Depth _____   |                             |   |   |  |
| Remarks _____  |                             |   |   |  |

|  |   |   |  |
|--|---|---|--|
| 4.   | <b>Undercutting</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of undercutting                               |
|  | Areal extent _____  | Depth _____   |  |
|  | Remarks _____   |   |  |
|  | _____   |   |  |
| 5.   | <b>Obstructions</b> Type _____  | <input type="checkbox"/> No obstructions            |  |
|  | <input type="checkbox"/> Location shown on site map                               | Areal extent _____                                  |  |
|  | Size _____  |   |  |
|  | Remarks _____   |   |  |
|  | _____   |   |  |
| 6.   | <b>Excessive Vegetative Growth</b> Type _____                                     |   |  |
|  | <input type="checkbox"/> No evidence of excessive growth                          |   |  |
|  | <input type="checkbox"/> Vegetation in channels does not obstruct flow            |   |  |
|  | <input type="checkbox"/> Location shown on site map                               | Areal extent _____                                  |  |
|  | Remarks _____   |   |  |
|  | _____   |   |  |
| <b>D. Cover Penetrations</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A |   |   |  |
| 1.   | <b>Gas Vents</b> <input type="checkbox"/> Active <input type="checkbox"/> Passive |   |  |
|  | <input type="checkbox"/> Properly secured/locked                                  | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition |
|  | <input type="checkbox"/> Evidence of leakage at penetration                       | <input type="checkbox"/> Needs Maintenance          |  |
|  | <input type="checkbox"/> N/A  |   |  |
|  | Remarks _____   |   |  |
|  | _____   |   |  |
| 2.   | <b>Gas Monitoring Probes</b>  |   |  |
|  | <input type="checkbox"/> Properly secured/locked                                  | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition |
|  | <input type="checkbox"/> Evidence of leakage at penetration                       | <input type="checkbox"/> Needs Maintenance          | <input type="checkbox"/> N/A   |
|  | Remarks _____   |   |  |
|  | _____   |   |  |
| 3.   | <b>Monitoring Wells (within surface area of landfill)</b>                         |   |  |
|  | <input type="checkbox"/> Properly secured/locked                                  | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition |
|  | <input type="checkbox"/> Evidence of leakage at penetration                       | <input type="checkbox"/> Needs Maintenance          | <input type="checkbox"/> N/A   |
|  | Remarks _____   |   |  |
|  | _____   |   |  |
| 4.   | <b>Leachate Extraction Wells</b>  |   |  |
|  | <input type="checkbox"/> Properly secured/locked                                  | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition |
|  | <input type="checkbox"/> Evidence of leakage at penetration                       | <input type="checkbox"/> Needs Maintenance          | <input type="checkbox"/> N/A   |
|  | Remarks _____   |   |  |
|  | _____   |   |  |
| 5.   | <b>Settlement Monuments</b>   | <input type="checkbox"/> Located                    | <input type="checkbox"/> Routinely surveyed <input type="checkbox"/> N/A           |
|  | Remarks _____   |   |  |
|  | _____   |   |  |

|   |  |  |  |   |
|---|--|--|--|---|
| <b>E. Gas Collection and Treatment</b>  |  |  | <input type="checkbox"/> Applicable          | <input checked="" type="checkbox"/> N/A       |
| 1.                                      | <b>Gas Treatment Facilities</b>  | <input type="checkbox"/> Flaring           | <input type="checkbox"/> Thermal destruction | <input type="checkbox"/> Collection for reuse |
|   | <input type="checkbox"/> Good condition  | <input type="checkbox"/> Needs Maintenance |  |   |
|   | Remarks _____  |  |  |   |
| 2.                                      | <b>Gas Collection Wells, Manifolds and Piping</b>                                      | <input type="checkbox"/> Good condition    | <input type="checkbox"/> Needs Maintenance   |   |
|   | Remarks _____  |  |  |   |
| 3.                                      | <b>Gas Monitoring Facilities</b> (e.g., gas monitoring of adjacent homes or buildings) | <input type="checkbox"/> Good condition    | <input type="checkbox"/> Needs Maintenance   | <input type="checkbox"/> N/A                  |
|   | Remarks _____  |  |  |   |
| <b>F. Cover Drainage Layer</b>          |  |  | <input type="checkbox"/> Applicable          | <input checked="" type="checkbox"/> N/A       |
| 1.                                      | <b>Outlet Pipes Inspected</b>  | <input type="checkbox"/> Functioning       | <input type="checkbox"/> N/A                 |   |
|   | Remarks _____  |  |  |   |
| 2.                                      | <b>Outlet Rock Inspected</b>   | <input type="checkbox"/> Functioning       | <input type="checkbox"/> N/A                 |   |
|   | Remarks _____  |  |  |   |
| <b>G. Detention/Sedimentation Ponds</b> |  |  | <input type="checkbox"/> Applicable          | <input checked="" type="checkbox"/> N/A       |
| 1.                                      | <b>Siltation</b> Areal extent _____  | Depth _____                                | <input type="checkbox"/> N/A                 |   |
|   | <input type="checkbox"/> Siltation not evident   |  |  |   |
|   | Remarks _____  |  |  |   |
| 2.                                      | <b>Erosion</b> Areal extent _____  | Depth _____                                |  |   |
|   | <input type="checkbox"/> Erosion not evident   |  |  |   |
|   | Remarks _____  |  |  |   |
| 3.                                      | <b>Outlet Works</b>  | <input type="checkbox"/> Functioning       | <input type="checkbox"/> N/A                 |   |
|   | Remarks _____  |  |  |   |
| 4.                                      | <b>Dam</b>   | <input type="checkbox"/> Functioning       | <input type="checkbox"/> N/A                 |   |
|   | Remarks _____  |  |  |   |

|  |  |   |   |
|--|--|---|---|
| <b>H. Retaining Walls</b>                      |  | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A                   |
| 1.   | <b>Deformations</b>                                      | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Deformation not evident          |
|  | Horizontal displacement_____                             | Vertical displacement_____                          |   |
|  | Rotational displacement_____                             |   |   |
|  | Remarks_____   |   |   |
|  | _____  |   |   |
| 2.   | <b>Degradation</b>                                       | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Degradation not evident          |
|  | Remarks_____   |   |   |
|  | _____  |   |   |
| <b>I. Perimeter Ditches/Off-Site Discharge</b> |  | <input checked="" type="checkbox"/> Applicable      | <input type="checkbox"/> N/A                              |
| 1.   | <b>Siltation</b>   | <input type="checkbox"/> Location shown on site map | <input checked="" type="checkbox"/> Siltation not evident |
|  | Areal extent_____  | Depth_____  |   |
|  | Remarks_____   |   |   |
|  | _____  |   |   |
| 2.   | <b>Vegetative Growth</b>                                 | <input type="checkbox"/> Location shown on site map | <input checked="" type="checkbox"/> N/A                   |
|  | <input type="checkbox"/> Vegetation does not impede flow |   |   |
|  | Areal extent_____  | Type_____   |   |
|  | Remarks_____   |   |   |
|  | _____  |   |   |
| 3.   | <b>Erosion</b>   | <input type="checkbox"/> Location shown on site map | <input checked="" type="checkbox"/> Erosion not evident   |
|  | Areal extent_____  | Depth_____  |   |
|  | Remarks_____   |   |   |
|  | _____  |   |   |
| 4.   | <b>Discharge Structure</b>                               | <input type="checkbox"/> Functioning                | <input checked="" type="checkbox"/> N/A                   |
|  | Remarks_____   |   |   |
|  | _____  |   |   |
| <b>VIII. VERTICAL BARRIER WALLS</b>            |  | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A                   |
| 1.   | <b>Settlement</b>  | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Settlement not evident           |
|  | Areal extent_____  | Depth_____  |   |
|  | Remarks_____   |   |   |
|  | _____  |   |   |
| 2.   | <b>Performance Monitoring</b>                            | Type of monitoring_____                             |   |
|  | G Performance not monitored                              |   |   |
|  | Frequency_____   | <input type="checkbox"/> Evidence of breaching      |   |
|  | Head differential_____                                   |   |   |
|  | Remarks_____   |   |   |
|  | _____  |   |   |

|                            |  |                                     |   |
|----------------------------|--|-------------------------------------|---|
| <b>C. Treatment System</b> |  | <input type="checkbox"/> Applicable | <input checked="" type="checkbox"/> N/A |
| 1.                         | <b>Treatment Train</b> (Check components that apply)<br><input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation<br><input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers<br><input type="checkbox"/> Filters _____<br><input type="checkbox"/> Additive (e.g., chelation agent, flocculent) _____<br><input type="checkbox"/> Others _____<br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br><input type="checkbox"/> Sampling ports properly marked and functional<br><input type="checkbox"/> Sampling/maintenance log displayed and up to date<br><input type="checkbox"/> Equipment properly identified<br><input type="checkbox"/> Quantity of groundwater treated annually _____<br><input type="checkbox"/> Quantity of surface water treated annually _____<br>Remarks _____ |                                     |   |
| 2.                         | <b>Electrical Enclosures and Panels</b> (properly rated and functional)<br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br>Remarks _____  |                                     |   |
| 3.                         | <b>Tanks, Vaults, Storage Vessels</b><br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance<br>Remarks _____  |                                     |   |
| 4.                         | <b>Discharge Structure and Appurtenances</b><br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br>Remarks _____   |                                     |   |
| 5.                         | <b>Treatment Building(s)</b><br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair<br><input type="checkbox"/> Chemicals and equipment properly stored<br>Remarks _____   |                                     |   |
| 6.                         | <b>Monitoring Wells</b> (pump and treatment remedy)<br><input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition<br><input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A<br>Remarks _____  |                                     |   |
| <b>D. Monitoring Data</b>  |  |                                     |   |
| 1.                         | <b>Monitoring Data</b><br><input type="checkbox"/> Is routinely submitted on time <input type="checkbox"/> Is of acceptable quality  |                                     |   |
| 2.                         | <b>Monitoring data suggests:</b><br><input type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining  |                                     |   |

**D. Monitored Natural Attenuation**

**1. Monitoring Wells (natural attenuation remedy)**

- Properly secured/locked       Functioning       Routinely sampled       Good condition  
 All required wells located       Needs Maintenance       N/A

Remarks Scheduled LTM in 2011

**X. OTHER REMEDIES**

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

**XI. OVERALL OBSERVATIONS**

**A. Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The remedy at 8A is RCC cap + institutional controls. The remedy at 8B/8C is soil stabilization and restricted use. The remedies appear to function as designed. LTM is scheduled to begin in 2011

**B. Adequacy of O&M**

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Appears adequate in the short term

**C. Early Indicators of Potential Remedy Problems**

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

*None noted*

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**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

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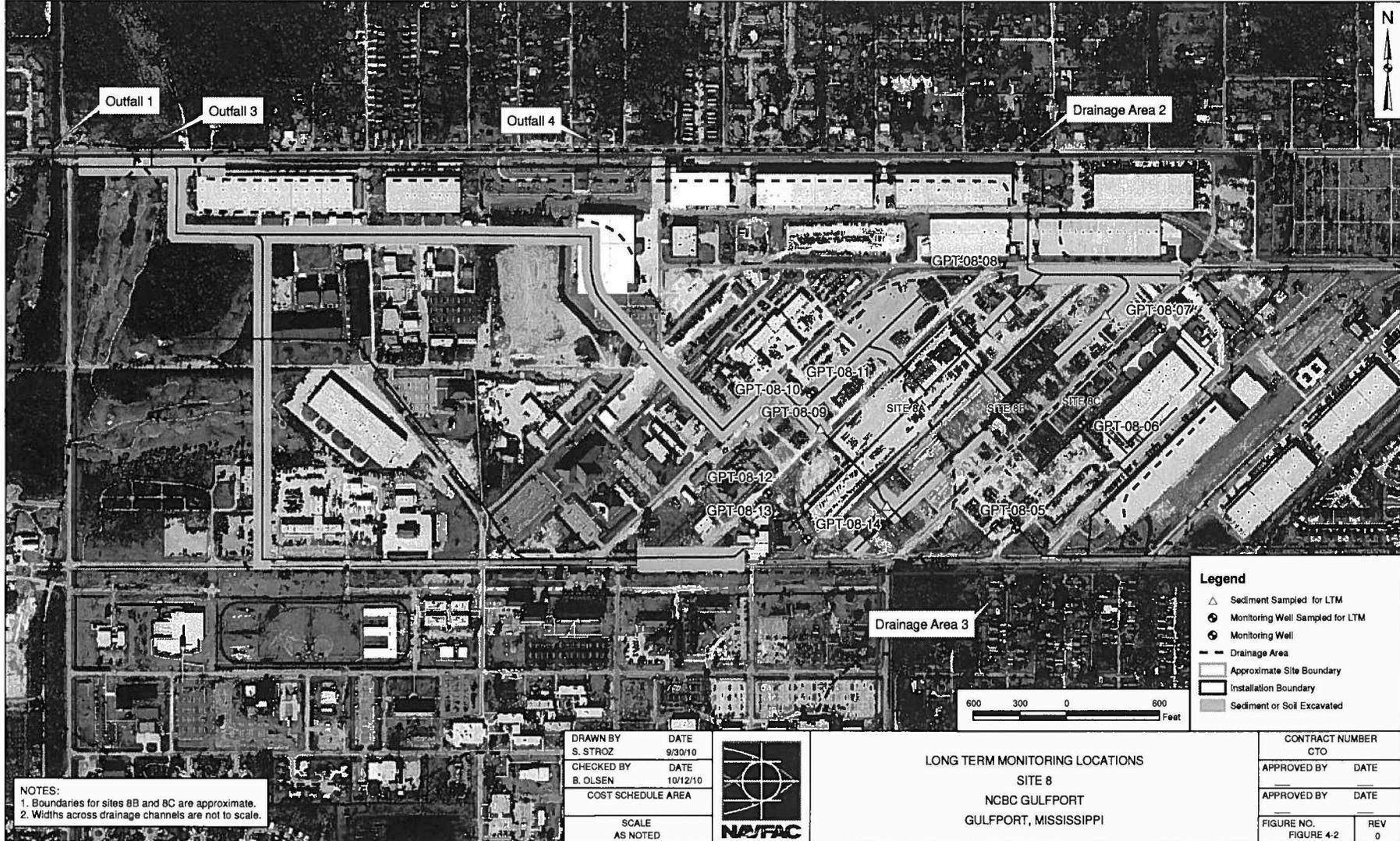
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| <b>INTERVIEW RECORD</b>  |                                 |   |
|--|---------------------------------|---|
| Site Name: <u>Site 8A NCBC Gulfport</u>  |                                 | EPA ID No.: <u>NA</u>   |
| Subject:   |                                 | Time: <u>09:00</u> Date: <u>9-29/10</u>                             |
| Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other  |                                 | <input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing |
| Location of Visit:   |                                 |   |
| <b>Contact Made By:</b>  |                                 |   |
| Name: <u>W.D. Olsoy</u>  | Title: <u>Geologist</u>         | Organization: <u>T+NUS</u>  |
| <b>Individual Contacted:</b>   |                                 |   |
| Name: <u>Kim Reinicke</u>  | Title: <u>CED Dep. Director</u> | Organization: <u>CED</u>  |
| Telephone No:  | Street Address:                 |   |
| Fax No:  | City, State, Zip:               |   |
| E-Mail Address:  |                                 |   |
| <b>Summary Of Conversation</b>   |                                 |   |
| <p><u>CED uses unfenced parts of 8A Cap for storage</u></p> <p><u>To his knowledge there has been no damage or penetration of the Cap.</u></p> <p><u>Use is restricted to rubber tire vehicles, no bulldozers or lifting equipment used, storage only, no operation of equipment by CED</u></p> <p><u>However, other activities ie Seabee Units and PWD are not restricted from area and CED does not control their activities</u></p> |                                 |   |



NOTES:  
 1. Boundaries for sites 8B and 8C are approximate.  
 2. Widths across drainage channels are not to scale.

|                        |                  |
|------------------------|------------------|
| DRAWN BY<br>S. STROZ   | DATE<br>9/30/10  |
| CHECKED BY<br>B. OLSEN | DATE<br>10/12/10 |
| COST SCHEDULE AREA     |                  |

SCALE  
AS NOTED



LONG TERM MONITORING LOCATIONS  
 SITE 8  
 NCBC GULFPORT  
 GULFPORT, MISSISSIPPI

|                          |          |
|--------------------------|----------|
| CONTRACT NUMBER<br>CTO   |          |
| APPROVED BY              | DATE     |
| APPROVED BY              | DATE     |
| FIGURE NO.<br>FIGURE 4-2 | REV<br>0 |

| <b>INTERVIEW RECORD</b>   |   |  |
|---|---|--|
| Site Name: <u>NCRC Gulfport 2</u>   |   | EPA ID No.:                            |
| Subject: <u>Sites 5/6/8/10</u>  |   | Time: <u>0800</u> Date: <u>9-29/10</u> |
| Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other   | <input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing |  |
| Location of Visit:  |   |  |
| <b>Contact Made By:</b>   |   |  |
| Name: <u>W.D. Olson</u>   | Title: <u>Geologist</u>   | Organization: <u>T+NUS</u>             |
| <b>Individual Contacted:</b>  |   |  |
| Name: <u>Gordon Crane</u>   | Title: <u>IR coordinator</u>  | Organization: <u>NCRC GFI</u>          |
| Telephone No:   | Street Address:   |  |
| Fax No:   | City, State, Zip:   |  |
| E-Mail Address:   |   |  |
| <b>Summary Of Conversation</b>  |   |  |
| <p>Mr. Crane is familiar with the remedies for sites 5/6/8/10,</p> <p>Has no knowledge that the remedies have been disturbed)</p> <p>LUCs are not in the base master plan yet, therefore no LUC inspections to date</p> |   |  |

| INTERVIEW RECORD   |                                    |   |
|--|------------------------------------|---|
| Site Name: <u>Site 8B/8C NCBC GPT</u>  |                                    | EPA ID No.: <u>NA</u>   |
| Subject: <u>Site 6 / Site 10</u>   |                                    | Time: <u>08:30</u> Date: <u>9-29/10</u>                             |
| Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other  |                                    | <input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing |
| Location of Visit:   |                                    |   |
| Contact Made By:   |                                    |   |
| Name: <u>W.D. Olson</u>  | Title: <u>geologist</u>            | Organization: <u>T+NOS</u>  |
| Individual Contacted:  |                                    |   |
| Name: <u>Matt Schultz</u>  | Title: <u>Production Div. Dir.</u> | Organization: <u>PWD</u>  |
| Telephone No:  | Street Address:                    |   |
| Fax No:  | City, State, Zip:                  |   |
| E-Mail Address:  |                                    |   |
| Summary Of Conversation  |                                    |   |
| <p>Current signs and fencing at 8B/C are occasionally inspected. Planning to install Jersey Barrier to isolate 8B/C, possibly additional fencing/signs</p> <p>Part of the stabilized soil areas may be paved</p> <p>Site 6 has had no intrusive activity</p> <p>Site 10, no disturbances noted.</p> <p>Maintenance crews are trained on the boundaries of IR sites and allowable activities</p> <p>Construction/maintenance projects are reviewed by PWD Environmental</p> |                                    |   |

## Site Inspection Checklist

| I. SITE INFORMATION  |   |   |   |  |  |  |   |   |  |   |  |   |  |
|--|---|---|---|--|--|--|---|---|--|---|--|---|--|
| Site name: <u>Site 10</u>  | Date of inspection: <u>9-29/10</u>                                |   |   |  |  |  |   |   |  |   |  |   |  |
| Location and Region: <u>NCRG GOLFPOW</u>   | EPA ID: <u>NA</u>   |   |   |  |  |  |   |   |  |   |  |   |  |
| Agency, office, or company leading the five-year review: <u>NAUFAC SE</u>  | Weather/temperature: <u>80° Sunny</u>                             |   |   |  |  |  |   |   |  |   |  |   |  |
| <b>Remedy Includes:</b> (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Landfill cover/containment</td> <td><input checked="" type="checkbox"/> Monitored natural attenuation</td> </tr> <tr> <td><input type="checkbox"/> Access controls</td> <td><input type="checkbox"/> Groundwater containment</td> </tr> <tr> <td><input checked="" type="checkbox"/> Institutional controls</td> <td><input type="checkbox"/> Vertical barrier walls</td> </tr> <tr> <td><input type="checkbox"/> Groundwater pump and treatment</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Surface water collection and treatment</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Other: <u>Ditch lining w/concrete</u></td> <td></td> </tr> </table> |   | <input type="checkbox"/> Landfill cover/containment | <input checked="" type="checkbox"/> Monitored natural attenuation | <input type="checkbox"/> Access controls | <input type="checkbox"/> Groundwater containment | <input checked="" type="checkbox"/> Institutional controls | <input type="checkbox"/> Vertical barrier walls | <input type="checkbox"/> Groundwater pump and treatment |  | <input type="checkbox"/> Surface water collection and treatment |  | <input checked="" type="checkbox"/> Other: <u>Ditch lining w/concrete</u> |  |
| <input type="checkbox"/> Landfill cover/containment  | <input checked="" type="checkbox"/> Monitored natural attenuation |   |   |  |  |  |   |   |  |   |  |   |  |
| <input type="checkbox"/> Access controls   | <input type="checkbox"/> Groundwater containment                  |   |   |  |  |  |   |   |  |   |  |   |  |
| <input checked="" type="checkbox"/> Institutional controls   | <input type="checkbox"/> Vertical barrier walls                   |   |   |  |  |  |   |   |  |   |  |   |  |
| <input type="checkbox"/> Groundwater pump and treatment  |   |   |   |  |  |  |   |   |  |   |  |   |  |
| <input type="checkbox"/> Surface water collection and treatment  |   |   |   |  |  |  |   |   |  |   |  |   |  |
| <input checked="" type="checkbox"/> Other: <u>Ditch lining w/concrete</u>  |   |   |   |  |  |  |   |   |  |   |  |   |  |
| <b>Attachments:</b> <input type="checkbox"/> Inspection team roster attached <input checked="" type="checkbox"/> Site map attached   |   |   |   |  |  |  |   |   |  |   |  |   |  |
| II. INTERVIEWS (Check all that apply)  |   |   |   |  |  |  |   |   |  |   |  |   |  |
| 1. O&M site manager <u>NA</u>  |   |   |   |  |  |  |   |   |  |   |  |   |  |
| Name   | Title                      Date                                   |   |   |  |  |  |   |   |  |   |  |   |  |
| Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone no. _____   |   |   |   |  |  |  |   |   |  |   |  |   |  |
| Problems, suggestions; <input type="checkbox"/> Report attached _____  |   |   |   |  |  |  |   |   |  |   |  |   |  |
| _____  |   |   |   |  |  |  |   |   |  |   |  |   |  |
| 2. O&M staff <u>NA</u>   |   |   |   |  |  |  |   |   |  |   |  |   |  |
| Name   | Title                      Date                                   |   |   |  |  |  |   |   |  |   |  |   |  |
| Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone no. _____   |   |   |   |  |  |  |   |   |  |   |  |   |  |
| Problems, suggestions; <input type="checkbox"/> Report attached _____  |   |   |   |  |  |  |   |   |  |   |  |   |  |
| _____  |   |   |   |  |  |  |   |   |  |   |  |   |  |

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency NYA  
Contact \_\_\_\_\_  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

Agency \_\_\_\_\_  
Contact \_\_\_\_\_  
Name Title Date Phone no.  
Problems; suggestions;  Report attached \_\_\_\_\_

4. **Other interviews** (optional)  Report attached.

|  |
|--|
|  |
|  |
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|  |
|  |
|  |
|  |
|  |

**III. ON-SITE DOCUMENTS & RECORDS VERIFIED** (Check all that apply)

1. **O&M Documents**

|  |  |                                     |   |
|--|--|-------------------------------------|---|
| <input type="checkbox"/> O&M manual        | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
| <input type="checkbox"/> As-built drawings | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
| <input type="checkbox"/> Maintenance logs  | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |

Remarks \_\_\_\_\_

2. **Site-Specific Health and Safety Plan**

|   |  |                                     |   |
|---|--|-------------------------------------|---|
| <input type="checkbox"/> Contingency plan/emergency response plan | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|   | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |

Remarks \_\_\_\_\_

3. **O&M and OSHA Training Records**

|  |                                     |   |
|--|-------------------------------------|---|
| <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|--|-------------------------------------|---|

Remarks \_\_\_\_\_

4. **Permits and Service Agreements**

|   |  |                                     |   |
|---|--|-------------------------------------|---|
| <input type="checkbox"/> Air discharge permit | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
| <input type="checkbox"/> Effluent discharge   | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
| <input type="checkbox"/> Waste disposal, POTW | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
| <input type="checkbox"/> Other permits _____  | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |

Remarks \_\_\_\_\_

5. **Gas Generation Records**

|  |                                     |   |
|--|-------------------------------------|---|
| <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|--|-------------------------------------|---|

Remarks \_\_\_\_\_

6. **Settlement Monument Records**

|  |                                     |   |
|--|-------------------------------------|---|
| <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|--|-------------------------------------|---|

Remarks \_\_\_\_\_

7. **Groundwater Monitoring Records**

|  |                                     |   |
|--|-------------------------------------|---|
| <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|--|-------------------------------------|---|

Remarks *LTM to begin in 2011, Sediment monitoring*

8. **Leachate Extraction Records**

|  |                                     |   |
|--|-------------------------------------|---|
| <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|--|-------------------------------------|---|

Remarks \_\_\_\_\_

9. **Discharge Compliance Records**

|   |  |                                     |   |
|---|--|-------------------------------------|---|
| <input type="checkbox"/> Air              | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
| <input type="checkbox"/> Water (effluent) | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |

Remarks \_\_\_\_\_

10. **Daily Access/Security Logs**

|  |                                     |   |
|--|-------------------------------------|---|
| <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|--|-------------------------------------|---|

Remarks \_\_\_\_\_

**IV. O&M COSTS**

1. **O&M Organization**

State in-house                       Contractor for State  
 PRP in-house                         Contractor for PRP  
 Federal Facility in-house         Contractor for Federal Facility  
 Other \_\_\_\_\_

2. **O&M Cost Records**

Readily available       Up to date  
 Funding mechanism/agreement in place  
 Original O&M cost estimate \_\_\_\_\_  Breakdown attached

Total annual cost by year for review period if available

|            |          |            |   |
|------------|----------|------------|---|
| From _____ | To _____ | _____      | <input type="checkbox"/> Breakdown attached |
| Date       | Date     | Total cost |   |
| From _____ | To _____ | _____      | <input type="checkbox"/> Breakdown attached |
| Date       | Date     | Total cost |   |
| From _____ | To _____ | _____      | <input type="checkbox"/> Breakdown attached |
| Date       | Date     | Total cost |   |
| From _____ | To _____ | _____      | <input type="checkbox"/> Breakdown attached |
| Date       | Date     | Total cost |   |
| From _____ | To _____ | _____      | <input type="checkbox"/> Breakdown attached |
| Date       | Date     | Total cost |   |

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**V. ACCESS AND INSTITUTIONAL CONTROLS**     Applicable     N/A

**A. Fencing**

1. **Fencing damaged**       Location shown on site map       Gates secured     N/A

Remarks \_\_\_\_\_

\_\_\_\_\_

**B. Other Access Restrictions**

1. **Signs and other security measures**       Location shown on site map       N/A

Remarks Signs not installed

\_\_\_\_\_

**C. Institutional Controls (ICs)**

1. **Implementation and enforcement**  
 Site conditions imply ICs not properly implemented  Yes  No  N/A  
 Site conditions imply ICs not being fully enforced  Yes  No  N/A

Type of monitoring (e.g., self-reporting, drive by) \_\_\_\_\_  
 Frequency \_\_\_\_\_  
 Responsible party/agency \_\_\_\_\_  
 Contact \_\_\_\_\_

|      |       |      |           |
|------|-------|------|-----------|
| Name | Title | Date | Phone no. |
|------|-------|------|-----------|

- Reporting is up-to-date  Yes  No  N/A  
 Reports are verified by the lead agency  Yes  No  N/A

- Specific requirements in deed or decision documents have been met  Yes  No  N/A  
 Violations have been reported  Yes  No  N/A

Other problems or suggestions:  Report attached

MOA/LOCs not established

2. **Adequacy**  ICs are adequate  ICs are inadequate  N/A  
 Remarks \_\_\_\_\_

**D. General**

1. **Vandalism/trespassing**  Location shown on site map  No vandalism evident  
 Remarks \_\_\_\_\_

2. **Land use changes on site**  N/A  
 Remarks \_\_\_\_\_

3. **Land use changes off site**  N/A  
 Remarks \_\_\_\_\_

**VI. GENERAL SITE CONDITIONS**

- A. Roads**  Applicable  N/A

1. **Roads damaged**  Location shown on site map  Roads adequate  N/A  
 Remarks \_\_\_\_\_

**B. Other Site Conditions**

Remarks \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VII. LANDFILL COVERS**    Applicable    N/A

**A. Landfill Surface**

1.     **Settlement** (Low spots)      Location shown on site map      Settlement not evident  
Areal extent \_\_\_\_\_     Depth \_\_\_\_\_  
Remarks \_\_\_\_\_

2.     **Cracks**      Location shown on site map      Cracking not evident  
Lengths \_\_\_\_\_     Widths \_\_\_\_\_     Depths \_\_\_\_\_  
Remarks \_\_\_\_\_

3.     **Erosion**      Location shown on site map      Erosion not evident  
Areal extent \_\_\_\_\_     Depth \_\_\_\_\_  
Remarks \_\_\_\_\_

4.     **Holes**      Location shown on site map      Holes not evident  
Areal extent \_\_\_\_\_     Depth \_\_\_\_\_  
Remarks \_\_\_\_\_

5.     **Vegetative Cover**      Grass      Cover properly established      No signs of stress  
 Trees/Shrubs (indicate size and locations on a diagram)  
Remarks \_\_\_\_\_

6.     **Alternative Cover (armored rock, concrete, etc.)**      N/A  
Remarks \_\_\_\_\_

7.     **Bulges**      Location shown on site map      Bulges not evident  
Areal extent \_\_\_\_\_     Height \_\_\_\_\_  
Remarks \_\_\_\_\_

8.     **Wet Areas/Water Damage**      Wet areas/water damage not evident  
 Wet areas      Location shown on site map     Areal extent \_\_\_\_\_  
 Ponding      Location shown on site map     Areal extent \_\_\_\_\_  
 Seeps      Location shown on site map     Areal extent \_\_\_\_\_  
 Soft subgrade      Location shown on site map     Areal extent \_\_\_\_\_  
Remarks \_\_\_\_\_

|  |                             |   |   |   |
|--|-----------------------------|---|---|---|
| 9.   | <b>Slope Instability</b>    | <input type="checkbox"/> Slides                     | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of slope instability |
| Areal extent _____   |                             |   |   |   |
| Remarks _____  |                             |   |   |   |
| <b>B. Benches</b>  |                             |   |   |   |
| <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A  |                             |   |   |   |
| (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)                                   |                             |   |   |   |
| 1.   | <b>Flows Bypass Bench</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                |   |
| Remarks _____  |                             |   |   |   |
| 2.   | <b>Bench Breached</b>       | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                |   |
| Remarks _____  |                             |   |   |   |
| 3.   | <b>Bench Overtopped</b>     | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A or okay                |   |
| Remarks _____  |                             |   |   |   |
| <b>C. Letdown Channels</b>   |                             |   |   |   |
| <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A  |                             |   |   |   |
| (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.) |                             |   |   |   |
| 1.   | <b>Settlement</b>           | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of settlement  |   |
| Areal extent _____ Depth _____   |                             |   |   |   |
| Remarks _____  |                             |   |   |   |
| 2.   | <b>Material Degradation</b> | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of degradation |   |
| Material type _____ Areal extent _____   |                             |   |   |   |
| Remarks _____  |                             |   |   |   |
| 3.   | <b>Erosion</b>              | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of erosion     |   |
| Areal extent _____ Depth _____   |                             |   |   |   |
| Remarks _____  |                             |   |   |   |

|  |  |   |  |
|--|--|---|--|
| 4.   | <b>Undercutting</b>  | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No evidence of undercutting |
|  | Areal extent _____   | Depth _____   |  |
|  | Remarks _____  |   |  |
| <hr/>  |  |   |  |
| 5.   | <b>Obstructions</b>  | Type _____  | <input type="checkbox"/> No obstructions             |
|  | <input type="checkbox"/> Location shown on site map                    | Areal extent _____                                  |  |
|  | Size _____   |   |  |
|  | Remarks _____  |   |  |
| <hr/>  |  |   |  |
| 6.   | <b>Excessive Vegetative Growth</b>                                     | Type _____  |  |
|  | <input type="checkbox"/> No evidence of excessive growth               |   |  |
|  | <input type="checkbox"/> Vegetation in channels does not obstruct flow |   |  |
|  | <input type="checkbox"/> Location shown on site map                    | Areal extent _____                                  |  |
|  | Remarks _____  |   |  |
| <hr/>  |  |   |  |
| <b>D. Cover Penetrations</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A |  |   |  |
| <hr/>  |  |   |  |
| 1.   | <b>Gas Vents</b>   | <input type="checkbox"/> Active                     | <input type="checkbox"/> Passive                     |
|  | <input type="checkbox"/> Properly secured/locked                       | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled           |
|  | <input type="checkbox"/> Evidence of leakage at penetration            | <input type="checkbox"/> Needs Maintenance          |  |
|  | <input checked="" type="checkbox"/> N/A                                |   |  |
|  | Remarks _____  |   |  |
| <hr/>  |  |   |  |
| 2.   | <b>Gas Monitoring Probes</b>   | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled           |
|  | <input type="checkbox"/> Properly secured/locked                       | <input type="checkbox"/> Needs Maintenance          | <input type="checkbox"/> Good condition              |
|  | <input type="checkbox"/> Evidence of leakage at penetration            | <input checked="" type="checkbox"/> N/A             |  |
|  | Remarks _____  |   |  |
| <hr/>  |  |   |  |
| 3.   | <b>Monitoring Wells</b> (within surface area of landfill)              | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled           |
|  | <input type="checkbox"/> Properly secured/locked                       | <input type="checkbox"/> Needs Maintenance          | <input type="checkbox"/> Good condition              |
|  | <input type="checkbox"/> Evidence of leakage at penetration            | <input checked="" type="checkbox"/> N/A             |  |
|  | Remarks _____  |   |  |
| <hr/>  |  |   |  |
| 4.   | <b>Leachate Extraction Wells</b>                                       | <input type="checkbox"/> Functioning                | <input type="checkbox"/> Routinely sampled           |
|  | <input type="checkbox"/> Properly secured/locked                       | <input type="checkbox"/> Needs Maintenance          | <input type="checkbox"/> Good condition              |
|  | <input type="checkbox"/> Evidence of leakage at penetration            | <input checked="" type="checkbox"/> N/A             |  |
|  | Remarks _____  |   |  |
| <hr/>  |  |   |  |
| 5.   | <b>Settlement Monuments</b>  | <input type="checkbox"/> Located                    | <input type="checkbox"/> Routinely surveyed          |
|  | <input checked="" type="checkbox"/> N/A                                |   |  |
|  | Remarks _____  |   |  |
| <hr/>  |  |   |  |

|   |  |  |
|---|--|--|
| <b>E. Gas Collection and Treatment</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A  |  |  |
| 1.  | <b>Gas Treatment Facilities</b><br><input type="checkbox"/> Flaring <input type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse<br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br>Remarks _____<br>_____ |  |
| 2.  | <b>Gas Collection Wells, Manifolds and Piping</b><br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br>Remarks _____<br>_____  |  |
| 3.  | <b>Gas Monitoring Facilities</b> ( <i>e.g.</i> , gas monitoring of adjacent homes or buildings)<br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A<br>Remarks _____<br>_____                                   |  |
| <b>F. Cover Drainage Layer</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A          |  |  |
| 1.  | <b>Outlet Pipes Inspected</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks _____<br>_____  |  |
| 2.  | <b>Outlet Rock Inspected</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks _____<br>_____   |  |
| <b>G. Detention/Sedimentation Ponds</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A |  |  |
| 1.  | <b>Siltation</b> Areal extent _____      Depth _____ <input type="checkbox"/> N/A<br><input type="checkbox"/> Siltation not evident<br>Remarks _____<br>_____  |  |
| 2.  | <b>Erosion</b> Areal extent _____      Depth _____<br><input type="checkbox"/> Erosion not evident<br>Remarks _____<br>_____   |  |
| 3.  | <b>Outlet Works</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks _____<br>_____  |  |
| 4.  | <b>Dam</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks _____<br>_____   |  |

|  |  |   |  |
|--|--|---|--|
| <b>H. Retaining Walls</b>                      |  | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A          |
| 1.   | <b>Deformations</b>                                      | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Deformation not evident |
|  | Horizontal displacement_____                             | Vertical displacement_____                          |  |
|  | Rotational displacement_____                             |   |  |
|  | Remarks_____   |   |  |
| <hr/>  |  |   |  |
| 2.   | <b>Degradation</b>                                       | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Degradation not evident |
|  | Remarks_____   |   |  |
| <hr/>  |  |   |  |
| <b>I. Perimeter Ditches/Off-Site Discharge</b> |  | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A          |
| 1.   | <b>Siltation</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Siltation not evident   |
|  | Areal extent_____  | Depth_____  |  |
|  | Remarks_____   |   |  |
| <hr/>  |  |   |  |
| 2.   | <b>Vegetative Growth</b>                                 | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A                     |
|  | <input type="checkbox"/> Vegetation does not impede flow |   |  |
|  | Areal extent_____  | Type_____   |  |
|  | Remarks_____   |   |  |
| <hr/>  |  |   |  |
| 3.   | <b>Erosion</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Erosion not evident     |
|  | Areal extent_____  | Depth_____  |  |
|  | Remarks_____   |   |  |
| <hr/>  |  |   |  |
| 4.   | <b>Discharge Structure</b>                               | <input type="checkbox"/> Functioning                | <input type="checkbox"/> N/A                     |
|  | Remarks_____   |   |  |
| <hr/>  |  |   |  |
| <b>VIII. VERTICAL BARRIER WALLS</b>            |  | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A          |
| 1.   | <b>Settlement</b>  | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Settlement not evident  |
|  | Areal extent_____  | Depth_____  |  |
|  | Remarks_____   |   |  |
| <hr/>  |  |   |  |
| 2.   | <b>Performance Monitoring</b> Type of monitoring_____    |   |  |
|  | G Performance not monitored                              |   |  |
|  | Frequency_____   | <input type="checkbox"/> Evidence of breaching      |  |
|  | Head differential_____                                   |   |  |
|  | Remarks_____   |   |  |
| <hr/>  |  |   |  |

|                            |  |                                     |   |
|----------------------------|--|-------------------------------------|---|
| <b>C. Treatment System</b> |  | <input type="checkbox"/> Applicable | <input checked="" type="checkbox"/> N/A |
| 1.                         | <b>Treatment Train</b> (Check components that apply)<br><input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation<br><input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers<br><input type="checkbox"/> Filters _____<br><input type="checkbox"/> Additive (e.g., chelation agent, flocculent) _____<br><input type="checkbox"/> Others _____<br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br><input type="checkbox"/> Sampling ports properly marked and functional<br><input type="checkbox"/> Sampling/maintenance log displayed and up to date<br><input type="checkbox"/> Equipment properly identified<br><input type="checkbox"/> Quantity of groundwater treated annually _____<br><input type="checkbox"/> Quantity of surface water treated annually _____<br>Remarks _____ |                                     |   |
| 2.                         | <b>Electrical Enclosures and Panels</b> (properly rated and functional)<br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br>Remarks _____  |                                     |   |
| 3.                         | <b>Tanks, Vaults, Storage Vessels</b><br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance<br>Remarks _____  |                                     |   |
| 4.                         | <b>Discharge Structure and Appurtenances</b><br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance<br>Remarks _____   |                                     |   |
| 5.                         | <b>Treatment Building(s)</b><br><input type="checkbox"/> N/A <input type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair<br><input type="checkbox"/> Chemicals and equipment properly stored<br>Remarks _____   |                                     |   |
| 6.                         | <b>Monitoring Wells</b> (pump and treatment remedy)<br><input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition<br><input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A<br>Remarks _____  |                                     |   |
| <b>D. Monitoring Data</b>  |  |                                     |   |
| 1.                         | <b>Monitoring Data</b><br><input type="checkbox"/> Is routinely submitted on time <input type="checkbox"/> Is of acceptable quality  |                                     |   |
| 2.                         | <b>Monitoring data suggests:</b><br><input type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining  |                                     |   |

**D. Monitored Natural Attenuation**

1. **Monitoring Wells** (natural attenuation remedy)

- Properly secured/locked       Functioning     Routinely sampled     Good condition  
 All required wells located       Needs Maintenance       N/A

Remarks Sediment monitoring scheduled for 2011

**X. OTHER REMEDIES**

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

**XI. OVERALL OBSERVATIONS**

**A. Implementation of the Remedy**

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The ditch lining at site 10 is designed to prevent exposure and erosion of PCB contaminated subsurface soil. The lining was recently installed and shows no evidence of deterioration at this time

**B. Adequacy of O&M**

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

NA

**C. Early Indicators of Potential Remedy Problems**

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

None noted

**D. Opportunities for Optimization**

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

KTM sampling scheduled to begin in 2011



**LEGEND**

-  Sediment Sample Location
-  Excavation Area
-  Concrete Lining

50      0      50

SCALE IN FEET

|                    |          |
|--------------------|----------|
| DRAWN BY           | DATE     |
| C. FOSTER          | 12/08/04 |
| CHECKED BY         | DATE     |
| B. OLSON           | 10/12/10 |
| COST/SCHEDULE-AREA |          |
| SCALE AS NOTED     |          |



REMEDIAL ACTION AND LONG TERM MONITORING LOCATIONS

SITE 10

NCBC GULFPORT

GULFPORT, MISSISSIPPI

|                 |              |       |
|-----------------|--------------|-------|
| CONTRACT NUMBER |              | 1831  |
| APPROVED BY     | DATE         |       |
| ---             | ---          |       |
| APPROVED BY     | DATE         |       |
| ---             | ---          |       |
| DRAWING NO.     | FIGURE 5 - 2 | REV 0 |

| <b>INTERVIEW RECORD</b>  |   |  |
|--|---|--|
| Site Name: <u>NCRC Gulfport 2</u>  |   | EPA ID No.:                            |
| Subject: <u>Sites 5/6/8/10</u>   |   | Time: <u>0800</u> Date: <u>9-29/10</u> |
| Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other  | <input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing |  |
| Location of Visit:   |   |  |
| <b>Contact Made By:</b>  |   |  |
| Name: <u>W.D. Olson</u>  | Title: <u>Geologist</u>   | Organization: <u>T+NUS</u>             |
| <b>Individual Contacted:</b>   |   |  |
| Name: <u>Gordon Crane</u>  | Title: <u>IR coordinator</u>  | Organization: <u>NCRC GFI</u>          |
| Telephone No:  | Street Address:   |  |
| Fax No:  | City, State, Zip:   |  |
| E-Mail Address:  |   |  |
| <b>Summary Of Conversation</b>   |   |  |
| <p>Mr. Crane is familiar with the remedies for sites 5/6/8/10.</p> <p>Has no knowledge that the remedies have been disturbed</p> <p>LUCs are not in the base master plan yet, therefore no LUC inspections to date</p> |   |  |

| INTERVIEW RECORD   |                                    |   |
|--|------------------------------------|---|
| Site Name: <u>Site 8B/8C NCBC GPT</u>  |                                    | EPA ID No.: <u>NA</u>   |
| Subject: <u>Site 6 / Site 10</u>   |                                    | Time: <u>08:30</u> Date: <u>9-29/10</u>                             |
| Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other  |                                    | <input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing |
| Location of Visit:   |                                    |   |
| Contact Made By:   |                                    |   |
| Name: <u>W.D. Olson</u>  | Title: <u>geologist</u>            | Organization: <u>T+NOS</u>  |
| Individual Contacted:  |                                    |   |
| Name: <u>Matt Schultz</u>  | Title: <u>Production Div. Dir.</u> | Organization: <u>PWD</u>  |
| Telephone No:  | Street Address:                    |   |
| Fax No:  | City, State, Zip:                  |   |
| E-Mail Address:  |                                    |   |
| Summary Of Conversation  |                                    |   |
| <p>Current signs and fencing at 8B/C are occasionally inspected. Planning to install Jersey Barrier to isolate 8B/C, possibly additional fencing/signs</p> <p>Part of the stabilized soil areas may be paved</p> <p>Site 6 has had no intrusive activity</p> <p>Site 10, no disturbances noted.</p> <p>Maintenance crews are trained on the boundaries of IR sites and allowable activities</p> <p>Construction/maintenance projects are reviewed by PWD Environmental</p> |                                    |   |

**APPENDIX B**

**SITE PHOTOS**



Photo 1: Site 5 Warning Sign



Photo 2: Site 5 After Sod



**Photo 3: Canal 1 Lined Adjacent to Site 5**



**Photo 4: Canal 1 Lining**



**Photo 5: Site 6 with Monitoring Wells**



**Photo 6: Ditch Along Western Edge of Site 6**



**Photo 7: Site 8 Concrete Cover**



**Photo 8: Site 8 Concrete Cover Minor Spalling**



**Photo 9: Site 8B**



**Photo 10: Site 8B Soil Piles**



**Photo 11: Site 8C**



**Photo 12: Site 8C**



**Photo 13: Site 10**



**Photo 14: Site 10 Rip-Rap**

**APPENDIX C**

**SITE 6 INFORMATION**

**TABLE 4  
LONG-TERM MONITORING SUMMARY**

**1<sup>ST</sup> SEMI-ANNUAL 2<sup>ND</sup> YEAR MONITORING LETTER REPORT, SITE 6  
NCBC GULFPORT, MISSISSIPPI  
PAGE 1 OF 4**

| WELL IDENTIFICATION                          | GPT-6-3     |             |             |             |             |             |             |               | GPT-6-4     |             |             |             |             |             |  |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
|  | 06MW00301   | 06MW00302   | 06GW00303   | 06GW00304   | 06GW003-005 | 06GW00306   | 06GW00307   | 06GW00307 (D) | 06MW00401   | 06MW00402   | 06MW00403   | 06GW00404   | 06GW004-005 | 06GW00406   |  |
| SAMPLE IDENTIFICATION                        | 22-Jan-2008 | 22-Apr-2008 | 15-Jul-2008 | 28-Oct-2008 | 29-Oct-2009 | 26-Jan-2010 | 21-Jul-2010 | 21-Jul-2010   | 22-Jan-2008 | 23-Apr-2008 | 15-Jul-2008 | 29-Oct-2008 | 29-Oct-2009 | 26-Jan-2010 |  |
| SAMPLE DATE                                  |             |             |             |             |             |             |             |               |             |             |             |             |             |             |  |
| Volatile Organic Compounds (µg/L)            | TIER 1 TRG  |             |             |             |             |             |             |               |             |             |             |             |             |             |  |
| 1,1,1-TRICHLOROETHANE                        | 200 (MCL)   |             |             | 1 U         | 0.17 U      |             |             | 0.29 U        | 0.29 U      |             |             | 16 J        | 34          |             |  |
| 1,1,2-TRICHLOROTRIFLUOROETHANE               | 59400       | 1 U         | 1 U         | 1 U         | 0.18 U      |             |             | 0.33 U        | 0.33 U      | 1 U         | 1 U         | 20U         | 4.5 U       |             |  |
| 1,1-DICHLOROETHANE                           | 798         | 0.27 J      | 0.16 J      | 2.7         | 16          | 46          | 71.2        | 69.7 J        | 69.7 J      | 0.14 J      | 1 U         | 990         | 2800        | 3.1         |  |
| 1,1-DICHLOROETHENE                           | 7 (MCL)     | 0.13 J      |             | 0.54 J      | 0.48 J      | 5.8         | 9.27        | 7.45 J        | 8.11 J      | 0.16 J      |             | 45          | 100         | 0.63 J      |  |
| 1,2-DICHLOROETHANE                           | 5 (MCL)     | 1 U         |             | 1 U         | 0.1 U       |             |             | 0.22 U        | 0.22 U      | 1 U         |             | 6 J         | 2.5 U       |             |  |
| 2-BUTANONE                                   | 1910        |             | 5 U         |             |             |             |             | 1.6 U         | 1.6 U       |             | 5 U         |             |             |             |  |
| 4-METHYL-2-PENTANONE                         | 139         | 5 U         | 5 U         |             |             | 0.5 U       |             | 0.50 U        | 0.50 U      | 5 U         | 5 U         |             |             | 0.5 U       |  |
| ACETONE                                      | 608         | 5 U         |             | 3.9 U       |             | 1.8 U       | 3.06 J      | 3.75 U        | 2.86 U      | 5 U         |             | 100 U       |             | 1.8 U       |  |
| BENZENE                                      | 5 (MCL)     | 0.48 J      | 0.3 J       | 0.54 J      | 0.66 J      | 0.86 J      | 1.16        | 1.11 J        | 1.12 J      | 1 U         | 1 U         | 6.3 J       | 6 J         | 0.12 U      |  |
| CARBON DISULFIDE                             | 1040        |             | 1 U         |             |             |             |             | 0.26 U        | 0.26 U      |             | 1 U         |             |             |             |  |
| CHLOROETHANE                                 | 3.64        | 1 U         | 1 U         | 0.7 J       | 12          | 29          | 50.4        | 44.9 J        | 46.8 J      | 0.45 J      | 1.3         | 1900        | 3600        | 5.7         |  |
| CHLOROMETHANE                                | 1.43        |             |             | 0.5 J       |             |             | 3.27        | 0.826 J       | 0.36 U      |             |             | 20 U        |             | 1.16        |  |
| CIS-1,2-DICHLOROETHENE                       | 70 (MCL)    | 0.56 J      | 1 U         | 0.73 J      | 1.9         | 0.89 J      | 0.901 J     | 0.678 J       | 0.45 U      | 1 U         | 1 U         | 20 U        | 3.2 U       | 0.16 U      |  |
| CYCLOHEXANE                                  | NA          | 1 U         | 1 U         | 1 U         | 0.2 U       | 0.14 U      | 0.2 U       | 0.20 U        | 0.20 U      | 0.56 J      | 0.36 J      | 20 U        | 5 U         | 0.14 U      |  |
| ETHYLBENZENE                                 | 700 (MCL)   | 1 U         | 1 U         | 1 U         | 0.17 J      | 0.13 J      | 0.305 J     | 0.265 J       | 0.261 J     | 3.7         | 2.6         | 5.3 J       | 4.6 J       | 0.2 J       |  |
| ISOPROPYLBENZENE                             | 679         | 1 U         | 1 U         | 1 U         | 0.15 J      | 0.11 U      | 0.15 U      | 0.15 U        | 0.15 U      | 0.36 J      | 0.27 J      | 20 U        | 3.8 U       | 0.11 U      |  |
| METHYL CYCLOHEXANE                           | NA          | 1 U         | 1 U         | 1 U         | 0.17 U      | 0.12 U      | 0.18 U      | 0.18 U        | 0.18 U      | 0.41 J      | 0.28 J      | 20 U        | 4.2 U       | 0.21 J      |  |
| METHYLENE CHLORIDE                           | 5 (MCL)     |             |             | 2 U         |             |             | 0.35 U      | 0.27 U        | 0.27 U      |             |             | 17 U        |             | 0.409 U     |  |
| STYRENE                                      | 100 (MCL)   |             |             |             |             | 0.11 U      |             | 0.24 U        | 0.24 U      |             |             |             |             | 0.11 U      |  |
| TETRACHLOROETHENE                            | 5 (MCL)     | 1 U         |             | 1 U         | 0.15 U      |             |             | 0.17 U        | 0.17 U      | 1 U         |             | 25          | 3.8 U       |             |  |
| TOLUENE                                      | 1000 (MCL)  | 1 U         | 1 U         | 1 U         | 0.16 J      | 0.14 U      | 0.441 J     | 0.73 J        | 0.799 J     | 1 U         | 1 U         | 19 J        | 14 J        | 0.2 J       |  |
| TOTAL XYLENES                                | 10000 (MCL) | 1 U         | 1 U         | 1 U         | 0.64 J      | 0.21 U      | 0.618 J     | 0.668 J       | 0.716 J     | 1 U         | 0.28 J      | 6.5 J       | 13 J        | 0.41 J      |  |
| TRICHLOROETHENE                              | 5 (MCL)     | 1 U         | 1 U         | 1 U         | 0.36 J      | 0.5 U       | 0.5 U       | 0.50 U        | 0.50 U      | 1 U         | 1 U         | 20 U        | 3.2 U       | 0.5 U       |  |
| VINYL CHLORIDE                               | 2 (MCL)     | 0.69 J      | 0.22 J      | 0.47 J      | 4.5         | 7.3         | 16.9        | 22 J          | 23.2 J      | 1.5         | 2.3         | 330         | 340         | 1.8         |  |
| <b>Semivolatile Organic Compounds (µg/L)</b> |             |             |             |             |             |             |             |               |             |             |             |             |             |             |  |
| 2,4-DIMETHYLPHENOL                           | 730         |             | 9.3 U       | 9.3 U       |             |             |             | 0.664 U       | 0.67 U      |             | 9.3 U       | 4.4 J       |             |             |  |
| 2-METHYLNAPHTHALENE                          | 122         | 9.3 U       | 9.3 U       | 0.9 J       | 0.63 U      | 0.65 U      | 0.654 U     | 0.636 U       | 0.642 U     | 9.9         | 7.4 J       | 19          | 15          | 5.4 J       |  |
| 2-METHYLPHENOL                               | 1830        | 9.3 U       | 9.3 U       | 9.3 U       | 0.77 U      |             |             | 0.776 U       | 0.783 U     | 9.4 U       | 9.3 U       | 8.7 J       | 3.5 J       |             |  |
| 4-METHYLPHENOL                               | 183         | 9.3 U       | 9.3 U       |             | 0.71 U      | 0.74 U      |             | 0.72 U        | 0.726 U     | 9.4 U       | 9.3 U       |             | 14          | 0.73 U      |  |
| ACENAPHTHENE                                 | 365         | 9.3 U       | 9.3 U       | 9.3 U       | 0.58 U      | 0.6 U       | 0.606 U     | 0.589 U       | 0.594 U     | 9.4 U       | 9.3 U       | 9.4 U       | 0.97 J      | 0.88 J      |  |
| BIS(2-ETHYLHEXYL)PHTHALATE                   | 6 (MCL)     | 4.4 J       |             |             | 1.2 U       |             |             | 1.21 U        | 1.23 U      | 4.7 U       |             |             | 3.8 J       |             |  |
| DIETHYL PHTHALATE                            | 29200       |             | 9.3 U       |             |             |             |             | 1.12 J        | 0.998 J     |             | 9.3 U       |             |             |             |  |
| DI-N-BUTYLPHTHALATE                          | 3650        |             |             |             |             | 1.2 U       |             | 1.21 U        | 1.23 U      |             |             |             |             | 1.2 U       |  |
| FLUORENE                                     | 243         |             |             |             | 0.51 U      | 0.53 U      | 0.529 U     | 0.514 U       | 0.519 U     |             |             |             | 0.51 U      | 0.52 U      |  |
| DIBENZO(A,H)ANTHRACENE                       | 0.00917     |             |             |             |             | 1.6 U       |             | 1.59 U        | 1.6 U       |             |             |             |             | 1.6 U       |  |
| INDENO(1,2,3-CD)PYRENE                       | 0.0917      |             |             |             |             | 1.4 U       |             | 1.31 U        | 1.32 U      |             |             |             |             | 1.3 U       |  |
| NAPHTHALENE                                  | 6.2         | 1.1 J       | 0.76 J      | 1.4 J       | 2 J         | 0.43 U      | 0.433 U     | 0.421 U       | 0.425 U     | 5.5 J       | 5.4 J       | 20          | 14          | 1.5 J       |  |
| PHENANTHRENE                                 | 1100        |             | 9.3 U       |             | 0.71 U      | 0.74 U      |             | 0.72 U        | 0.726 U     |             | 9.3 U       |             | 2.4 J       | 2 J         |  |
| <b>Petroleum Hydrocarbons (µg/L)</b>         |             |             |             |             |             |             |             |               |             |             |             |             |             |             |  |
| DIESEL RANGE ORGANICS                        | 650         | 380         | 280         | 760         | 420         | 350         | 183 J       | 92.6 U        | 92.6 U      | 920         | 660         | 2000        | 5500        | 2610        |  |
| Free Product Thickness (feet)                | NA          | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00          | 0.00        | 0.00        | 0.05        | 0.03        | 0.5         | 0.00        |  |

**TABLE 4  
LONG-TERM MONITORING SUMMARY**

**1<sup>ST</sup> SEMI-ANNUAL 2<sup>ND</sup> YEAR MONITORING LETTER REPORT, SITE 6  
NCBC GULFPORT, MISSISSIPPI  
PAGE 2 OF 4**

| WELL IDENTIFICATION                          |             | GPT-6-4     | GPT-6-6     |             |             |             |             |             |             | GPT-6-8     |             |             |             |             |             |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| SAMPLE IDENTIFICATION                        |             | 06GW0407    | 06MW00601   | 06MW00602   | 06MW00603   | 06GW00604   | 06GW006-005 | 06GW0606    | 06GW0607    | 06MW00801   | 06MW00802   | 06MW00803   | 06GW00804   | 06GW008-005 | 06GW0806    |
| SAMPLE DATE                                  |             | 21-Jul-2010 | 22-Jan-2008 | 23-Apr-2008 | 15-Jul-2008 | 28-Oct-2008 | 29-Oct-2009 | 26-Jan-2010 | 21-Jul-2010 | 23-Jan-2008 | 23-Apr-2008 | 15-Jul-2008 | 28-Oct-2008 | 29-Oct-2009 | 26-Jan-2010 |
| Volatile Organic Compounds (µg/L)            | TIER 1 TRG  |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| 1,1,1-TRICHLOROETHANE                        | 200 (MCL)   | NS          |             |             | 1 U         | 0.17 U      |             |             | NS          |             |             | 1 U         | 0.17 U      |             |             |
| 1,1,2-TRICHLOROTRIFLUOROETHANE               | 59400       | NS          | 1 U         | 1 U         | 1 U         | 0.18 U      |             |             | NS          | 1.1         | 0.45 J      | 0.52 J      | 0.6 J       |             |             |
| 1,1-DICHLOROETHANE                           | 798         | NS          | 0.16 J      | 1 U         | 1 U         | 0.12 U      | 0.19 U      | 0.24 U      | NS          | 1 U         | 1 U         | 1 U         | 0.12 U      | 0.19 U      | 0.24 U      |
| 1,1-DICHLOROETHENE                           | 7 (MCL)     | NS          | 1 U         |             | 1 U         | 0.15 U      | 0.24 U      | 0.28 U      | NS          | 1 U         |             | 1 U         | 0.15 U      | 0.24 U      | 0.28 U      |
| 1,2-DICHLOROETHANE                           | 5 (MCL)     | NS          | 0.25 J      |             | 0.21 J      | 0.2 J       |             |             | NS          | 1 U         |             | 1 U         | 0.1 U       |             |             |
| 2-BUTANONE                                   | 1910        | NS          |             | 5 U         |             |             |             |             | NS          |             | 5 U         |             |             |             |             |
| 4-METHYL-2-PENTANONE                         | 139         | NS          | 0.43 J      | 5 U         |             |             | 0.5 U       |             | NS          | 1.4 J       | 1.6 J       |             |             | 0.71 J      |             |
| ACETONE                                      | 608         | NS          | 9.3         |             | 5 U         |             | 1.8 U       | 3.54 J      | NS          | 3.2 J       |             | 5 U         |             | 10 J        | 7.98        |
| BENZENE                                      | 5 (MCL)     | NS          | 2.7         | 2.3         | 2.6         | 2           | 3.3         | 2.67        | NS          | 0.37 J      | 0.2 J       | 0.12 J      | 0.11 U      | 0.16 J      | 0.14 U      |
| CARBON DISULFIDE                             | 1040        | NS          |             | 1 U         |             |             |             |             | NS          |             | 1 U         |             |             |             |             |
| CHLOROETHANE                                 | 3.64        | NS          | 1 U         | 1 U         | 1 U         | 0.18 U      | 0.25 U      | 0.27 U      | NS          | 1 U         | 1 U         | 1 U         | 0.18 U      | 0.25 U      | 0.27 U      |
| CHLOROMETHANE                                | 1.43        | NS          |             |             | 0.42 J      |             |             | 1.13        | NS          |             |             | 0.57 J      |             |             | 1.76        |
| CIS-1,2-DICHLOROETHENE                       | 70 (MCL)    | NS          | 21          | 20          | 20          | 15          | 32          | 24.8        | NS          | 2.6         | 2.1         | 1.2         | 1.5         | 1.3         | 0.45 U      |
| CYCLOHEXANE                                  | NA          | NS          | 0.27 J      | 0.22 J      | 1 U         | 0.2 U       | 0.39 J      | 0.359 J     | NS          | 0.54 J      | 0.27 J      | 0.36 J      | 0.5 J       | 0.14        | 0.2 U       |
| ETHYLBENZENE                                 | 700 (MCL)   | NS          | 3.2         | 3.5         | 4.3         | 4.9         | 8           | 6.03        | NS          | 11 J        | 8           | 12          | 14          | 5.7         | 0.15 U      |
| ISOPROPYLBENZENE                             | 679         | NS          | 0.45 J      | 0.4 J       | 0.4 J       | 0.47 J      | 0.74 J      | 0.754 J     | NS          | 1.2         | 0.62 J      | 1           | 1.6         | 0.38 J      | 0.15 U      |
| METHYL CYCLOHEXANE                           | NA          | NS          | 0.2 J       | 1 U         | 1 U         | 0.17 U      | 0.28 J      | 0.244 J     | NS          | 0.38 J      | 0.22 J      | 0.26 J      | 0.36 J      | 0.12 U      | 0.18 U      |
| METHYLENE CHLORIDE                           | 5 (MCL)     | NS          |             |             | 2 U         |             |             | 0.27 U      | NS          |             |             | 2 U         |             |             | 0.605 U     |
| STYRENE                                      | 100 (MCL)   | NS          |             |             |             |             | 0.29 J      |             | NS          |             |             |             |             | 0.37 J      |             |
| TETRACHLOROETHENE                            | 5 (MCL)     | NS          | 1 U         |             | 1 U         | 0.15 U      |             |             | NS          | 0.15 J      |             | 0.17 J      | 0.26 J      |             |             |
| TOLUENE                                      | 1000 (MCL)  | NS          | 0.92 J      | 1.2         | 1.5         | 1.5         | 3           | 2.93        | NS          | 0.61 J      | 0.49 J      | 0.23 J      | 0.38 J      | 0.34 J      | 0.19 U      |
| TOTAL XYLENES                                | 10000 (MCL) | NS          | 6.8         | 7.5         | 10          | 15          | 17          | 14.7        | NS          | 59 J        | 45          | 60          | 88          | 31          | 0.563 J     |
| TRICHLOROETHENE                              | 5 (MCL)     | NS          | 0.36 J      | 0.34 J      | 0.28 J      | 0.68 J      | 0.5 J       | 0.64 J      | NS          | 1.8         | 0.9 J       | 1.5         | 2.4         | 0.5 U       | 0.5 U       |
| VINYL CHLORIDE                               | 2 (MCL)     | NS          | 1 U         | 1 U         | 1 U         | 0.18 U      | 0.27 J      | 0.2 U       | NS          | 1 U         | 1 U         | 1 U         | 0.18 U      | 0.19 U      | 0.2 U       |
| <b>Semivolatile Organic Compounds (µg/L)</b> |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| 2,4-DIMETHYLPHENOL                           | 730         | NS          |             | 1.2 J       | 1.8 J       |             |             |             | NS          |             | 9.4 U       | 2.6 J       |             |             |             |
| 2-METHYLNAPHTHALENE                          | 122         | NS          | 4.6 J       | 5.6 J       | 8.6 J       | 9.7         | 9.9 J       | 4.54 J      | NS          | 38          | 18          | 30          | 55          | 7.9 J       | 0.642 U     |
| 2-METHYLPHENOL                               | 1830        | NS          | 9.2 U       | 9.3 U       | 9.2 U       | 0.78 U      |             |             | NS          | 1.6 J       | 1.4 J       | 1.4 J       | 1.4 J       |             |             |
| 4-METHYLPHENOL                               | 183         | NS          | 9.2 U       | 9.3 U       |             | 0.72 U      | 0.77 U      |             | NS          | 1.4 J       | 12          |             | 0.71 U      | 4.2 J       |             |
| ACENAPHTHENE                                 | 365         | NS          | 1.2 J       | 0.97 J      | 1.5 J       | 1.3 J       | 1.4 J       | 0.617 J     | NS          | 2.1 J       | 1.3 J       | 1.9 J       | 2.7 J       | 1 J         | 0.594 U     |
| BIS(2-ETHYLHEXYL)PHTHALATE                   | 6 (MCL)     | NS          | 4.6 U       |             |             | 1.2 U       |             |             | NS          | 4.7 U       |             |             | 1.2 U       |             |             |
| DIETHYL PHTHALATE                            | 29200       | NS          |             | 9.3 U       |             |             |             |             | NS          |             | 3.8 J       |             |             |             |             |
| DI-N-BUTYLPHTHALATE                          | 3650        | NS          |             |             |             |             | 1.3 U       |             | NS          |             |             |             |             | 1.4 J       |             |
| FLUORENE                                     | 243         | NS          |             |             |             | 0.91 J      | 0.55 U      | 0.568 J     | NS          |             |             |             | 3.4 J       | 0.74 J      | 0.519 U     |
| DIBENZO(A,H)ANTHRACENE                       | 0.00917     | NS          |             |             |             |             | 1.7 U       |             | NS          |             |             |             |             | 1.7 U       |             |
| INDENO(1,2,3-CD)PYRENE                       | 0.0917      | NS          |             |             |             |             | 1.4 U       |             | NS          |             |             |             |             | 1.4 U       |             |
| NAPHTHALENE                                  | 6.2         | NS          | 6.9 J       | 9.9         | 18          | 19          | 25          | 15.8        | NS          | 44          | 28          | 47          | 48          | 15          | 0.706 J     |
| PHENANTHRENE                                 | 1100        | NS          |             | 9.3 U       |             | 0.72 U      | 1.1 J       |             | NS          |             | 9.4 U       |             | 0.71 U      | 0.82 J      |             |
| <b>Petroleum Hydrocarbons (µg/L)</b>         |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| DIESEL RANGE ORGANICS                        | 650         | NS          | 3400        | 3100        | 3800        | 1900        | 4120        | 2030        | NS          | 9200        | 94 U        | 13000       | 7800        | 11800       | 2490        |
| <b>Free Product Thickness (feet)</b>         | NA          | 0.24        | 0.00        | 0.00        | 0.02        | 0.00        | 0.00        | 0.00        | 0.01        | 0.20        | 0.17        | 0.40        | 0.33        | 0.02        | 0.03        |



**TABLE 4  
LONG-TERM MONITORING SUMMARY**

**1<sup>ST</sup> SEMI-ANNUAL 2<sup>ND</sup> YEAR MONITORING LETTER REPORT, SITE 6  
NCBC GULFPORT, MISSISSIPPI  
PAGE 4 OF 4**

| WELL IDENTIFICATION                          | GPT-6-14     | GPT-6-15    | GPT-6-16    |         |
|--|--------------|-------------|-------------|---------|
| SAMPLE IDENTIFICATION                        | 06MW01401    | 06MW01501   | 06MW01601   |         |
| SAMPLE DATE                                  | July-21-2010 | 21-Jul-2010 | 21-Jul-2010 |         |
| Volatile Organic Compounds (µg/L)            | TIER 1 TRG   |             |             |         |
| 1,1,1-TRICHLOROETHANE                        | 200 (MCL)    | 0.29 U      | 0.29 U      | 0.29 U  |
| 1,1,2-TRICHLOROTRIFLUOROETHANE               | 59400        | 0.33 U      | 0.33 U      | 0.33 U  |
| 1,1-DICHLOROETHANE                           | 798          | 2.77 J      | 0.24 U      | 0.24 U  |
| 1,1-DICHLOROETHENE                           | 7 (MCL)      | 0.28 U      | 0.28 U      | 0.28 U  |
| 1,2-DICHLOROETHANE                           | 5 (MCL)      | 0.22 U      | 0.22 U      | 0.22 U  |
| 2-BUTANONE                                   | 1910         | 1.6 U       | 1.6 U       | 1.6 U   |
| 4-METHYL-2-PENTANONE                         | 139          | 0.50 U      | 0.50 U      | 0.50 U  |
| ACETONE                                      | 608          | 2.28 U      | 3.85 U      | 2.1 U   |
| BENZENE                                      | 5 (MCL)      | 0.312 J     | 0.14 U      | 0.14 U  |
| CARBON DISULFIDE                             | 1040         | 0.26 U      | 0.26 U      | 0.26 U  |
| CHLOROETHANE                                 | 3.64         | 0.27 U      | 0.27 U      | 0.27 U  |
| CHLOROMETHANE                                | 1.43         | 1.35 J      | 1.25 J      | 1.21 J  |
| CIS-1,2-DICHLOROETHENE                       | 70 (MCL)     | 0.794 J     | 0.45 U      | 0.45 U  |
| CYCLOHEXANE                                  | NA           | 0.20 U      | 0.20 U      | 0.20 U  |
| ETHYLBENZENE                                 | 700 (MCL)    | 0.15 U      | 0.15 U      | 0.15 U  |
| ISOPROPYLBENZENE                             | 679          | 0.15 U      | 0.15 U      | 0.15 U  |
| METHYL CYCLOHEXANE                           | NA           | 0.18 J      | 0.18 U      | 0.18 U  |
| METHYLENE CHLORIDE                           | 5 (MCL)      | 0.27 U      | 0.27 U      | 0.27 U  |
| STYRENE                                      | 100 (MCL)    | 0.24 U      | 0.24 U      | 0.24 U  |
| TETRACHLOROETHENE                            | 5 (MCL)      | 0.236 J     | 0.17 U      | 0.17 U  |
| TOLUENE                                      | 1000 (MCL)   | 0.19 U      | 0.19 U      | 0.19 U  |
| TOTAL XYLENES                                | 10000 (MCL)  | 0.22 U      | 0.22 U      | 0.22 U  |
| TRICHLOROETHENE                              | 5 (MCL)      | 0.50 U      | 0.50 U      | 0.50 U  |
| VINYL CHLORIDE                               | 2 (MCL)      | 0.20 U      | 0.20 U      | 0.20 U  |
| <b>Semivolatile Organic Compounds (µg/L)</b> |              |             |             |         |
| 2,4-DIMETHYLPHENOL                           | 730          | 0.657 U     | 0.657 U     | 0.657 U |
| 2-METHYLNAPHTHALENE                          | 122          | 0.63 U      | 0.63 U      | 0.63 U  |
| 2-METHYLPHENOL                               | 1830         | 0.769 U     | 0.769 U     | 0.769 U |
| 4-METHYLPHENOL                               | 183          | 0.713 U     | 0.713 U     | 0.713 U |
| ACENAPHTHENE                                 | 365          | 0.583 U     | 0.583 U     | 0.583 J |
| BIS(2-ETHYLHEXYL)PHTHALATE                   | 6 (MCL)      | 1.23 J      | 1.38 J      | 1.2 U   |
| DIETHYL PHTHALATE                            | 29200        | 0.926 U     | 1.2 J       | 0.926 U |
| DI-N-BUTYLPHTHALATE                          | 3650         | 1.2 U       | 1.57 J      | 1.2 U   |
| FLUORENE                                     | 243          | 0.509 U     | 0.509 U     | 0.509 U |
| DIBENZO(A,H)ANTHRACENE                       | 0.00917      | 1.57 U      | 1.57 U      | 1.57 U  |
| INDENO(1,2,3-CD)PYRENE                       | 0.0917       | 1.3 U       | 1.3 U       | 1.3 U   |
| NAPHTHALENE                                  | 6.2          | 1.92 J      | 0.417 U     | 0.417 U |
| PHENANTHRENE                                 | 1100         | 0.713 U     | 0.713 U     | 0.713 U |
| <b>Petroleum Hydrocarbons (µg/L)</b>         |              |             |             |         |
| DIESEL RANGE ORGANICS                        | 650          | 121 J       | 92.6 U      | 92.6 U  |
| <b>Free Product Thickness (feet)</b>         | NA           | 0.00        | 0.00        | 0.00    |

**Notes:**

TRG = Target Remediation Goal

(D) - duplicate sample

(MCL) = indicates that the MDEQ TRG equals the USEPA Maximum Contaminant Limit

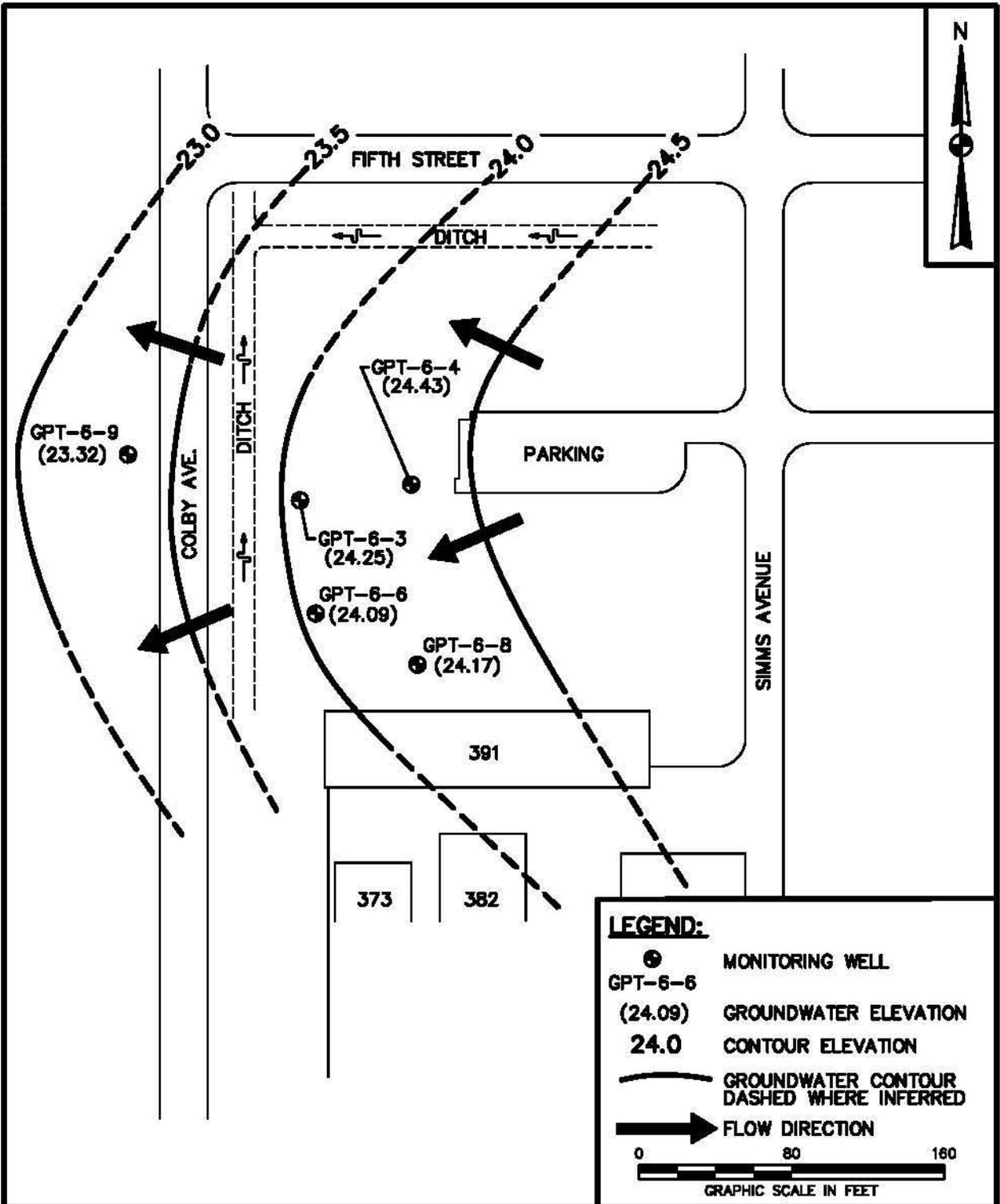
µg/L = microgram per liter

U = concentration less than value shown

J = Estimated concentration less than the practical quantitation limit

TRG exceedances are bold

Blank cells indicate that an analyte was not detected in any samples during that event

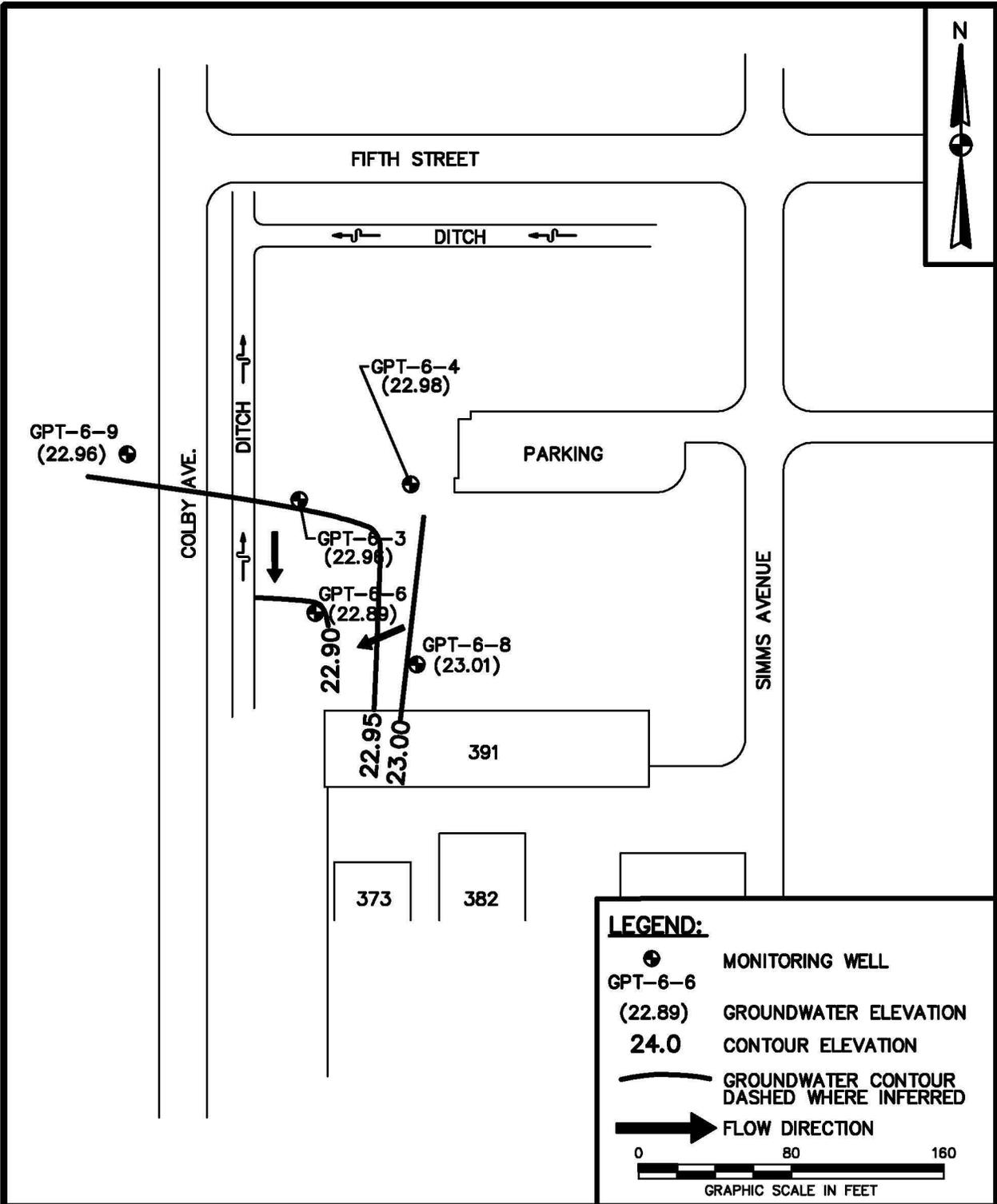


|                   |                 |
|-------------------|-----------------|
| DRAWN BY<br>MF    | DATE<br>4/11/08 |
| CHECKED BY        | DATE            |
| REVISED BY        | DATE            |
| SCALE<br>AS NOTED |                 |



**GROUNDWATER CONTOUR MAP**  
**JANUARY 23, 2005**  
**QUARTERLY GROUNDWATER**  
**MONITORING REPORT**  
**SITE 6 - FIRE FIGHTING TRAINING AREA**  
**NCBC GULFPORT**  
**GULFPORT, MISSISSIPPI**

|                           |           |
|---------------------------|-----------|
| CONTRACT NO.<br>0802      |           |
| OWNER NO.                 |           |
| APPROVED BY               | DATE      |
| DRAWING NO.<br>FIGURE 3-2 | REV.<br>0 |

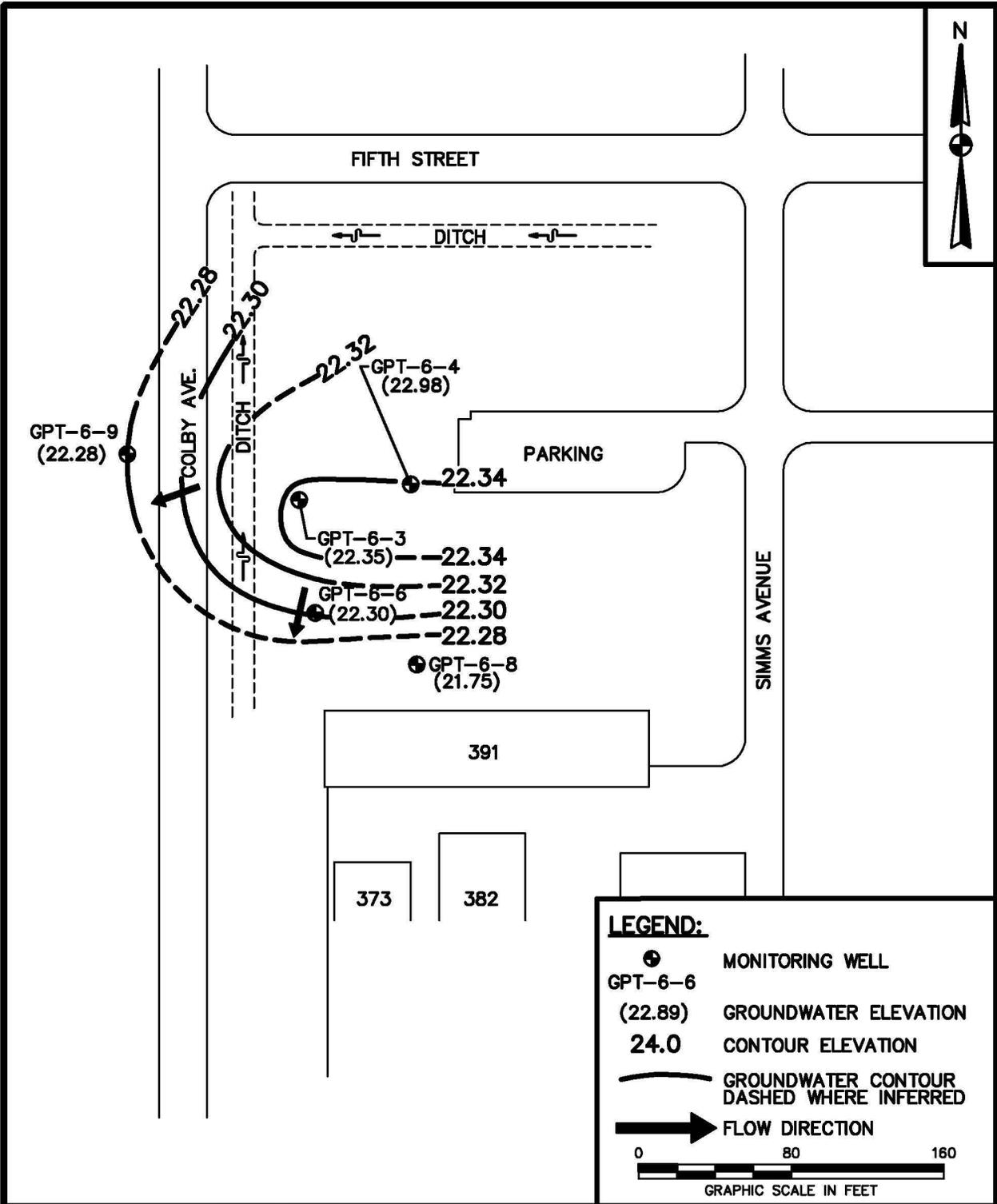


|                   |                 |
|-------------------|-----------------|
| DRAWN BY<br>CK    | DATE<br>7/30/08 |
| CHECKED BY        | DATE            |
| REVISED BY        | DATE            |
| SCALE<br>AS NOTED |                 |



GROUNDWATER CONTOUR MAP  
 APRIL 22, 2008  
 QUARTERLY GROUNDWATER  
 MONITORING REPORT  
 SITE 6 - FIRE FIGHTING TRAINING AREA  
 NCBC GULFPORT  
 GULFPORT, MISSISSIPPI

|                         |           |
|-------------------------|-----------|
| CONTRACT NO.<br>0892    |           |
| OWNER NO.               |           |
| APPROVED BY             | DATE      |
| DRAWING NO.<br>FIGURE 2 | REV.<br>0 |

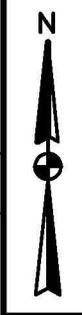
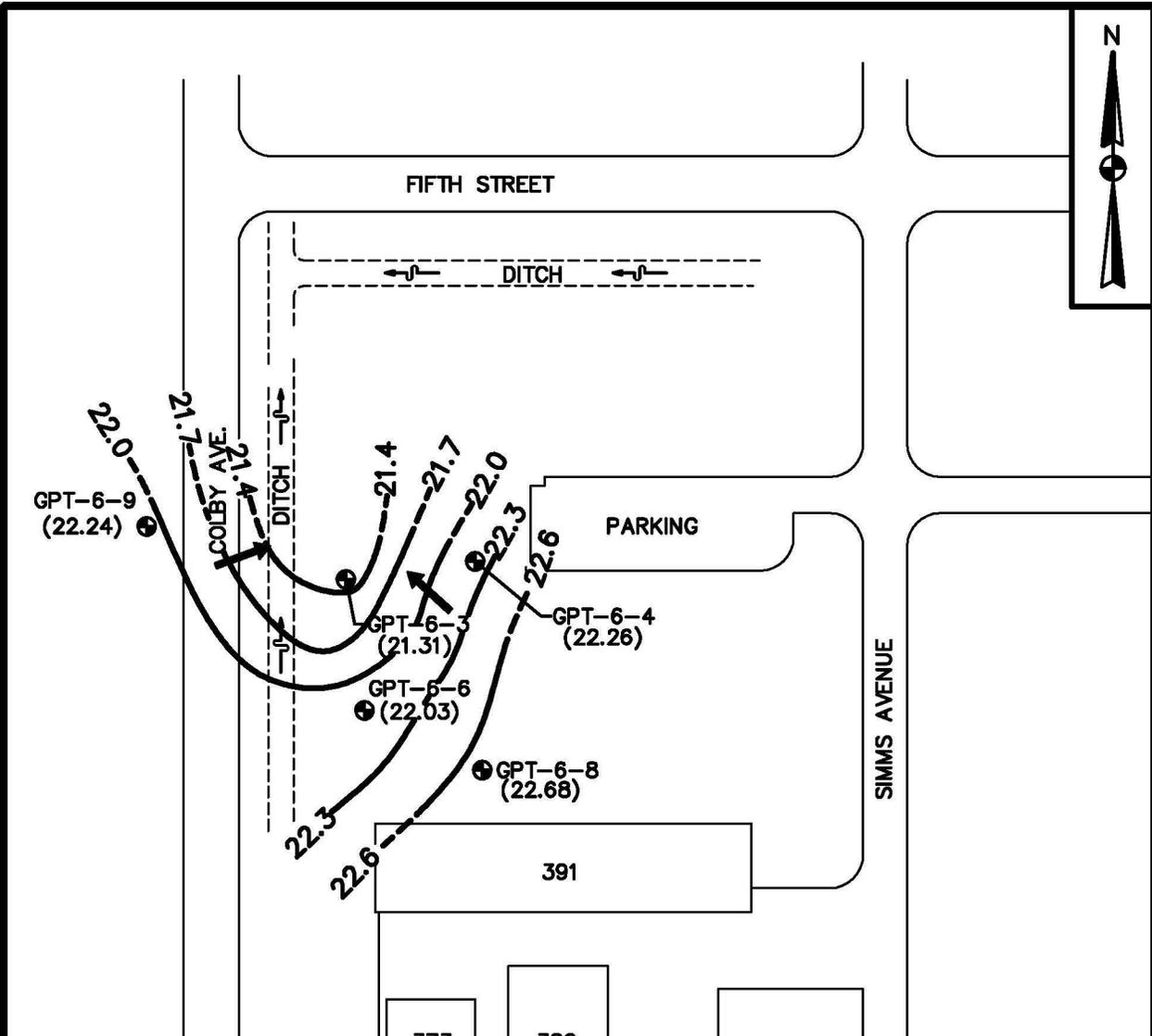


|                   |                  |
|-------------------|------------------|
| DRAWN BY<br>CK    | DATE<br>11/25/08 |
| CHECKED BY        | DATE             |
| REVISED BY        | DATE             |
| SCALE<br>AS NOTED |                  |



GROUNDWATER CONTOUR MAP  
JULY 15, 2008  
QUARTERLY GROUNDWATER  
MONITORING REPORT  
SITE 6 - FIRE FIGHTING TRAINING AREA  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

|                         |           |
|-------------------------|-----------|
| CONTRACT NO.<br>0892    |           |
| OWNER NO.               |           |
| APPROVED BY             | DATE      |
| DRAWING NO.<br>FIGURE 2 | REV.<br>0 |



**LEGEND:**

- ⊕ MONITORING WELL
- GPT-6-6  
(22.89) GROUNDWATER ELEVATION
- 24.0 CONTOUR ELEVATION
- GROUNDWATER CONTOUR  
DASHED WHERE INFERRED
- ➔ FLOW DIRECTION

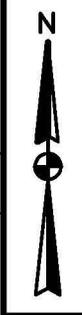
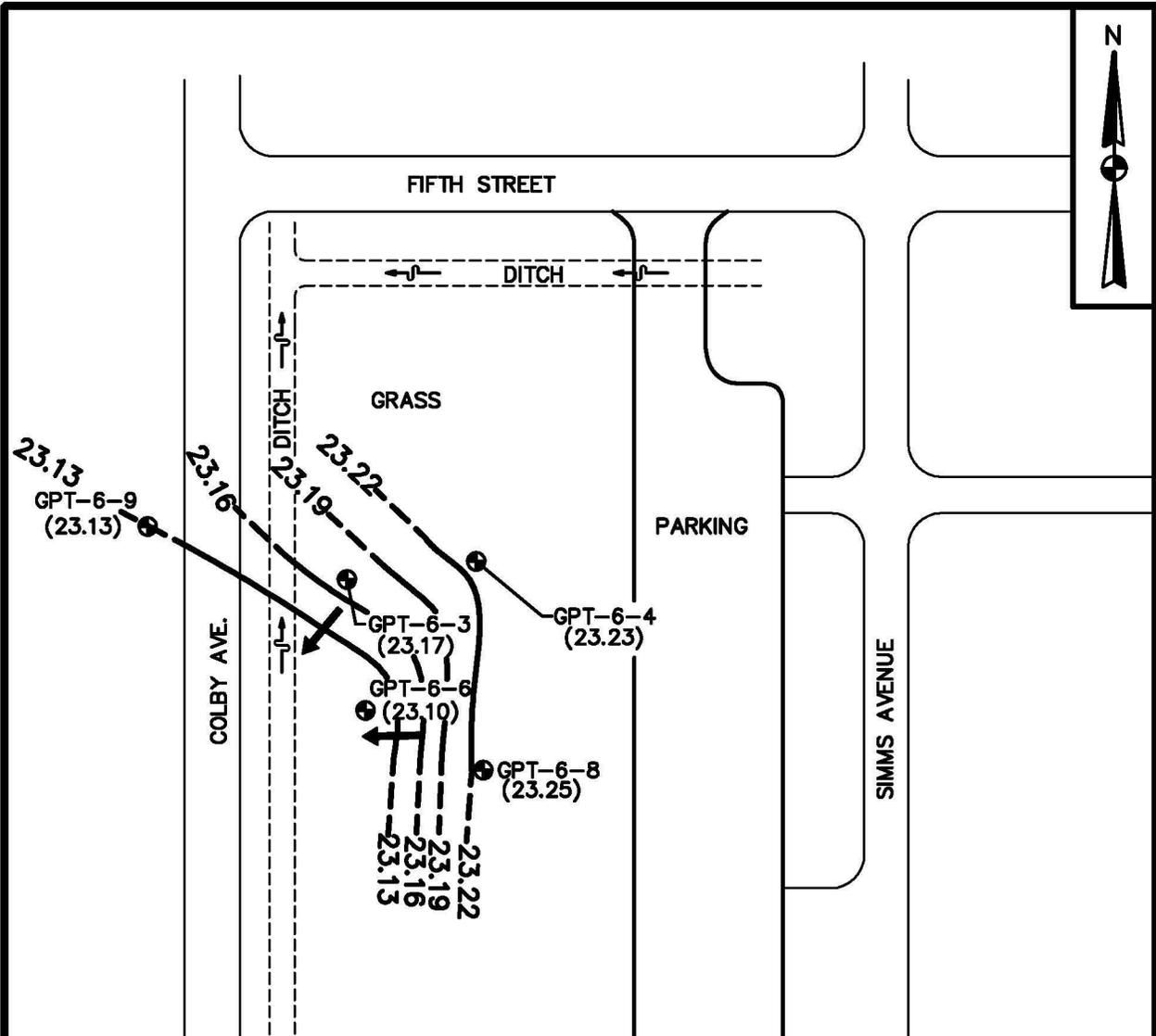
0 80 160  
GRAPHIC SCALE IN FEET

|                   |                 |
|-------------------|-----------------|
| DRAWN BY<br>CK    | DATE<br>2/25/09 |
| CHECKED BY        | DATE            |
| REVISED BY        | DATE            |
| SCALE<br>AS NOTED |                 |



GROUNDWATER CONTOUR MAP  
OCTOBER 28, 2008  
QUARTERLY GROUNDWATER  
MONITORING REPORT  
SITE 6 - FIRE FIGHTING TRAINING AREA  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

|                         |           |
|-------------------------|-----------|
| CONTRACT NO.<br>0892    |           |
| OWNER NO.               |           |
| APPROVED BY             | DATE      |
| DRAWING NO.<br>FIGURE 2 | REV.<br>0 |



**LEGEND:**

- ⊕ MONITORING WELL
- GPT-6-6 (23.25) GROUNDWATER ELEVATION
- 23.22 CONTOUR ELEVATION
- GROUNDWATER CONTOUR DASHED WHERE INFERRED
- ➔ FLOW DIRECTION

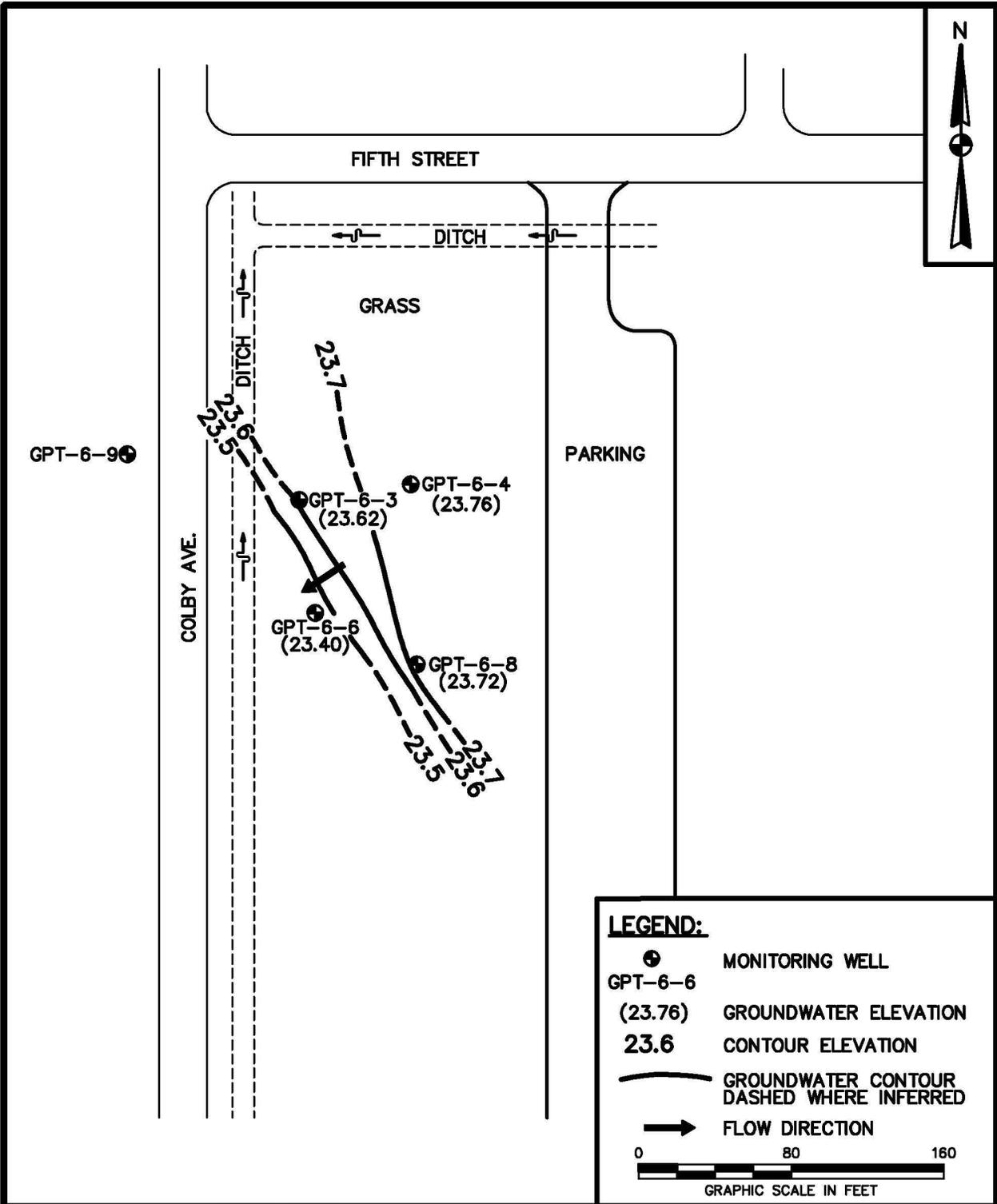
0 80 160  
GRAPHIC SCALE IN FEET

|                   |                 |
|-------------------|-----------------|
| DRAWN BY<br>CK    | DATE<br>1/13/10 |
| CHECKED BY        | DATE            |
| REVISED BY        | DATE            |
| SCALE<br>AS NOTED |                 |



GROUNDWATER CONTOUR MAP  
OCTOBER 28, 2009  
QUARTERLY GROUNDWATER  
MONITORING REPORT  
SITE 6 – FIRE FIGHTING TRAINING AREA  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

|                         |           |
|-------------------------|-----------|
| CONTRACT NO.<br>0892    |           |
| OWNER NO.               |           |
| APPROVED BY             | DATE      |
| DRAWING NO.<br>FIGURE 2 | REV.<br>0 |

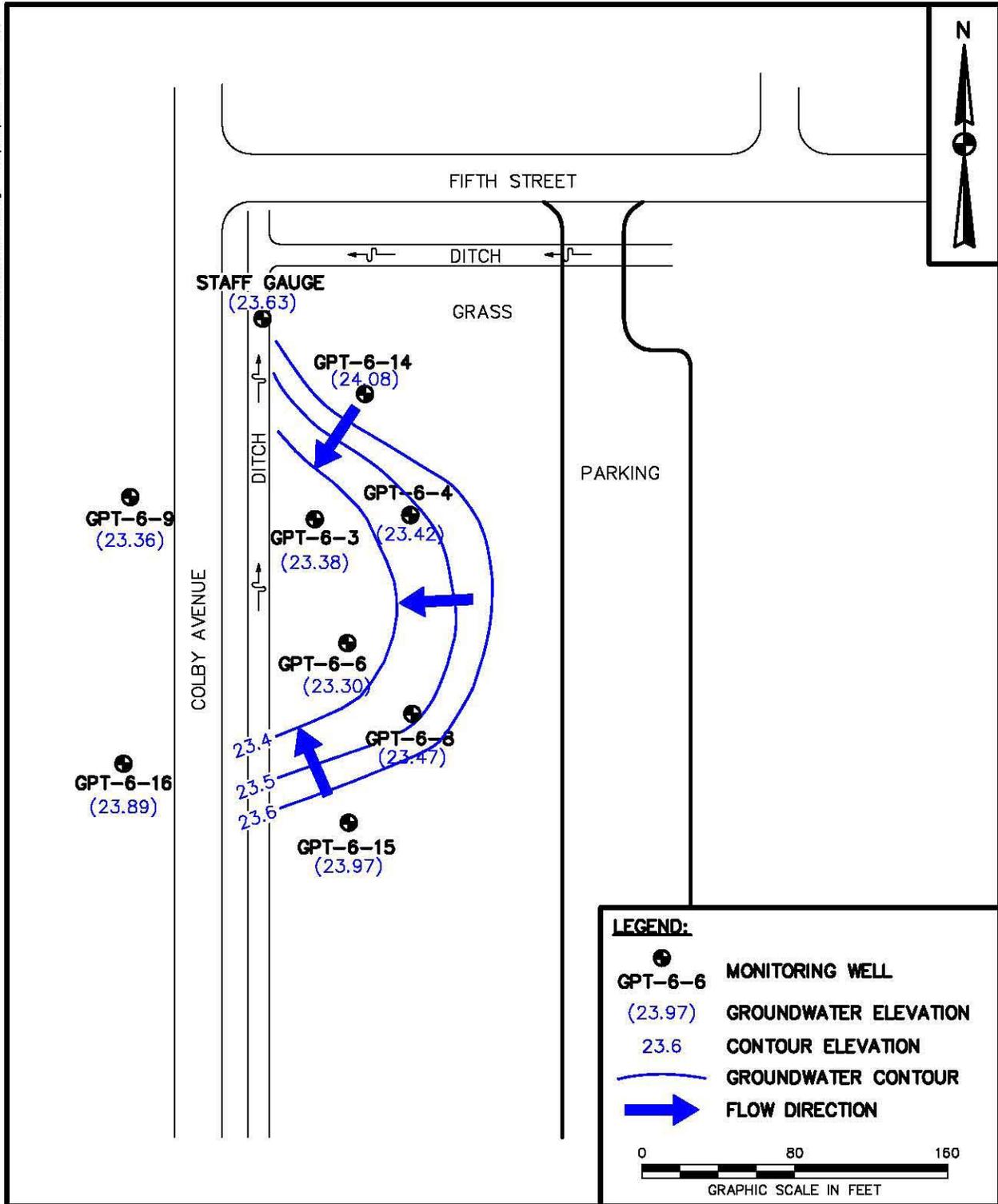


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|-------------------|-----------------|
| DRAWN BY<br>CK    | DATE<br>3/24/10 |
| CHECKED BY        | DATE            |
| REVISED BY        | DATE            |
| SCALE<br>AS NOTED |                 |



GROUNDWATER CONTOUR MAP  
 JANUARY 26, 2010  
 QUARTERLY GROUNDWATER  
 MONITORING REPORT  
 SITE 6 - FIRE FIGHTING TRAINING AREA  
 NCBC GULFPORT  
 GULFPORT, MISSISSIPPI

|                         |           |
|-------------------------|-----------|
| CONTRACT NO.<br>0892    |           |
| OWNER NO.               |           |
| APPROVED BY             | DATE      |
| DRAWING NO.<br>FIGURE 2 | REV.<br>0 |



|                   |                  |
|-------------------|------------------|
| DRAWN BY<br>ND    | DATE<br>11/15/10 |
| CHECKED BY        | DATE             |
| REVISED BY        | DATE             |
| SCALE<br>AS NOTED |                  |



GROUNDWATER CONTOUR MAP JULY 21, 2010  
GROUNDWATER MONITORING REPORT  
SITE 6—FIRE FIGHTING TRAINING AREA  
NCBC GULFPORT  
GULFPORT, MISSISSIPPI

|                         |           |
|-------------------------|-----------|
| CONTRACT NO.<br>0892    |           |
| OWNER NO.               |           |
| APPROVED BY             | DATE      |
| DRAWING NO.<br>FIGURE 2 | REV.<br>0 |

**APPENDIX D**

**SITE 8 INFORMATION**

Table 3-13. Stabilization Dioxin Leachability Test Results for the Sub-base Course Layers

| Sample ID       | Date Collected | Date Sent to Lab | 50 psi Grids  | pg/L     |
|-----------------|----------------|------------------|---------------|----------|
| 05-PS-IS-01-004 | 4/14/2005      | 4/25/2005        | Grid 4/5      | 1.49E-02 |
| 07-PS-IS-01-001 | 4/28/2005      | 5/26/2005        | Grid 7        | 0.00E+00 |
| 02-PS-IS-03-001 | 6/17/2005      | 6/30/2005        | Grid 2 Lift 3 | 0.0854   |
| 05-PS-IS-02-001 | 6/10/2005      | 6/30/2005        | Grid 5 Lift 2 | 1.49     |
| 08-PS-IS-02-001 | 5/27/2005      | 6/30/2005        | Grid 8 Lift 2 | 2.17     |
| 07-PS-IS-02-002 | 5/24/2005      | 6/30/2005        | Grid 7 Lift 2 | 0.719    |
| 06-PS-IS-05-001 | 7/12/2005      | 7/20/2005        | Grid 6 Lift 5 | 0.0777   |
| 01-PS-IS-04-001 | 8/24/2005      | 8/24/2005        | Grid 1 Lift 4 | 3.23E-02 |
| TR-PS-IS-02-001 | 1/20/2006      | 2/24/2006        | Truck Route   | 6.10E-03 |

**PRG - 30 pg/L**

Table 3-18. Stabilization Dioxin Leachability Test Results for Base Course Layers

| Sample ID      | Date Collected | Date Sent to lab | 500 psi Grids | pg/L     |
|----------------|----------------|------------------|---------------|----------|
| TP-PS-IS-001   | 1/31/2006      | 2/24/2006        | Test Pad      | 3.28E-04 |
| BC11-PS-IS-001 | 3/21/2006      | 3/23/2006        | Grid 11       | 6.32E-03 |
| BC17-PS-IS-002 | 3/29/2006      | 4/7/2006         | Grid 17       | 2.67E-03 |

**PRG - 30 pg/L**

Table 3-19. Verification Sampling Results at Wetlands Locations

| Eastings    | Northings   | Sample IDs      | Date Collected | 4025 Results (pg/g) | 8290 Results (ng/kg) |              | Detection Limit |
|-------------|-------------|-----------------|----------------|---------------------|----------------------|--------------|-----------------|
| 889366.3129 | 321778.0468 | 08-SD-VS-119-01 | 7/14/2005      | 10                  |                      |              | 10              |
| 889336.3129 | 321868.0468 | 08-SD-VS-120-01 |                |                     |                      |              |                 |
| 889336.3129 | 321748.0468 | 08-SD-VS-121-01 | 7/14/2005      | 10                  |                      |              | 10              |
| 889306.3129 | 321568.1305 | 08-SD-VS-122-01 |                |                     |                      | N/A          |                 |
| 889306.3129 | 321628.0468 | 08-SD-VS-123-01 |                |                     |                      |              |                 |
| 889306.3129 | 321748.0468 | 08-SD-VS-124-01 | 7/14/2005      | 10                  |                      |              | 10              |
| 889306.3129 | 321868.0468 | 08-SD-VS-125-01 |                |                     |                      |              |                 |
| 889276.3129 | 321898.0468 | 08-SD-VS-126-01 | 5/24/2005      | 19                  |                      |              | 10              |
| 889276.3129 | 321838.0468 | 08-SD-VS-127-01 | 5/24/2005      | 37                  |                      |              | 10              |
| 889276.3129 | 321718.0468 | 08-SD-VS-128-01 | 7/14/2005      | 10                  |                      | MS/MSD       | 10              |
| 889276.3129 | 321568.1305 | 08-SD-VS-129-01 |                |                     |                      | N/A          |                 |
| 889246.3129 | 321628.0468 | 08-SD-VS-130-01 |                |                     |                      |              |                 |
| 889246.3129 | 321748.0468 | 08-SD-VS-131-01 | 5/23/2005      | 30                  | 3.01                 |              | 10              |
| 889246.3129 | 321838.0468 | 08-SD-VS-132-01 | 5/24/2005      | 24                  |                      |              | 10              |
| 889246.3129 | 322048.0468 | 08-SD-VS-133-01 | 5/24/2005      | 24                  | 0.0513               |              | 10              |
| 889216.3129 | 322138.0468 | 08-SD-VS-134-01 | 5/25/2005      | 10                  | 0.434                | DUP - 36 ppt | 10              |
| 889216.3129 | 322018.0468 | 08-SD-VS-135-01 | 5/24/2005      | 19                  |                      |              | 10              |
| 889216.3129 | 321928.0468 | 08-SD-VS-136-01 | 5/24/2005      | 11                  |                      |              | 10              |
| 889216.3129 | 321778.0468 | 08-SD-VS-137-01 | 5/23/2005      | 15                  |                      |              | 10              |
| 889216.3129 | 321688.0468 | 08-SD-VS-138-01 | 5/24/2005      | 44                  |                      |              | 10              |
| 889216.3129 | 321568.1305 | 08-SD-VS-139-01 |                |                     |                      | N/A          |                 |
| 889186.3129 | 321658.0468 | 08-SD-VS-140-01 | 5/23/2005      | 11                  |                      | MS/MSD       | 10              |
| 889186.3129 | 321778.0468 | 08-SD-VS-141-01 | 5/24/2005      | 11                  |                      |              | 10              |
| 889186.3129 | 321928.0468 | 08-SD-VS-142-01 | 5/24/2005      | 10                  | 2.43                 | MS/MSD       | 10              |
| 889186.3129 | 322108.0468 | 08-SD-VS-143-01 | 5/25/2005      | 20                  |                      |              | 10              |
| 889186.3129 | 322198.0468 | 08-SD-VS-144-01 | 7/14/2005      | 10                  |                      |              | 10              |
| 889186.3129 | 322288.0468 | 08-SD-VS-145-01 | 7/15/2005      | 10                  |                      |              | 10              |
| 889156.3129 | 322258.0468 | 08-SD-VS-146-01 | 7/14/2005      | 13                  |                      |              | 10              |
| 889156.3129 | 322198.0468 | 08-SD-VS-147-01 | 7/14/2005      | 10                  |                      |              | 10              |
| 889156.3129 | 322018.0468 | 08-SD-VS-148-01 | 5/24/2005      | 31                  |                      |              | 10              |
| 889156.3129 | 321898.0468 | 08-SD-VS-149-01 | 5/24/2005      | 56                  |                      |              | 10              |
| 889156.3129 | 321838.0468 | 08-SD-VS-150-01 | 5/24/2005      | 17                  |                      |              | 10              |
| 889156.3129 | 321658.0468 | 08-SD-VS-151-01 | 5/23/2005      | 30                  |                      |              | 10              |
| 889156.3129 | 321598.0468 | 08-SD-VS-152-01 |                |                     |                      | N/A          |                 |
| 889126.3129 | 321718.0468 | 08-SD-VS-153-01 | 5/23/2005      | 26                  |                      |              | 10              |
| 889126.3129 | 321838.0468 | 08-SD-VS-154-01 | 5/24/2005      | 22                  | 1.41                 | DUP - 18 ppt | 10              |
| 889126.3129 | 321988.0468 | 08-SD-VS-155-01 | 5/24/2005      | 21                  |                      |              | 10              |
| 889126.3129 | 322138.0468 | 08-SD-VS-156-01 | 5/25/2005      | 10                  |                      |              | 10              |
| 889126.3129 | 322198.0468 | 08-SD-VS-157-01 | 7/14/2005      | 12                  |                      |              | 10              |
| 889126.3129 | 322348.0468 | 08-SD-VS-158-01 | 7/15/2005      | 10                  |                      |              | 10              |

Table 3-19. Verification Sampling Results at Wetlands Locations

| Eastings    | Northings   | Sample IDs      | Date Collected | 4025 Results (pg/g) | 8290 Results (ng/kg) |                      | Detection Limit |
|-------------|-------------|-----------------|----------------|---------------------|----------------------|----------------------|-----------------|
| 889126.3129 | 322408.0468 | 08-SD-VS-159-01 | 7/15/2005      | 10                  |                      |                      | 10              |
| 889096.3129 | 322438.0468 | 08-SD-VS-160-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 889096.3129 | 322288.0468 | 08-SD-VS-161-01 | 7/15/2005      | 10                  |                      |                      | 10              |
| 889096.3129 | 322198.0468 | 08-SD-VS-162-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 889096.3129 | 322108.0468 | 08-SD-VS-163-01 | 5/25/2005      | 10                  |                      |                      | 10              |
| 889096.3129 | 321688.0468 | 08-SD-VS-164-01 | 5/24/2005      | 11                  |                      |                      | 10              |
| 889066.3129 | 322108.0468 | 08-SD-VS-165-01 | 5/25/2005      | 41                  |                      |                      | 10              |
| 889066.3129 | 322258.0468 | 08-SD-VS-166-01 | 7/15/2005      | 19                  |                      |                      | 10              |
| 889066.3129 | 322318.0468 | 08-SD-VS-167-01 | 7/15/2005      | 10                  |                      |                      | 10              |
| 889066.3129 | 322498.0468 | 08-SD-VS-168-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 889066.3129 | 322588.0468 | 08-SD-VS-169-01 | 7/14/2005      | 12                  | 5.88                 |                      | 10              |
| 889036.3129 | 322498.0468 | 08-SD-VS-170-01 | 7/15/2005      | 10                  |                      |                      | 10              |
| 889036.3129 | 322378.0468 | 08-SD-VS-171-01 | 7/15/2005      | 10                  |                      | MS/MSD               | 10              |
| 889036.3129 | 322228.0468 | 08-SD-VS-172-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 889006.3129 | 322228.0468 | 08-SD-VS-173-01 | 7/15/2005      | 51                  | 0.319                |                      | 10              |
| 889006.3129 | 322348.0468 | 08-SD-VS-174-01 | 7/15/2005      | 10                  |                      |                      | 10              |
| 889006.3129 | 322438.0468 | 08-SD-VS-175-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 889006.3129 | 322558.0468 | 08-SD-VS-176-01 | 7/14/2005      | 10                  |                      | MS/MSD               | 10              |
| 888976.3129 | 322678.0468 | 08-SD-VS-177-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 888976.3129 | 322528.0468 | 08-SD-VS-178-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 888976.3129 | 322408.0468 | 08-SD-VS-179-01 | 7/14/2005      | 10                  | 0.521                |                      | 10              |
| 888946.3129 | 322528.0468 | 08-SD-VS-180-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 888946.3129 | 322588.0468 | 08-SD-VS-181-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 888946.3129 | 322678.0468 | 08-SD-VS-182-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 888916.3129 | 322888.0468 | 08-SD-VS-183-01 | 7/20/2005      | 10                  |                      | Less than 10         | 10              |
| 888916.3129 | 322798.0468 | 08-SD-VS-184-01 | 7/20/2005      | 11                  |                      |                      | 10              |
| 888916.3129 | 322618.0468 | 08-SD-VS-185-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 888916.3129 | 322588.0468 | 08-SD-VS-186-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 888886.3129 | 322678.0468 | 08-SD-VS-187-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 888886.3129 | 322798.0468 | 08-SD-VS-188-01 | 7/20/2005      | 10                  |                      |                      | 10              |
| 888886.3129 | 322948.0468 | 08-SD-VS-189-01 | 7/20/2005      | 10                  |                      | Less than 10         | 10              |
| 888856.3129 | 323038.0468 | 08-SD-VS-190-01 | 7/20/2005      |                     |                      |                      |                 |
| 888856.3129 | 322918.0468 | 08-SD-VS-191-01 | 7/20/2005      | 10                  |                      | Less than 10         | 10              |
| 888856.3129 | 322768.0468 | 08-SD-VS-192-01 | 7/14/2005      | 10                  |                      |                      | 10              |
| 888856.3129 | 322708.0468 | 08-SD-VS-193-01 | 7/14/2005      | 10                  | 0.203                | 8290                 | 10              |
| 888826.3129 | 322858.0468 | 08-SD-VS-194-01 | 7/20/2005      | 10                  | 1.13                 | 8290                 | 10              |
| 888826.3129 | 322978.0468 | 08-SD-VS-195-01 | 7/20/2005      | 10                  |                      | Less than 10         | 10              |
| 888826.3129 | 323308.0468 | 08-SD-VS-196-01 |                |                     |                      |                      |                 |
| 888826.3129 | 323368.0468 | 08-SD-VS-197-01 | 7/20/2005      | 10                  | 0.0122               | Less than 10, 8290   | 10              |
| 888796.3129 | 323278.0468 | 08-SD-VS-198-01 | 1/17/2006      | 10                  |                      | Less than 10         |                 |
| 888796.3129 | 323128.0468 | 08-SD-VS-199-01 | 7/20/2005      | 10                  |                      | Less than 10         | 10              |
| 888796.3129 | 323068.0468 | 08-SD-VS-200-01 | 7/20/2005      | 10                  |                      | Less than 10, MS/MSD | 10              |

Table 3-19. Verification Sampling Results at Wetlands Locations

| Eastings    | Northings   | Sample IDs      | Date Collected | 4025 Results (pg/g) | 8290 Results (ng/kg) |                    | Detection Limit |
|-------------|-------------|-----------------|----------------|---------------------|----------------------|--------------------|-----------------|
| 888796.3129 | 322948.0468 | 08-SD-VS-201-01 | 7/20/2005      | 10                  |                      |                    | 10              |
| 888766.3129 | 322798.0468 | 08-SD-VS-202-01 |                |                     |                      |                    |                 |
| 888766.3129 | 322828.0468 | 08-SD-VS-203-01 | 7/20/2005      | 12                  |                      | MS/MSD             | 10              |
| 888766.3129 | 323038.0468 | 08-SD-VS-204-01 | 7/20/2005      | 10                  |                      | Less than 10       | 10              |
| 888766.3129 | 323128.0468 | 08-SD-VS-205-01 | 7/20/2005      | 12                  |                      |                    | 10              |
| 888766.3129 | 323248.0468 | 08-SD-VS-206-01 | 7/20/2005      | 10                  |                      | Less than 10       | 10              |
| 888766.3129 | 323308.0468 | 08-SD-VS-207-01 | 7/20/2005      | 16                  |                      |                    | 10              |
| 888736.3129 | 323308.0468 | 08-SD-VS-208-01 | 7/20/2005      | 10                  |                      | Less than 10       | 10              |
| 888736.3129 | 323128.0468 | 08-SD-VS-209-01 | 7/20/2005      | 10                  |                      | Less than 10       | 10              |
| 888736.3129 | 323068.0468 | 08-SD-VS-210-01 | 7/20/2005      | 10                  |                      | Less than 10       | 10              |
| 888736.3129 | 322888.0468 | 08-SD-VS-211-01 | 7/20/2005      | 14                  |                      |                    | 10              |
| 888706.3129 | 322858.0468 | 08-SD-VS-212-01 | 1/18/2006      | 10                  |                      | Less than 10       |                 |
| 888706.3129 | 322978.0468 | 08-SD-VS-213-01 | 7/20/2005      | 10                  |                      | Less than 10       | 10              |
| 888706.3129 | 323038.0468 | 08-SD-VS-214-01 | 7/20/2005      | 10                  |                      | Less than 10, 8290 | 10              |
| 888706.3129 | 323188.0468 | 08-SD-VS-215-01 | 7/20/2005      | 20                  | 0.762                |                    | 10              |
| 888676.3129 | 323278.0468 | 08-SD-VS-216-01 | 1/17/2006      | 10                  |                      | Less than 10       |                 |
| 888676.3129 | 323218.0468 | 08-SD-VS-217-01 | 1/17/2006      | 10                  |                      | Less than 10       |                 |
| 888646.3129 | 323218.0468 | 08-SD-VS-218-01 | 1/17/2006      | 10                  |                      | Less than 10, 8290 |                 |
| 888856.3129 | 323368.0468 | 08-SD-VS-219-01 | 1/17/2006      | 47                  |                      |                    |                 |
| 888886.3129 | 323368.0468 | 08-SD-VS-220-01 | 1/17/2006      | 12                  |                      |                    |                 |
| 888886.3129 | 323308.0468 | 08-SD-VS-221-01 | 1/17/2006      | 10                  |                      | Less than 10       |                 |
| 888916.3129 | 323398.0468 | 08-SD-VS-222-01 | 1/17/2006      | 10                  |                      | Less than 10       |                 |
| 888916.3129 | 323458.0468 | 08-SD-VS-223-01 | 1/17/2006      | 10                  |                      | Less than 10       |                 |
| 888946.3129 | 323338.0468 | 08-SD-VS-224-01 | 1/17/2006      | 20                  |                      |                    |                 |
| 888976.3129 | 323428.0468 | 08-SD-VS-225-01 | 1/17/2006      | 10                  |                      |                    |                 |
| 889006.3129 | 323488.0468 | 08-SD-VS-226-01 | 1/17/2006      | 10                  |                      | Less than 10       |                 |
| 889006.3129 | 323398.0468 | 08-SD-VS-227-01 |                | 10                  |                      |                    |                 |
| 889036.3129 | 323518.0468 | 08-SD-VS-228-01 | 1/17/2006      | 10                  |                      | Less than 10       |                 |
| 889096.3129 | 323458.0468 | 08-SD-VS-229-01 |                | 11                  |                      |                    |                 |
| 889096.3129 | 323548.0468 | 08-SD-VS-230-01 | 1/17/2006      | 11                  |                      | 8290               |                 |
| 889126.3129 | 323488.0468 | 08-SD-VS-231-01 | 1/16/2006      | 10                  |                      | MS/MSD             |                 |
| 889156.3129 | 323518.0468 | 08-SD-VS-232-01 | 1/16/2006      | 10                  |                      | Less than 10       |                 |
| 889186.3129 | 323488.0468 | 08-SD-VS-233-01 | 1/16/2006      | 11                  |                      |                    |                 |
| 889216.3129 | 323488.0468 | 08-SD-VS-234-01 | 1/16/2006      | 10                  |                      | Less than 10       |                 |
| 889246.3129 | 323548.0468 | 08-SD-VS-235-01 | 1/16/2006      | 10                  |                      | Less than 10, 8290 |                 |
| 889276.3129 | 323458.0468 | 08-SD-VS-236-01 |                | 10                  |                      |                    |                 |
| 889306.3129 | 323548.0468 | 08-SD-VS-237-01 |                | 10                  |                      | Less than 10       |                 |
| 889336.3129 | 323548.0468 | 08-SD-VS-238-01 | 1/16/2006      | 10                  |                      | Less than 10       |                 |
| 889336.3129 | 323488.0468 | 08-SD-VS-239-01 | 1/16/2006      | 10                  |                      | Less than 10       |                 |
| 889366.3129 | 323518.3834 | 08-SD-VS-240-01 |                | 11                  |                      |                    |                 |
| 889396.3129 | 323578.0468 | 08-SD-VS-241-01 | 1/16/2006      | 10                  |                      | Less than 10       |                 |
| 889426.3129 | 323608.0468 | 08-SD-VS-242-01 | 1/16/2006      | 10                  |                      | Less than 10       |                 |

Table 3-19. Verification Sampling Results at Wetlands Locations

| Eastings    | Northings   | Sample IDs      | Date Collected | 4025 Results (pg/g) | 8290 Results (ng/kg) | Detection Limit |
|-------------|-------------|-----------------|----------------|---------------------|----------------------|-----------------|
| 889486.3129 | 323608.0468 | 08-SD-VS-243-01 | 1/16/2006      | 10                  |                      | Less than 10    |
| 889546.3129 | 323578.0468 | 08-SD-VS-244-01 | 1/16/2006      | 10                  |                      | Less than 10    |
| 889576.3129 | 323548.0468 | 08-SD-VS-245-01 |                | 10                  |                      | Less than 10    |
| 889636.3129 | 323548.0468 | 08-SD-VS-246-01 |                | 10                  |                      | Less than 10    |
| 889636.3129 | 323638.0468 | 08-SD-VS-247-01 | 1/16/2006      | 10                  |                      | Less than 10    |
| 889696.3129 | 323548.0468 | 08-SD-VS-248-01 |                | 28                  |                      |                 |
| 889726.3129 | 323578.0468 | 08-SD-VS-249-01 | 1/16/2006      | 10                  |                      | Less than 10    |
| 889756.3129 | 323578.0468 | 08-SD-VS-250-01 | 1/16/2006      | 10                  |                      | Less than 10    |
| 889786.3129 | 323578.0468 | 08-SD-VS-251-01 | 1/18/2006      | 11                  |                      |                 |
| 889816.3129 | 323698.0468 | 08-SD-VS-252-01 | 1/18/2006      | 10                  |                      | Less than 10    |
| 889816.3129 | 323788.0468 | 08-SD-VS-253-01 | 1/18/2006      | 10                  |                      | Less than 10    |
| 889846.3129 | 323698.0468 | 08-SD-VS-254-01 | 1/18/2006      | 13                  |                      |                 |
| 889876.3129 | 323788.0468 | 08-SD-VS-255-01 | 1/18/2006      | 10                  |                      | Less than 10    |
| 889906.3129 | 323788.0468 | 08-SD-VS-256-01 | 1/18/2006      | 10                  |                      | MS/MSD          |

Table 3-20. Verification Sample Results at Ditch Locations

| Eastings   | Northings  | Sample IDs      | Date Collected | 4025 Results (pg/g) | 8290 Results (ng/kg) |                      | Detection Limit |
|------------|------------|-----------------|----------------|---------------------|----------------------|----------------------|-----------------|
| N/A        | N/A        | 04-PV-FL-02-003 | 3/7/2005       | 10                  |                      | Less than 10         | 10              |
| N/A        | N/A        | 04-PV-FL-02-004 | 3/7/2005       | 12                  |                      |                      | 10              |
| N/A        | N/A        | 04-PV-FL-02-006 | 3/7/2005       | 12                  |                      |                      | 1               |
| N/A        | N/A        | 04-PV-FL-02-008 | 3/7/2005       | 11                  |                      |                      | 1               |
| N/A        | N/A        | 06-PV-SW-02-001 | 3/17/2005      | 12                  |                      |                      | 10              |
| N/A        | N/A        | 06-PV-SW-02-002 | 3/17/2005      | 12                  |                      |                      | 10              |
| N/A        | N/A        | 06-PV-FL-02-003 | 3/17/2005      | 12                  |                      |                      | 10              |
| N/A        | N/A        | 06-PV-SW-02-004 | 3/17/2005      | 11                  |                      |                      | 10              |
| N/A        | N/A        | 06-PV-FL-02-005 | 3/17/2005      | 11                  |                      |                      | 10              |
| N/A        | N/A        | 06-PV-SW-02-006 | 3/17/2005      | 11                  |                      |                      | 10              |
| N/A        | N/A        | 07-PV-FL-01-01  | 5/25/2005      | 15                  |                      |                      | 10              |
| N/A        | N/A        | 07-PV-FL-01-02  | 5/25/2005      | 10                  |                      | Less than 10         | 10              |
| N/A        | N/A        | 07-PV-FL-01-03  | 5/25/2005      | 10                  |                      | Less than 10         | 10              |
| N/A        | N/A        | 07-PV-FL-01-04  | 5/25/2005      | 10                  |                      | Less than 10         | 10              |
| N/A        | N/A        | 07-PV-FL-01-05  | 5/25/2005      | 10                  |                      | Less than 10, MS/MSD | 10              |
| N/A        | N/A        | 07-PV-SW-02-010 | 3/10/2005      | 17                  |                      |                      | 10              |
| N/A        | N/A        | 07-PV-SW-02-011 | 3/10/2005      | 17                  |                      |                      | 10              |
| N/A        | N/A        | 07-PV-FL-02-012 | 3/10/2005      | 17                  |                      |                      | 10              |
| 320657.496 | 894150.424 | 8-PV-FL-01-001  | 7/18/2005      | 10                  |                      |                      | 10              |
| 320595.798 | 894086.09  | 8-PV-FL-01-002  | 7/18/2005      | 10                  |                      |                      | 10              |
| 320462.684 | 893946.977 | 8-PV-FL-01-003  | 7/18/2005      | 10                  |                      | MS/MSD               | 10              |
| 320385.488 | 893872.724 | 8-PV-FL-01-004  | 7/18/2005      | 12                  | 7.66                 | 8290                 | 10              |
| 320279.55  | 893761.52  | 8-PV-FL-01-005  | 7/18/2005      | 64                  |                      |                      | 10              |
| 320097.571 | 893574.756 | 8-PV-FL-01-006  | 7/18/2005      | 23                  |                      |                      | 10              |
| 319985.236 | 893460.034 | 8-PV-FL-01-007  | 7/18/2005      | 21                  |                      |                      | 10              |
| 893965.223 | 320272.61  | 09-PV-FL-01-01  | 5/25/2005      | 11                  |                      |                      | 10              |
| 893902.479 | 320336.313 | 09-PV-FL-01-02  | 5/25/2005      | 30                  |                      |                      | 10              |
| 892385.203 | 320367.247 | 10-PV-FL-01-001 | 7/18/2005      | 10                  |                      |                      | 10              |
| 892349.255 | 320399.776 | 10-PV-FL-01-002 | 7/18/2005      | 10                  |                      | MS/MSD               | 10              |
| 892295.048 | 320477.648 | 10-PV-FL-01-003 | 7/18/2005      | 10                  |                      |                      | 10              |
| 892234.373 | 320656.647 | 10-PV-FL-01-004 | 7/18/2005      | 10                  |                      |                      | 10              |
| 892225.051 | 320809.699 | 10-PV-FL-01-005 | 7/18/2005      | 10                  | 0.0591               | 8290                 | 10              |
| 892220.577 | 320868.515 | 10-PV-FL-01-006 | 7/18/2005      | 17                  |                      |                      | 10              |
| 892229.5   | 320941.044 | 10-PV-FL-01-007 | 7/18/2005      | 10                  |                      |                      | 10              |
| 892881.206 | 319856.222 | 11-PV-FL-01-001 | 7/18/2005      | 10                  |                      |                      | 10              |
| 892784.712 | 319962.795 | 11-PV-FL-01-002 | 7/18/2005      | 10                  |                      |                      | 10              |
| 892135.346 | 321028.269 | 12-PV-FL-01-001 | 7/20/2005      | 10                  |                      |                      | 10              |
| 892056.287 | 321029.197 | 12-PV-FL-01-002 | 7/20/2005      | 11                  |                      |                      | 10              |
| 891942.033 | 321025.101 | 12-PV-FL-01-003 | 7/20/2005      | 11                  |                      |                      | 10              |
| 891827.358 | 321026.606 | 12-PV-FL-01-004 | 7/20/2005      | 10                  |                      | Less than 10, MS/MSD | 10              |
| 891711.223 | 321624.765 | 12-PV-FL-01-005 | 7/20/2005      | 10                  | 0.0494               | Less than 10, 8290   | 10              |
| 891603.104 | 321017.803 | 12-PV-FL-01-006 | 7/20/2005      | 15                  |                      |                      | 10              |

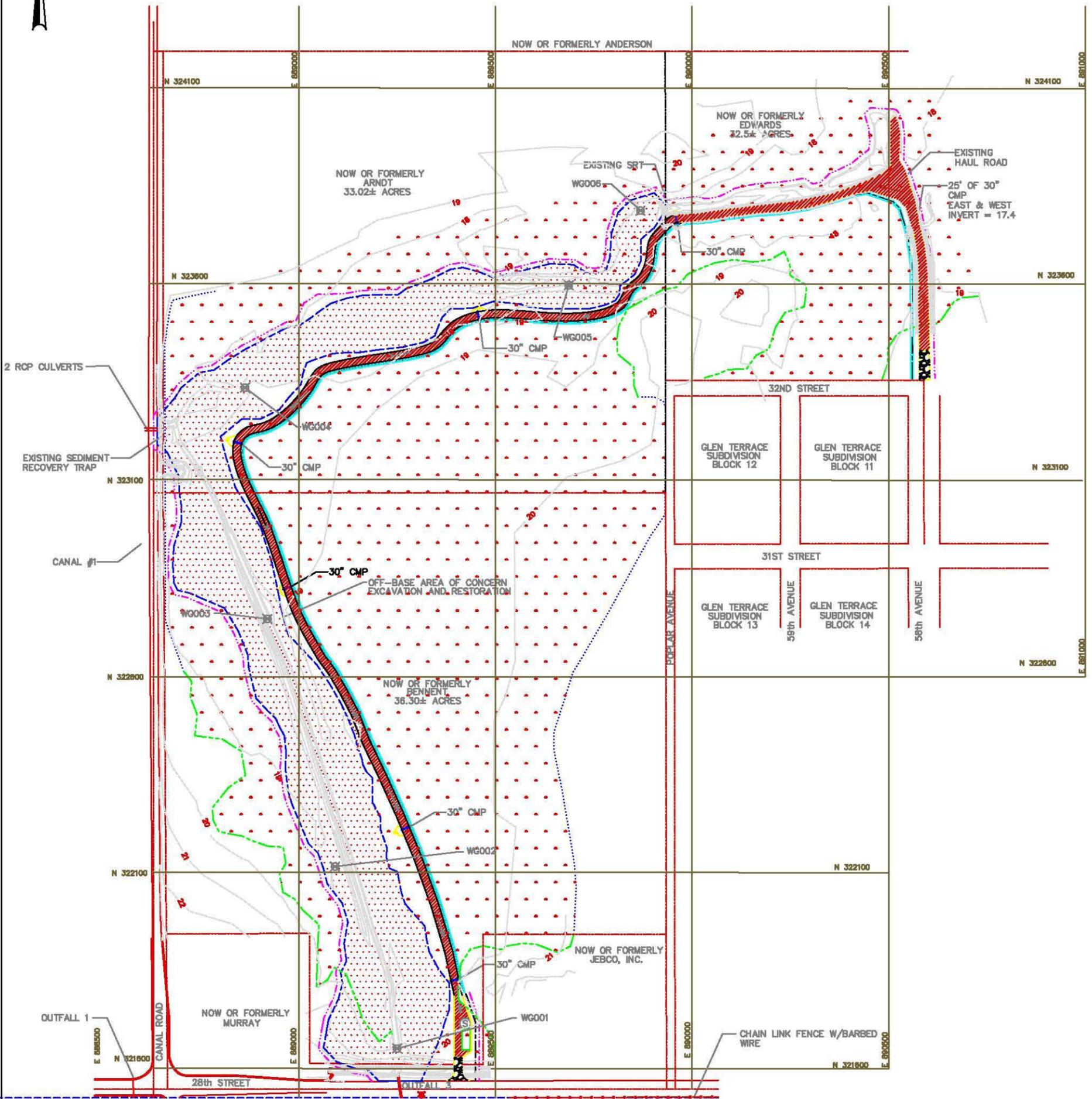
Table 3-20. Verification Sample Results at Ditch Locations

| Eastings   | Northings  | Sample IDs      | Date Collected                                       | 4025 Results (pg/g) | 8290 Results (ng/kg) | Detection Limit    |
|------------|------------|-----------------|--|---------------------|----------------------|--------------------|
| 891420.191 | 321018.894 | 12-PV-FL-01-007 | 7/20/2005  | 10                  |                      | Less than 10<br>10 |
| 891344.828 | 321022.241 | 12-PV-FL-01-008 | 7/20/2005  | 10                  |                      | Less than 10<br>10 |
| 891220.262 | 321025.46  | 12-PV-FL-01-009 | 7/20/2005  | 10                  |                      | Less than 10<br>10 |
| 891130.435 | 321026.355 | 12-PV-FL-01-010 | 7/20/2005  | 10                  |                      | Less than 10<br>10 |
| 890977.987 | 321028.204 | 12-PV-FL-01-011 | 7/20/2005  | 10                  |                      | Less than 10<br>10 |
| 890890.124 | 321024.988 | 12-PV-FL-01-012 | 7/20/2005  | 10                  |                      | MS/MSD<br>10       |
| 890768.565 | 321020.984 | 12-PV-FL-01-013 | 7/20/2005  | 10                  |                      | Less than 10<br>10 |
| 890617.812 | 321027.477 | 12-PV-FL-01-014 | 7/20/2005  | 12                  |                      | 10                 |
| 890499.843 | 321027.625 | 12-PV-FL-01-015 | 1/29/2006  | 17                  |                      | MS/MSD             |
| 890408.592 | 321025.717 | 12-PV-FL-01-016 | 1/29/2006  | 14                  |                      |                    |
| 890296.596 | 321026.875 | 12-PV-FL-01-017 | 1/29/2006  | 10                  |                      | Less than 10       |
| 890140.17  | 321030.341 | 12-PV-FL-01-018 | 1/29/2006  | 29                  |                      |                    |
| 890047.505 | 321023.807 | 12-PV-FL-01-019 | 1/29/2006  | 10                  |                      | Less than 10       |
| 889401.567 | 321439.386 | 13-PV-FL-01-001 | 11/22/2005   | 10                  |                      | Less than 10       |
| 889386.684 | 321372.724 | 13-PV-FL-01-002 | 11/22/2005   | 10                  |                      | Less than 10       |
| 889390.266 | 321222.644 | 13-PV-FL-01-003 | 11/22/2005   | 10                  |                      | Less than 10       |
| 889383.836 | 321078.123 | 13-PV-FL-01-004 | 11/22/2005   | 10                  |                      | Less than 10, MSD  |
| 889483.733 | 321023.741 | 14-PV-FL-01-001 | 11/22/2005   | 10                  |                      | Less than 10       |
| 889569.994 | 321024.216 | 14-PV-FL-01-002 | 11/22/2005   | 10                  |                      | Less than 10       |
| 889660.083 | 321023.816 | 14-PV-FL-01-003 | 11/22/2005   | 10                  |                      | Less than 10       |
| 889839.639 | 321024.002 | 14-PV-FL-01-004 | 11/22/2005   | 10                  |                      | Less than 10       |
| 889657.471 | 321474.07  | 15-PV-FL-01-001 | 7/20/2005  | 10                  |                      | Less than 10<br>10 |
| 889567.737 | 321472.225 | 15-PV-FL-01-002 | 7/20/2005  | 10                  |                      | Less than 10<br>10 |
| 889334.708 | 321466.251 | 15-PV-FL-01-003 | 1/28/2006  | 10                  |                      | Less than 10       |
| 889238.731 | 321467.199 | 15-PV-FL-01-004 | 1/28/2006  | 24                  |                      |                    |
| 889138.838 | 321468.751 | 15-PV-FL-01-005 | 1/28/2006  | 10                  |                      | Less than 10       |
| 889086.057 | 321469.092 | 15-PV-FL-01-006 | 1/28/2006  | 18                  |                      |                    |
| 888966.235 | 321467.904 | 15-PV-FL-01-007 | 1/28/2006  | 22                  |                      |                    |
| 888817.199 | 321467.727 | 15-PV-FL-01-008 | 1/28/2006  | 10                  |                      | Less than 10       |
| 889952.781 | 319009.298 | 16-PV-FL-01-001 | 7/19/2005  | 14                  |                      | 10                 |
| 889950.861 | 319155.068 | 16-PV-FL-01-002 | 7/19/2005  | 10                  |                      | 10                 |
| 889951.764 | 319306.992 | 16-PV-FL-01-003 | 7/19/2005  | 10                  |                      | 10                 |
| 889351.514 | 319365.044 | 16-PV-FL-01-004 | 7/19/2005  | 10                  |                      | 10                 |
| 889955.174 | 319553.027 | 16-PV-FL-01-005 | 7/19/2005  | 10                  |                      | 10                 |
| 889957.785 | 319635.882 | 16-PV-FL-01-006 | 7/19/2005  | 10                  |                      | 10                 |
| 889957.164 | 319727.107 | 16-PV-FL-01-007 | 7/19/2005  | 10                  |                      | 10                 |
| 889955.49  | 319815.291 | 16-PV-FL-01-008 | 7/19/2005  | 10                  |                      | 10                 |
| 889954.493 | 319965.132 | 16-PV-FL-01-009 | 7/19/2005  | 10                  | 0.0914               | 8290<br>10         |
| 889355.525 | 320081.181 | 16-PV-FL-01-010 | 7/19/2005  | 10                  |                      | 10                 |
|            |            | 16-PV-FL-01-011 | Waived by Navy as they fell within the fenced bunker |                     |                      |                    |
|            |            | 16-PV-FL-01-012 | Waived by Navy as they fell within the fenced bunker |                     |                      |                    |

Table 3-20. Verification Sample Results at Ditch Locations

| Eastings   | Northings  | Sample IDs      | Date Collected | 4025 Results (pg/g) | 8290 Results (ng/kg) |        | Detection Limit |
|------------|------------|-----------------|----------------|---------------------|----------------------|--------|-----------------|
| 889953.504 | 320525.234 | 16-PV-FL-01-013 | 1/29/2006      | 16                  |                      |        |                 |
| 889957.871 | 320575.127 | 16-PV-FL-01-014 | 1/29/2006      | 10                  |                      |        |                 |
| 889959.434 | 320742.747 | 16-PV-FL-01-015 | 1/29/2006      | 10                  |                      |        |                 |
| 889960.31  | 320840.375 | 16-PV-FL-01-016 | 1/29/2006      | 16                  |                      |        |                 |
| 889959.591 | 320954.3   | 16-PV-FL-01-017 | 1/29/2006      | 13                  |                      |        |                 |
| 892993.233 | 319024.007 | 17-PV-FL-01-01  | 5/25/2005      | 36                  |                      |        | 10              |
| 892934.816 | 319024.114 | 17-PV-FL-01-02  | 5/25/2005      | 25                  |                      |        | 10              |
| 892618.629 | 319023.388 | 17-PV-FL-01-03  | 5/25/2005      | 10                  |                      |        | 10              |
| 892467.872 | 319022.069 | 17-PV-FL-01-04  | 5/25/2005      | 10                  |                      | DUP    | 10              |
| 892322.228 | 319023.101 | 17-PV-FL-01-05  | 5/25/2005      | 10                  |                      |        | 10              |
| 892222.749 | 319021.881 | 17-PV-FL-01-06  | 5/25/2005      | 10                  |                      |        | 10              |
| 894779.503 | 319382.136 | K-PV-FL-01-001  | 7/19/2005      | 10                  |                      | MS/MSD | 10              |
| 894698.299 | 319310.339 | K-PV-FL-01-002  | 7/19/2005      | 10                  | 0.798                | 8290   | 10              |
| 894794.265 | 319223.131 | K-PV-FL-01-003  | 7/19/2005      | 11                  |                      |        | 10              |
| 894534.369 | 319149.283 | K-PV-FL-01-004  | 7/19/2005      | 10                  |                      |        | 10              |
| 894444.272 | 319065.223 | K-PV-FL-01-005  | 7/19/2005      | 10                  |                      |        | 10              |
| 894275.561 | 319030.086 | K-PV-FL-01-006  | 7/19/2005      | 10                  |                      |        | 10              |
| 894921.366 | 320771.035 | G-PV-FL-01-001  | 7/18/2005      | 18                  |                      |        | 10              |
| 895032.665 | 320771.326 | G-PV-FL-01-002  | 7/18/2005      | 14                  |                      |        | 10              |
| 895162.711 | 320775.545 | G-PV-FL-01-003  | 7/18/2005      | 10                  |                      |        | 10              |

## **FIGURES**



**EXPLANATION**

-  WETLANDS
-  EXTENT OF CONTAMINATION
-  HAUL ROAD



1746 Cole Blvd., Suite 350  
Lakewood, CO 80401

DRAWN BY:  
SC

APPROVED BY:  
RW

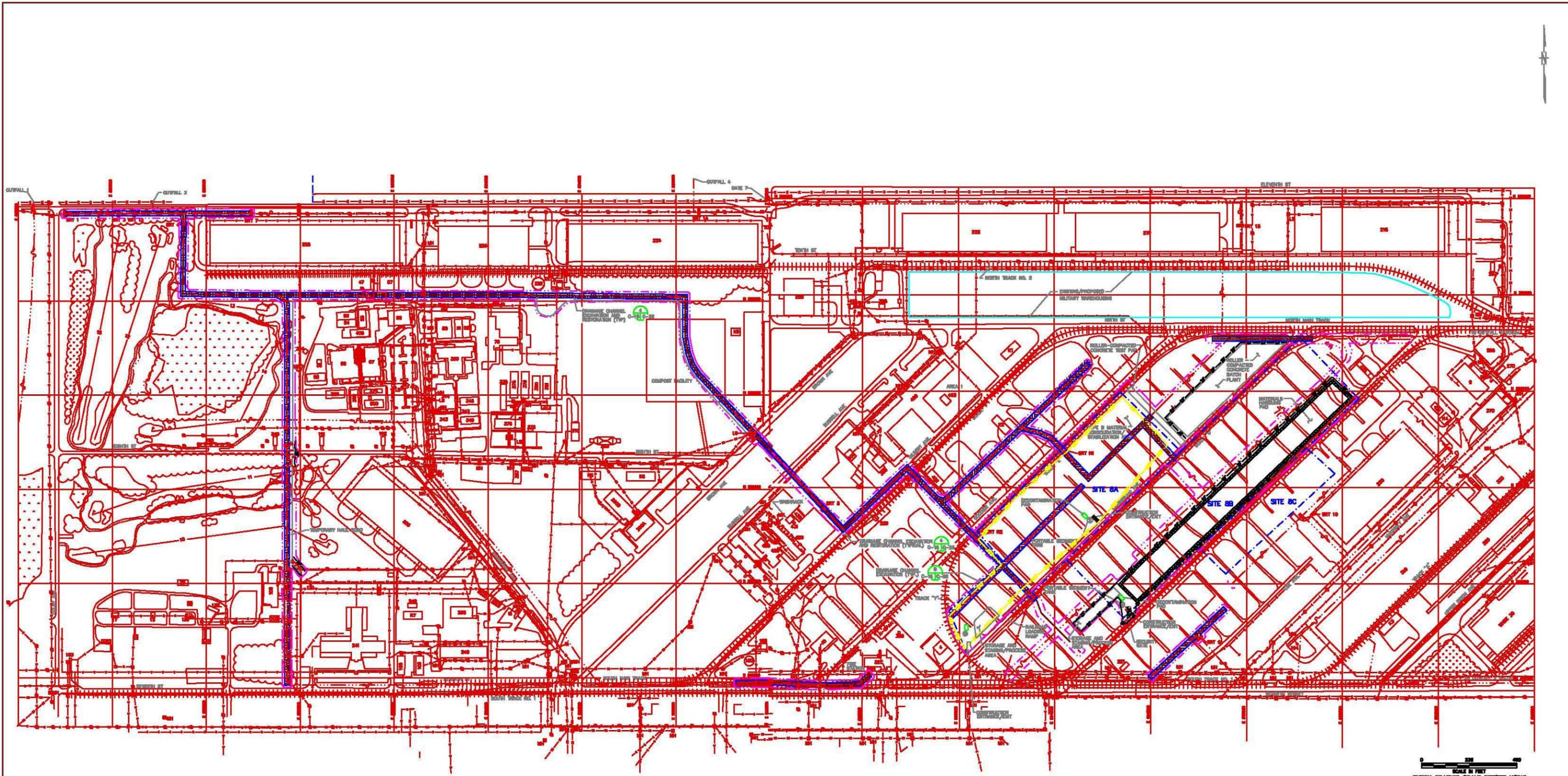
DATE:  
2/12/07

SIZE:  
**B**

NAVAL CONSTRUCTION BATTALION CENTER, GULFPORT, MISSISSIPPI

**FIGURE 3-1**  
**EXTENT OF CONTAMINATION - WETLANDS**  
**SITE 8 - HERBICIDE ORANGE STORAGE AREA**

|                    |                    |
|--------------------|--------------------|
| PROJECT CODE: 5300 | CONTRACT CODE: XX  |
| SCALE: 1"=650'     | FILENAME: 5300.DWG |
| SHEET: - OF -      | REV: -             |



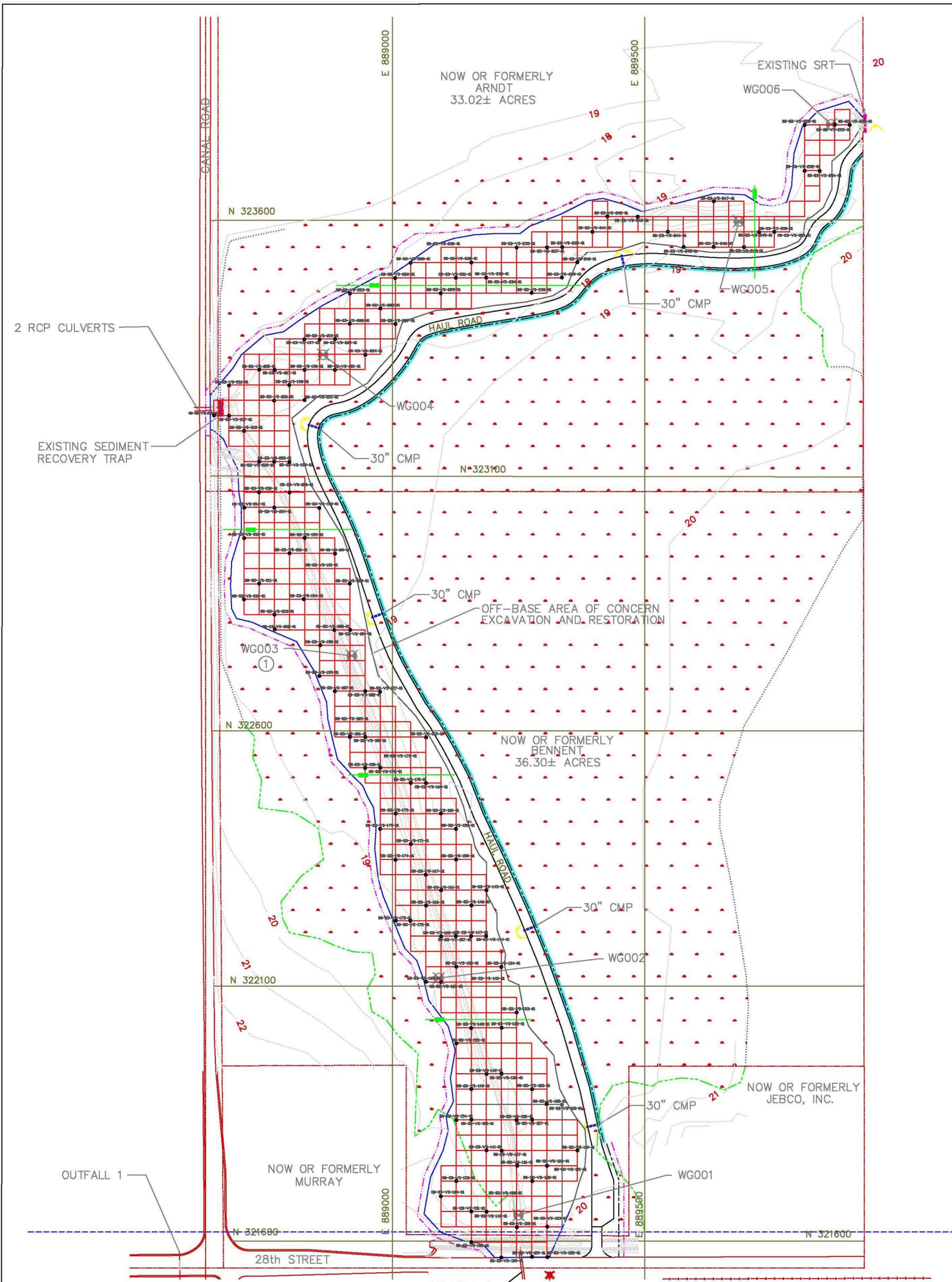
SCALE IN FEET  
CHECK GRAPHIC SCALE BEFORE USING

 Contaminated Ditches



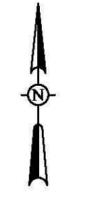
1746 Cole Blvd., Suite 350  
Lakewood, CO 80401

|                    |  |                    |                   |        |
|--------------------|--|--------------------|-------------------|--------|
| DRAWN BY:<br>MJ    | NAVAL CONSTRUCTION BATTALION CENTER, GULFPORT, MISSISSIPPI   |                    |                   |        |
|                    | <b>FIGURE 3-2</b><br><b>EXTENT OF CONTAMINATION</b><br><b>DITCHES</b><br><b>SITE 8 - HERBICIDE ORANGE STORAGE AREA</b> |                    |                   |        |
| APPROVED BY:<br>RW | DATE:<br>2/21/07   | PROJECT CODE: 5300 | CONTRACT CODE: XX |        |
| SIZE: <b>B</b>     | SCALE:   | FILENAME: 5300.DWG | SHEET: - OF -     | REV: - |



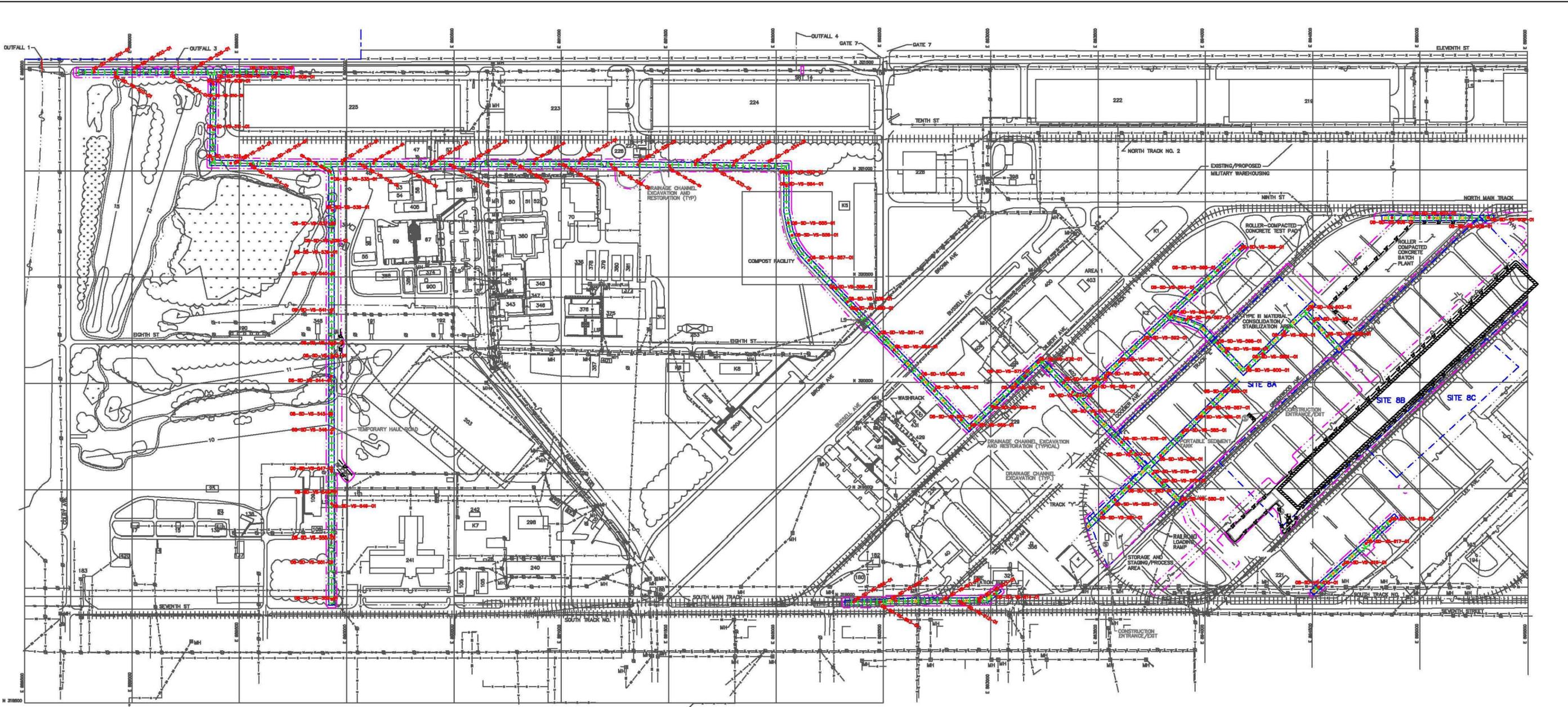
**EXPLANATION**

- WETLANDS
- 08-SD-VS-153-01 VERIFICATION SAMPLE LOCATION AND NUMBER
- SAMPLING GRID (30 FEET BY 30 FEET)
- WG001 TEMPORARY MONITORING WELL LOCATION (ABANDONED)



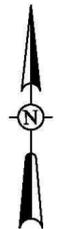
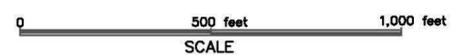
1746 Cole Blvd., Suite 350  
Lakewood, CO 80401

|                     |   |                    |               |
|---------------------|---|--------------------|---------------|
| DRAWN BY:<br>SC     | NAVAL CONSTRUCTION BATTALION CENTER, GULFPORT, MISSISSIPPI  |                    |               |
| APPROVED BY:<br>ROW | <b>FIGURE 3-3</b><br><b>DEPTH OF EXCAVATION AND</b><br><b>VERIFICATION SAMPLE LOCATIONS WETLANDS</b><br><b>SITE - 8 HERBICIDE ORANGE STORAGE AREA</b> |                    |               |
| DATE:<br>2/12/07    | PROJECT CODE: 5300.002  | CONTRACT CODE: XX  |               |
| SIZE:<br>D          | SCALE: NTS  | FILENAME: 5300.DWG | SHEET: - OF - |
|                     |   |                    | REV: -        |



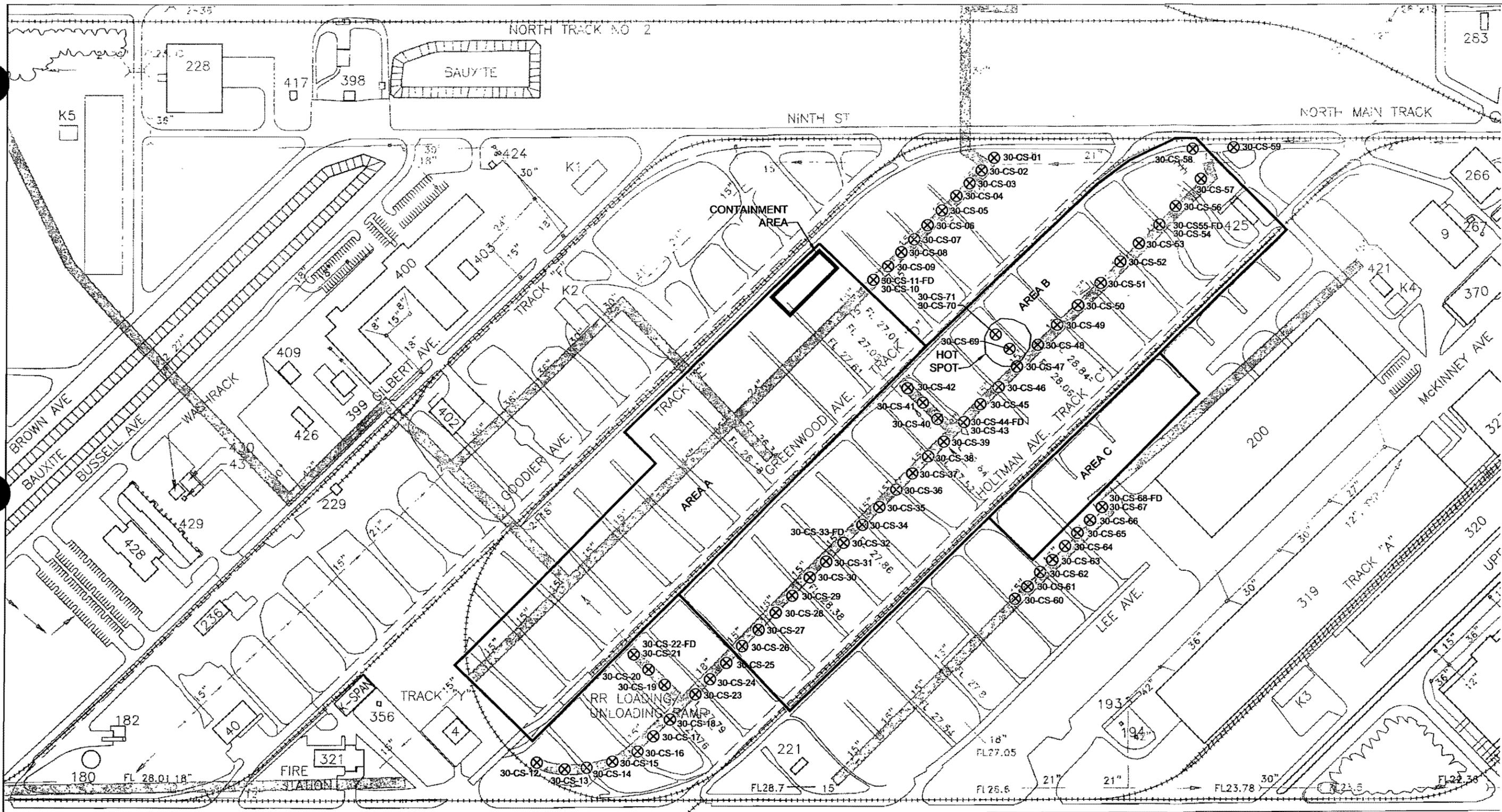
**EXPLANATION**

- — — — — DITCH VERIFICATION SAMPLING GRID
- SAMPLE LOCATIONS AND NUMBERS



1746 Cole Blvd., Suite 350  
Lakewood, CO 80401

|                     |  |                    |               |        |
|---------------------|--|--------------------|---------------|--------|
| DRAWN BY:<br>SC     | NAVAL CONSTRUCTION BATTALION CENTER, GULFPORT, MISSISSIPPI   |                    |               |        |
| APPROVED BY:<br>ROW | <b>FIGURE 3-4<br/>EXTENT OF DITCH EXCAVATIONS AND<br/>VERIFICATION SAMPLE LOCATIONS<br/>SITE 8 - HERBICIDE ORANGE STORAGE AREA</b> |                    |               |        |
| DATE:<br>3/6/07     | PROJECT CODE: 5300   | CONTRACT CODE: XX  |               |        |
| SIZE:<br><b>D</b>   | SCALE: NTS   | FILENAME: 5300.DWG | SHEET: - OF - | REV: - |



**LEGEND:**  
 - DITCH LINE  
 - SAMPLE LOCATIONS  
 30-CS-12 - SAMPLE LOCATIONS  
 FD - FIELD DUPLICATE

**FIGURE 5**  
**DITCH LINE SAMPLE LOCATIONS**  
 NAVAL CONSTRUCTION BATTALION CENTER,  
 GULFPORT, MS

**TABLE 2**  
**Summary of Confirmatory Sample Results**  
*Site 8 Ditch Remediation – NCBC Gulfport, MS*

| <b>Sample ID</b> | <b>Toxicity Equivalent (TEQ)</b> |
|------------------|----------------------------------|
| 30-CS-01         | 0.763                            |
| 30-CS-02         | 2.0                              |
| 30-CS-03         | 0.748                            |
| 30-CS-04         | 1.7                              |
| 30-CS-05         | 3.22                             |
| 30-CS-06         | 0.881                            |
| 30-CS-07         | 4.13                             |
| 30-CS-08         | 2.16                             |
| 30-CS-09         | 0.68                             |
| 30-CS-10         | 4.15                             |
| 30-CS-11         | 4.89                             |
| 30-CS-12         | 0.443                            |
| 30-CS-13         | 4.12                             |
| 30-CS-14         | 0.81                             |
| 30-CS-15         | 0.714                            |
| 30-CS-16         | 0.359                            |
| 30-CS-17         | 0.389                            |
| 30-CS-18         | 0.455                            |
| 30-CS-19         | 0.937                            |
| 30-CS-20         | 0.523                            |
| 30-CS-21         | 0.922                            |
| 30-CS-22         | 0.639                            |
| 30-CS-23         | 0.754                            |
| 30-CS-24         | 0.38                             |
| 30-CS-25         | 0.477                            |
| 30-CS-26         | 0.594                            |
| 30-CS-27         | 0.294                            |
| 30-CS-28         | 0.43                             |
| 30-CS-29         | 0.272                            |
| 30-CS-30         | 0.813                            |
| 30-CS-31         | 0.596                            |
| 30-CS-32         | 0.488                            |
| 30-CS-33         | 0.392                            |
| 30-CS-34         | 2.18                             |
| 30-CS-35         | 3.2                              |
| 30-CS-36         | 0.271                            |
| 30-CS-37         | 2.94                             |
| 30-CS-38         | 0.832                            |
| 30-CS-39         | 3.82                             |
| 30-CS-40         | 0.605                            |
| 30-CS-41         | 10.4                             |
| 30-CS-42         | 4.09                             |

Attachment A

Soil Samples

## Appendix A Soil Analytical Results for Gulfport Area B / C; Canal Road Spoils Piles Excavations

| Date      | Sample Name       | Sample Location       | Time  | Type | Waste Characterization | Confirmation | Water/Soil | Analytical Methods | Sample Results | Above TRG (4.26 ng/kg) | Comments   |
|-----------|-------------------|-----------------------|-------|------|------------------------|--------------|------------|--------------------|----------------|------------------------|--|
| 6/13/2008 | 001A-PV-IS-00-001 | Grid A001/flagged     | 13:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.160)    | no                     |  |
| 6/13/2008 | 001B-PV-IS-00-001 | Grid B001/flagged     | 13:20 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.142)    | no                     |  |
| 6/13/2008 | 002B-PV-IS-00-001 | Grid B002/flagged     | 13:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.124)    | no                     |  |
| 6/13/2008 | 006B-PV-IS-00-001 | Grid B006/flagged     | 13:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.180)    | no                     |  |
| 4/11/2008 | 007B-PV-IS-00-001 | Grid B7/flagged       | 8:30  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 2.08 pg/g      | no                     |  |
| 4/11/2008 | 008B-PV-IS-00-001 | Grid B8/flagged       | 8:35  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.475 pg/g     | no                     |  |
| 4/11/2008 | 009B-PV-IS-00-001 | Grid B9/flagged       | 8:40  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.26 pg/g      | no                     |  |
| 4/11/2008 | 010B-PV-IS-00-001 | Grid B10/flagged      | 8:45  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.579 pg/g     | no                     |  |
| 4/11/2008 | 011B-PV-IS-00-001 | Grid B11/flagged      | 8:50  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.208)    | no                     |  |
| 4/11/2008 | 012B-PV-IS-00-001 | Grid B12/flagged      | 8:55  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 17.4           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 4/23/2008 | 012B-PV-IS-00-002 | Grid B12/flagged      | 15:35 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 3.69           | no                     | Over-excavation sample for B12                                     |
| 4/11/2008 | 013B-PV-IS-00-001 | Grid B13/flagged      | 9:00  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 3.26 pg/g      | no                     |  |
| 4/16/2008 | 014B-PV-IS-00-001 | Grid B14/flagged      | 9:35  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.06           | no                     |  |
| 4/16/2008 | 015B-PV-IS-00-001 | Grid B15/flagged      | 9:37  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 2.04           | no                     |  |
| 4/16/2008 | 016B-PV-IS-00-001 | Grid B16/flagged      | 9:40  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 2.07           | no                     |  |
| 4/16/2008 | 017B-PV-IS-00-001 | Grid B17/flagged      | 9:45  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.2            | no                     |  |
| 4/16/2008 | 018B-PV-IS-00-001 | Grid B18/flagged      | 9:50  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.91           | no                     |  |
| 4/16/2008 | 019B-PV-IS-00-001 | Grid B19/flagged      | 10:14 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 12.2           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 4/29/2008 | 019B-PV-IS-00-002 | Grid B19/flagged      | 14:35 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | (<0.254)       | no                     | Over-excavation sample for B19                                     |
| 4/16/2008 | 020B-PV-IS-00-001 | Grid B20/flagged      | 10:16 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.962          | no                     |  |
| 4/16/2008 | 021B-PV-IS-00-001 | Grid B21/flagged      | 10:20 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 3.28           | no                     |  |
| 4/16/2008 | 022B-PV-IS-00-001 | Grid B22/flagged      | 10:23 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 7.05           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 4/29/2008 | 022B-PV-IS-00-002 | Grid B22/flagged      | 14:45 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.641          | no                     | Over-excavation sample for B22                                     |
| 4/16/2008 | 023B-PV-IS-00-001 | Grid B23/flagged      | 10:26 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.452)    | no                     |  |
| 4/17/2008 | 023C-PV-IS-00-001 | Grid C23/flagged      | 15:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.966)    | no                     |  |
| 4/17/2008 | 023C-PV-IS-dd-001 | Grid C23(dup)/flagged | 16:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.999)    | no                     | Duplicate sample for grid C23                                      |
| 4/16/2008 | 024B-PV-IS-00-001 | Grid B24/flagged      | 10:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.224          | no                     |  |
| 4/16/2008 | 025B-PV-IS-00-001 | Grid B25/flagged      | 16:45 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.177          | no                     |  |
| 4/16/2008 | 026B-PV-IS-00-001 | Grid B26/flagged      | 16:49 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 6.75           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 4/29/2008 | 026B-PV-IS-00-002 | Grid B26/flagged      | 14:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.64           | no                     | Over-excavation sample for B26                                     |
| 4/16/2008 | 027B-PV-IS-00-001 | Grid B27/flagged      | 17:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 3.92           | no                     |  |
| 4/16/2008 | 028B-PV-IS-00-001 | Grid B28/flagged      | 17:04 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 5.63           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 4/29/2008 | 028B-PV-IS-00-002 | Grid B28/flagged      | 14:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.77           | no                     | Over-excavation sample for B28                                     |
| 4/16/2008 | 029B-PV-IS-00-001 | Grid B29/flagged      | 17:08 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 12.4           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 4/29/2008 | 029B-PV-IS-00-002 | Grid B29/flagged      | 15:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.82           | no                     | Over-excavation sample for B29                                     |
| 4/17/2008 | 030B-PV-IS-00-001 | Grid B30/flagged      | 16:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 2.79           | no                     |  |
| 4/23/2008 | 035B-PV-IS-00-001 | Grid B35/flagged      | 17:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.543          | no                     |  |
| 4/24/2008 | 036A-PV-IS-00-001 | Grid A36/flagged      | 15:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.259          | no                     |  |
| 4/23/2008 | 036B-PV-IS-00-001 | Grid B36/flagged      | 17:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.702          | no                     |  |
| 4/24/2008 | 037A-PV-IS-00-001 | Grid A37/flagged      | 15:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.585          | no                     |  |
| 4/23/2008 | 037B-PV-IS-00-001 | Grid B37/flagged      | 16:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.279          | no                     |  |
| 4/24/2008 | 038A-PV-IS-00-001 | Grid A38/flagged      | 15:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.21           | no                     |  |
| 4/24/2008 | 038A-PV-IS-dd-001 | Grid A38/flagged      | 15:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.231          | no                     | Duplicate sample for grid A38 (Lab sample ID:038A-PV-IS-11-001)    |
| 4/23/2008 | 038B-PV-IS-00-001 | Grid B38/flagged      | 16:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 3.34           | no                     |  |
| 4/23/2008 | 039B-PV-IS-00-001 | Grid B39/flagged      | 16:40 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 2.04           | no                     |  |
| 4/24/2008 | 040B-PV-IS-00-001 | Grid B40/flagged      | 15:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.271)    | no                     |  |
| 4/24/2008 | 041B-PV-IS-00-001 | Grid B41/flagged      | 15:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.378          | no                     |  |
| 4/24/2008 | 042B-PV-IS-00-001 | Grid B42/flagged      | 16:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.235)    | no                     |  |
| 4/24/2008 | 043B-PV-IS-00-001 | Grid B43/flagged      | 16:05 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.234          | no                     |  |
| 4/24/2008 | 044B-PV-IS-00-001 | Grid B44/flagged      | 16:20 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.292          | no                     |  |
| 4/24/2008 | 045B-PV-IS-00-001 | Grid B45/flagged      | 16:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.311          | no                     |  |
| 5/5/2008  | 046B-PV-IS-00-001 | Grid B46/flagged      | 15:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.511          | no                     |  |
| 5/5/2008  | 047B-PV-IS-00-001 | Grid B47/flagged      | 15:05 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.21           | no                     |  |
| 5/5/2008  | 048B-PV-IS-00-001 | Grid B48/flagged      | 15:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.432)    | no                     |  |
| 5/5/2008  | 048B-PV-IS-dd-001 | Grid B48/flagged      | 15:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.272)    | no                     |  |
| 5/7/2008  | 049B-PV-IS-00-001 | Grid B49/flagged      | 15:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.65           | no                     |  |
| 5/7/2008  | 050B-PV-IS-00-001 | Grid B50/flagged      | 15:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.289)    | no                     |  |
| 5/7/2008  | 051A-PV-IS-00-001 | Grid A51/flagged      | 16:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.222)    | no                     |  |

Soil Sampling Log  
N62467-02-D-0471  
Naval Construction Battalion Center

| Date      | Sample Name           | Sample Location         | Time  | Type | Waste Characterization | Confirmation | Water/Soil | Analytical Methods | Sample Results | Above TRG (4.26 ng/kg) | Comments   |
|-----------|-----------------------|-------------------------|-------|------|------------------------|--------------|------------|--------------------|----------------|------------------------|--|
| 5/7/2008  | 052A-PV-IS-00-001     | Grid A52/flagged        | 16:05 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.88           | no                     |  |
| 5/7/2008  | 053A-PV-IS-00-001     | Grid A53/flagged        | 16:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 4.14           | no                     |  |
| 5/7/2008  | 054A-PV-IS-00-001     | Grid A54/flagged        | 16:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 26.5           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 5/20/2008 | 054A-PV-IS-00-002     | Grid A54#2/flagged      | 14:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.449          | no                     |  |
| 5/7/2008  | 055A-PV-IS-00-001     | Grid A55/flagged        | 16:20 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.215)    | no                     |  |
| 5/7/2008  | 056A-PV-IS-00-001     | Grid A56/flagged        | 16:45 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.507          | no                     |  |
| 5/7/2008  | 057A-PV-IS-00-001     | Grid A57/flagged        | 16:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.792          | no                     |  |
| 5/7/2008  | 058A-PV-IS-00-001     | Grid A58/flagged        | 16:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.902          | no                     |  |
| 5/7/2008  | 059.1A-PV-IS-00-001   | Grid A59.1/flagged      | 17:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.38           | no                     |  |
| 5/7/2008  | 059A-PV-IS-00-001     | Grid A59/flagged        | 17:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.343)    | no                     |  |
| 5/2/2008  | 060A-PV-IS-00-001     | Grid A60/flagged        | 15:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.157)    | no                     |  |
| 5/2/2008  | 061A-PV-IS-00-001     | Grid A61/flagged        | 15:45 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.348          | no                     |  |
| 5/2/2008  | 062B-PV-IS-00-001     | Grid B62/flagged        | 15:40 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.263)    | no                     |  |
| 5/2/2008  | 063B-PV-IS-00-001     | Grid B63/flagged        | 15:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 3.21           | no                     |  |
| 5/2/2008  | 064B-PV-IS-00-001     | Grid B64/flagged        | 15:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 2.6            | no                     |  |
| 5/1/2008  | 065B-PV-IS-00-001     | Grid B65/flagged        | 16:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.251)    | no                     |  |
| 5/1/2008  | 066B-PV-IS-00-001     | Grid B66/flagged        | 16:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.277)    | no                     |  |
| 5/2/2008  | 067B-PV-IS-00-001     | Grid B67/flagged        | 16:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.205)    | no                     |  |
| 5/2/2008  | 068B-PV-IS-00-001     | Grid B68/flagged        | 16:05 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.362          | no                     |  |
| 5/8/2008  | 069A-PV-IS-00-001     | Grid A69/flagged        | 13:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.253)    | no                     |  |
| 5/8/2008  | 069B-PV-IS-00-001     | Grid B69/flagged        | 14:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.236)    | no                     |  |
| 5/5/2008  | 070A-PV-IS-00-001     | Grid A70/flagged        | 14:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.272          | no                     |  |
| 5/5/2008  | 070B-PV-IS-00-001     | Grid B70/flagged        | 14:35 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.308)    | no                     |  |
| 5/8/2008  | 071A-PV-IS-00-001     | Grid A71/flagged        | 14:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.294          | no                     |  |
| 5/8/2008  | 071B-PV-IS-00-001     | Grid B71/flagged        | 14:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.354)    | no                     |  |
| 5/8/2008  | 072A-PV-IS-00-001     | Grid A72/flagged        | 14:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.213)    | no                     |  |
| 5/8/2008  | 072B-PV-IS-00-001     | Grid B72/flagged        | 14:35 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.312)    | no                     |  |
| 5/8/2008  | 073A-PV-IS-00-001     | Grid A73/flagged        | 14:40 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.294)    | no                     |  |
| 5/8/2008  | 073B-PV-IS-00-001     | Grid B73/flagged        | 14:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.373)    | no                     |  |
| 5/14/2008 | 074A-PV-IS-00-001     | Grid A74/flagged        | 14:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.476          | no                     |  |
| 5/14/2008 | 074B-PV-IS-00-001     | Grid B74/flagged        | 14:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 2.85           | no                     |  |
| 5/14/2008 | 075A-PV-IS-00-001     | Grid A75/flagged        | 14:20 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.17           | no                     |  |
| 5/14/2008 | 075B-PV-IS-00-001     | Grid B75/flagged        | 14:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.316)    | no                     |  |
| 5/14/2008 | 076A-PV-IS-00-001     | Grid A76/flagged        | 14:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.340)    | no                     |  |
| 5/14/2008 | 076B-PV-IS-00-001     | Grid B76/flagged        | 14:35 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.422)    | no                     |  |
| 5/14/2008 | 077B-PV-IS-00-001     | Grid B77/flagged        | 14:40 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.302)    | no                     |  |
| 5/14/2008 | 077C-PV-IS-00-001     | Grid C77/flagged        | 14:45 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.406)    | no                     |  |
| 5/14/2008 | 078B-PV-IS-00-001     | Grid B78/flagged        | 14:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.98           | no                     |  |
| 5/14/2008 | 078B-PV-IS-dd-001     | Grid B78/flagged        | 15:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.31           | no                     | Duplicate sample for grid B78                                      |
| 5/14/2008 | 078C-PV-IS-00-001     | Grid C78/flagged        | 15:05 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.721          | no                     |  |
| 5/14/2008 | 079B-PV-IS-00-001     | Grid B79/flagged        | 15:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.253)    | no                     |  |
| 5/14/2008 | 079C-PV-IS-00-001     | Grid C79/flagged        | 15:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.71           | no                     |  |
| 5/14/2008 | 080B-PV-IS-00-001     | Grid B80/flagged        | 15:20 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.423          | no                     |  |
| 5/14/2008 | 080C-PV-IS-00-001     | Grid C80/flagged        | 15:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.285)    | no                     |  |
| 5/14/2008 | 081C-PV-IS-00-001     | Grid C81/flagged        | 15:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 6.64           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/18/2008 | 081C-PV-IS-00-002     | Grid C81/flagged        | 14:40 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.305          | no                     |  |
| 5/14/2008 | 082C-PV-IS-00-001     | Grid C82/flagged        | 15:45 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 2.06           | no                     |  |
| 5/14/2008 | 083C-PV-IS-00-001     | Grid C83/flagged        | 15:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.284)    | no                     |  |
| 5/14/2008 | 084B/C-PV-IS-00-001   | Grid line B/C84/flagged | 15:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 8.18           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/18/2008 | 084B/C-PV-IS-00-002   | Grid B/C84/flagged      | 14:45 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 6.83           | yes                    |  |
| 6/18/2008 | 084B/C-PV-IS-dd-002   | Grid B/C84/flagged      | 14:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 6.18           | yes                    | Duplicate sample for B/C84   |
| 5/14/2008 | 085B/C-PV-IS-00-001   | Grid line B/C85/flagged | 16:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 8.33           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/18/2008 | 085B/C-PV-IS-00-002   | Grid 85B/C/flagged      | 14:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.189)    | no                     |  |
| 5/14/2008 | 086B/C-PV-IS-00-001   | Grid line B/C86/flagged | 16:05 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.38           | no                     |  |
| 5/14/2008 | 087B/C-PV-IS-00-001   | Grid line B/C87/flagged | 16:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 6.79           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/2/2008  | 87B-PV-IS-00-001 (#2) | Grid B87/flagged        | 14:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.139          | no                     | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 5/14/2008 | 088B/C-PV-IS-00-001   | Grid line B/C88/flagged | 16:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 3.32           | no                     |  |
| 5/14/2008 | 089B/C-PV-IS-00-001   | Grid line B/C89/flagged | 16:20 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.225          | no                     |  |
| 5/14/2008 | 090B-PV-IS-00-001     | Grid B90/flagged        | 16:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.226          | no                     |  |
| 5/14/2008 | 091B-PV-IS-00-001     | Grid line B91/flagged   | 16:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | Sample Missed  | NA                     | Sampled on 5/17/08   |
| 5/17/2008 | 091B-PV-IS-00-001     | Grid line B91/flagged   | 13:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.798          | no                     | Re-sample  |

Soil Sampling Log  
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| Date      | Sample Name           | Sample Location   | Time  | Type | Waste Characterization | Confirmation | Water/Soil | Analytical Methods | Sample Results | Above TRG (4.26 ng/kg) | Comments   |
|-----------|-----------------------|-------------------|-------|------|------------------------|--------------|------------|--------------------|----------------|------------------------|--|
| 5/14/2008 | 092C-PV-IS-00-001     | Grid C92/flagged  | 16:35 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.178          | no                     |  |
| 5/14/2008 | 093C-PV-IS-00-001     | Grid C93/flagged  | 16:40 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 2.34           | no                     |  |
| 5/14/2008 | 094C-PV-IS-00-001     | Grid C94/flagged  | 16:45 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.23           | no                     |  |
| 5/14/2008 | 095B-PV-IS-00-001     | Grid B95/flagged  | 16:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.261          | no                     |  |
| 5/14/2008 | 096B-PV-IS-00-001     | Grid B96/flagged  | 16:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 12.7           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/2/2008  | 96B-PV-IS-00-001 (#2) | Grid B96/flagged  | 14:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.090)    | no                     | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 5/14/2008 | 097B-PV-IS-00-001     | Grid B97/flagged  | 17:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 4.18           | no                     |  |
| 5/14/2008 | 098B-PV-IS-00-001     | Grid B98/flagged  | 17:05 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.351          | no                     |  |
| 5/14/2008 | 099B-PV-IS-00-001     | Grid B99/flagged  | 17:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.543          | no                     |  |
| 5/14/2008 | 100B-PV-IS-00-001     | Grid B100/flagged | 17:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.334          | no                     |  |
| 5/21/2008 | 101B-PV-IS-00-001     | Grid B101/flagged | 15:20 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.636          | no                     |  |
| 5/21/2008 | 101B-PV-IS-dd-001     | Grid B101/flagged | 15:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.793          | no                     | Duplicate sample for grid B101                                     |
| 5/21/2008 | 102B-PV-IS-00-001     | Grid B102/flagged | 15:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 3.74           | no                     |  |
| 5/21/2008 | 103B-PV-IS-00-001     | Grid B103/flagged | 15:40 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 13.3           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/4/2008  | 103B-PV-IS-00-002     | Grid B103/flagged | 10:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.371          | no                     | Over-excavation sample for B103                                    |
| 5/21/2008 | 104B-PV-IS-00-001     | Grid B104/flagged | 15:45 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 5.05           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/4/2008  | 104B-PV-IS-00-002     | Grid B104/flagged | 10:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.551          | no                     | Over-excavation sample for B104                                    |
| 5/27/2008 | 105B-PV-IS-00-001     | Grid B105/flagged | 9:30  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 5.78           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/11/2008 | 105B-PV-IS-1.0-002    | Grid B105/flagged | 13:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 3.07           | no                     | Over-excavation sample for B105                                    |
| 5/27/2008 | 106B-PV-IS-00-001     | Grid B106/flagged | 9:35  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 2.09           | no                     |  |
| 5/27/2008 | 107B-PV-IS-00-001     | Grid B107/flagged | 9:45  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.973          | no                     |  |
| 5/27/2008 | 108B-PV-IS-00-001     | Grid B108/flagged | 9:50  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.521          | no                     |  |
| 5/27/2008 | 109B-PV-IS-00-001     | Grid B109/flagged | 10:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.621          | no                     |  |
| 5/27/2008 | 110B-PV-IS-00-001     | Grid B110/flagged | 10:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.05           | no                     |  |
| 5/27/2008 | 111B-PV-IS-00-001     | Grid B111/flagged | 10:20 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.08           | no                     |  |
| 5/27/2008 | 112B-PV-IS-00-001     | Grid B112/flagged | 10:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.879          | no                     |  |
| 5/27/2008 | 113B-PV-IS-00-001     | Grid B113/flagged | 10:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 9.39           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/11/2008 | 113B-PV-IS-1.0-002    | Grid B113/flagged | 13:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.156)    | no                     | Over-excavation sample for B113                                    |
| 5/27/2008 | 114B-PV-IS-00-001     | Grid B114/flagged | 10:35 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.339          | no                     |  |
| 5/27/2008 | 115B-PV-IS-00-001     | Grid B115/flagged | 10:37 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 9.46           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/11/2008 | 115B-PV-IS-1.0-002    | Grid B115/flagged | 13:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.173)    | no                     | Over-excavation sample for B115                                    |
| 5/27/2008 | 116B-PV-IS-00-001     | Grid B116/flagged | 10:39 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 17.5           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/11/2008 | 116B-PV-IS-1.0-002    | Grid B116/flagged | 13:35 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.23           | no                     | Over-excavation sample for B116                                    |
| 5/27/2008 | 117B-PV-IS-00-001     | Grid B117/flagged | 10:41 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 14.6           | yes                    | Approximately 6" of soil were over-excavated/Resampled (see below) |
| 6/11/2008 | 117B-PV-IS-1.0-002    | Grid B117/flagged | 13:40 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.184)    | no                     | Over-excavation sample for B117                                    |
| 5/27/2008 | 118B-PV-IS-00-001     | Grid B118/flagged | 10:45 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.468          | no                     |  |
| 5/27/2008 | 119B-PV-IS-00-001     | Grid B119/flagged | 10:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.384          | no                     |  |
| 5/27/2008 | 120B-PV-IS-00-001     | Grid B120/flagged | 10:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 3.77           | no                     |  |
| 5/27/2008 | 121B-PV-IS-00-001     | Grid B121/flagged | 11:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.150)    | no                     |  |
| 5/27/2008 | 122B-PV-IS-00-001     | Grid B122/flagged | 11:05 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.424          | no                     |  |
| 5/27/2008 | 123B-PV-IS-00-001     | Grid B123/flagged | 11:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.955          | no                     |  |
| 5/27/2008 | 124B-PV-IS-00-001     | Grid B124/flagged | 11:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.808)    | no                     |  |
| 5/27/2008 | 125B-PV-IS-00-001     | Grid B125/flagged | 11:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 2.02           | no                     |  |
| 5/27/2008 | 126B-PV-IS-00-001     | Grid B126/flagged | 11:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.34           | no                     |  |
| 5/27/2008 | 127B-PV-IS-00-001     | Grid B127/flagged | 11:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 3.08           | no                     |  |
| 5/27/2008 | 128B-PV-IS-00-001     | Grid B128/flagged | 11:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.644)    | no                     |  |
| 6/2/2008  | 129A-PV-IS-00-001     | Grid A129/flagged | 13:50 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.766          | no                     |  |
| 6/2/2008  | 130A-PV-IS-00-001     | Grid A130/flagged | 13:45 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.414          | no                     |  |
| 6/2/2008  | 131A-PV-IS-00-001     | Grid A131/flagged | 13:40 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.166)    | no                     |  |
| 6/2/2008  | 132A-PV-IS-00-001     | Grid A132/flagged | 13:35 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.303          | no                     |  |
| 6/2/2008  | 133A-PV-IS-00-001     | Grid A133/flagged | 13:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.125)    | no                     |  |
| 6/2/2008  | 134A-PV-IS-00-001     | Grid A134/flagged | 13:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.137)    | no                     |  |
| 6/2/2008  | 135A-PV-IS-00-001     | Grid A135/flagged | 13:20 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.158)    | no                     |  |
| 6/2/2008  | 136A-PV-IS-00-001     | Grid A136/flagged | 13:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.130)    | no                     |  |
| 6/2/2008  | 137A-PV-IS-00-001     | Grid A137/flagged | 13:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.153)    | no                     |  |
| 6/2/2008  | 138A-PV-IS-00-001     | Grid A138/flagged | 13:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.401          | no                     |  |
| 6/2/2008  | 139A-PV-IS-00-001     | Grid A139/flagged | 13:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.287          | no                     |  |
| 6/2/2008  | 140A-PV-IS-00-001     | Grid A140/flagged | 13:05 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.187          | no                     |  |
| 6/2/2008  | 141A-PV-IS-00-001     | Grid A141/flagged | 9:05  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.146)    | no                     |  |
| 6/2/2008  | 142A-PV-IS-00-001     | Grid A141/flagged | 9:00  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.58           | no                     |  |
| 6/2/2008  | 143A-PV-IS-00-001     | Grid A143/flagged | 8:55  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.58           | no                     |  |

Soil Sampling Log  
N62467-02-D-0471  
Naval Construction Battalion Center

| Date      | Sample Name         | Sample Location   | Time  | Type | Waste Characterization | Confirmation | Water/Soil | Analytical Methods | Sample Results | Above TRG (4.26 ng/kg) | Comments                        |
|-----------|---------------------|-------------------|-------|------|------------------------|--------------|------------|--------------------|----------------|------------------------|---------------------------------|
| 6/2/2008  | 144A-PV-IS-00-001   | Grid A144/flagged | 8:50  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.13           | no                     |                                 |
| 6/2/2008  | 145A-PV-IS-00-001   | Grid A145/flagged | 8:45  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.177)    | no                     |                                 |
| 6/2/2008  | 146A-PV-IS-00-001   | Grid A146/flagged | 8:40  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.174)    | no                     |                                 |
| 6/2/2008  | 147A-PV-IS-00-001   | Grid A147/flagged | 8:35  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.176)    | no                     |                                 |
| 6/2/2008  | 148B/C-PV-IS-00-001 | Grid A148/flagged | 8:30  | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.207)    | no                     |                                 |
| 6/19/2008 | 149B-PE-IS-00-001   | Grid B149/flagged | 8:20  | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | ND (<0.168)    | no                     |                                 |
| 6/19/2008 | 150B-PE-IS-00-001   | Grid B150/flagged | 8:30  | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | ND (<0.154)    | no                     |                                 |
| 6/11/2008 | 151B-PV-IS-00-001   | Grid B151/flagged | 14:45 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 4.12           | no                     |                                 |
| 6/11/2008 | 151B-PV-IS-dd-001   | Grid B151/flagged | 14:50 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 6.19           | yes                    | Duplicate sample for grid B151  |
| 6/11/2008 | 152B-PV-IS-00-001   | Grid B152/flagged | 14:40 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 2.03           | no                     |                                 |
| 6/11/2008 | 153B-PV-IS-00-001   | Grid B153/flagged | 14:35 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.578          | no                     |                                 |
| 6/11/2008 | 154B-PV-IS-00-001   | Grid B154/flagged | 14:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 5.27           | yes                    |                                 |
| 6/10/2008 | 155B-PE-IS-2.0-001  | Grid B155/flagged | 14:20 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | ND (<0.144)    | no                     |                                 |
| 6/10/2008 | 156B-PE-IS-2.0-001  | Grid B156/flagged | 14:15 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.943          | no                     |                                 |
| 6/10/2008 | 157B-PE-IS-2.0-001  | Grid B157/flagged | 14:10 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.756          | no                     |                                 |
| 6/10/2008 | 158B-PE-IS-2.0-001  | Grid B158/flagged | 14:05 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 2.31           | no                     |                                 |
| 6/10/2008 | 159B-PE-IS-2.0-001  | Grid B159/flagged | 14:00 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.643          | no                     |                                 |
| 6/10/2008 | 159B-PE-IS-2.0d-001 | Grid B159/flagged | 13:55 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 1.00           | no                     | Duplicate sample for B159       |
| 6/10/2008 | 160B-PE-IS-2.0-001  | Grid B160/flagged | 13:50 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 25.6           | yes                    |                                 |
| 7/15/2008 | 160B-PV-IS-1.0-002  | Grid B160/flagged | 14:40 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               |                |                        | Over-excavation sample for B160 |
| 6/10/2008 | 161B-PE-IS-2.0-001  | Grid B161/flagged | 13:48 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 2.69           | no                     |                                 |
| 6/10/2008 | 162B-PE-IS-2.0-001  | Grid B162/flagged | 13:45 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 2.94           | no                     |                                 |
| 6/10/2008 | 163B-PE-IS-2.0-001  | Grid B163/flagged | 13:40 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 2.84           | no                     |                                 |
| 6/10/2008 | 164B-PE-IS-2.0-001  | Grid B164/flagged | 13:35 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.224          | no                     |                                 |
| 6/10/2008 | 164B-PE-IS-2.0d-001 | Grid B164/flagged | 13:37 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | ND (<0.114)    | no                     | Duplicate sample for B164       |
| 6/10/2008 | 165B-PE-IS-2.0-001  | Grid B165/flagged | 13:30 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.385          | no                     |                                 |
| 6/10/2008 | 166B-PE-IS-2.0-001  | Grid B166/flagged | 13:28 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 11.5           | yes                    |                                 |
| 6/10/2008 | 167B-PE-IS-2.0-001  | Grid B167/flagged | 13:25 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.583          | no                     |                                 |
| 6/10/2008 | 168B-PE-IS-2.0-001  | Grid B168/flagged | 13:20 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 1.64           | no                     |                                 |
| 6/10/2008 | 169C-PE-IS-2.0-001  | Grid C169/flagged | 13:15 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 9.73           | yes                    |                                 |
| 6/10/2008 | 170C-PE-IS-2.0-001  | Grid C170/flagged | 13:14 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 1.13           | no                     |                                 |
| 6/10/2008 | 171C-PE-IS-2.0-001  | Grid C171/flagged | 13:10 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 3.21           | no                     |                                 |
| 6/10/2008 | 172C-PE-IS-2.0-001  | Grid C172/flagged | 13:08 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.563          | no                     |                                 |
| 6/10/2008 | 173C-PE-IS-2.0-001  | Grid C173/flagged | 13:05 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 1.46           | no                     |                                 |
| 6/10/2008 | 174C-PE-IS-2.0-001  | Grid C174/flagged | 13:00 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.535          | no                     |                                 |
| 6/10/2008 | 175C-PE-IS-2.0-001  | Grid C175/flagged | 12:55 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.666          | no                     |                                 |
| 6/10/2008 | 175C-PE-IS-2.0d-001 | Grid C175/flagged | 12:58 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.63           | no                     | Duplicate sample for B175       |
| 6/10/2008 | 176C-PE-IS-2.0-001  | Grid C176/flagged | 12:53 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.538          | no                     |                                 |
| 6/10/2008 | 177C-PE-IS-2.0-001  | Grid C177/flagged | 12:50 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.474          | no                     |                                 |
| 6/10/2008 | 178C-PE-IS-2.0-001  | Grid C178/flagged | 12:45 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | ND (<0.252)    | no                     |                                 |
| 6/10/2008 | 179C-PE-IS-2.0-001  | Grid C179/flagged | 12:42 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.531          | no                     |                                 |
| 6/10/2008 | 180C-PE-IS-2.0-001  | Grid C180/flagged | 12:40 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | ND (<0.318)    | no                     |                                 |
| 6/10/2008 | 181C-PE-IS-2.0-001  | Grid C181/flagged | 12:35 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.767          | no                     |                                 |
| 6/10/2008 | 182C-PE-IS-2.0-001  | Grid C182/flagged | 12:30 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 1.72           | no                     |                                 |
| 6/10/2008 | 182C-PE-IS-2.0d-001 | Grid C182/flagged | 12:32 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 1.08           | no                     | Duplicate sample for B182       |
| 6/10/2008 | 183C-PE-IS-2.0-001  | Grid C183/flagged | 12:28 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 7.64           | yes                    |                                 |
| 6/10/2008 | 184C-PE-IS-2.0-001  | Grid C184/flagged | 12:25 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 1.44           | no                     |                                 |
| 6/10/2008 | 185C-PE-IS-2.0-001  | Grid C185/flagged | 12:22 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 1.3            | no                     |                                 |
| 6/10/2008 | 186C-PE-IS-2.0-001  | Grid C186/flagged | 12:20 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 7.82           | yes                    |                                 |
| 6/10/2008 | 187C-PE-IS-2.0-001  | Grid C187/flagged | 12:15 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.518          | no                     |                                 |
| 6/10/2008 | 188C-PE-IS-2.0-001  | Grid C188/flagged | 12:10 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 2.63           | no                     |                                 |
| 6/10/2008 | 189C-PE-IS-2.0-001  | Grid C189/flagged | 12:05 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 1.57           | no                     |                                 |
| 6/9/2008  | 190C-PE-IS-2.0-001  | Grid C190/flagged | 16:40 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.425          | no                     |                                 |
| 6/9/2008  | 191C-PE-IS-2.0-001  | Grid C191/flagged | 16:30 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 2.05           | no                     |                                 |
| 6/9/2008  | 192C-PE-IS-1.0-001  | Grid C192/flagged | 16:25 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 2              | no                     |                                 |
| 6/9/2008  | 193C-PE-IS-2.0-001  | Grid C193/flagged | 16:20 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.624          | no                     |                                 |
| 6/9/2008  | 194C-PE-IS-2.0-001  | Grid C194/flagged | 16:10 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.688          | no                     |                                 |
| 6/9/2008  | 195C-PE-IS-2.0-001  | Grid C195/flagged | 15:55 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 6.78           | yes                    |                                 |
| 6/9/2008  | 196C-PE-IS-2.0-001  | Grid C196/flagged | 15:50 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 3.5            | no                     |                                 |
| 6/9/2008  | 197C-PE-IS-2.0-001  | Grid C197/flagged | 15:40 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 4.05           | no                     |                                 |
| 6/9/2008  | 197C-PE-IS-2.0d-001 | Grid C197/flagged | 15:45 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 6.75           | yes                    | Duplicate sample for grid C197  |

Soil Sampling Log  
N62467-02-D-0471  
Naval Construction Battalion Center

| Date      | Sample Name                          | Sample Location                        | Time  | Type | Waste Characterization | Confirmation | Water/Soil | Analytical Methods | Sample Results | Above TRG (4.26 ng/kg) | Comments   |
|-----------|--------------------------------------|--|-------|------|------------------------|--------------|------------|--------------------|----------------|------------------------|--|
| 6/9/2008  | 198C-PE-IS-1.0-001                   | Grid C198/flagged                      | 15:35 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.45           | no                     |  |
| 6/9/2008  | 199C-PE-IS-2.0-001                   | Grid C199/flagged                      | 15:25 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 2.74           | no                     |  |
| 6/9/2008  | 200C-PE-IS-1.0-001                   | Grid C200/flagged                      | 15:15 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.706          | no                     |  |
| 6/9/2008  | 201C-PE-IS-1.0-001                   | Grid C201/flagged                      | 15:05 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.451          | no                     |  |
| 6/9/2008  | 202B/C-PE-IS-0.5-001                 | Grid B/C202/flagged                    | 14:55 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 0.632          | no                     |  |
| 6/9/2008  | 203B-PE-IS-1.5-001                   | Grid B203/flagged                      | 14:45 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 6.09           | yes                    |  |
| 4/11/2008 | 41108 Rinsate Blank                  | Not Applicable                         | 9:15  | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Water      | 8290               | ND             | no                     |  |
| 4/17/2008 | 41708 Rinsate Blank                  | Not Applicable                         | 16:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Water      | 8290               | 0.000797       | no                     |  |
| 4/23/2008 | 42308 Rinsate Blank                  | Not Applicable                         | 17:35 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Water      | 8290               | ND             | no                     |  |
| 4/24/2008 | 42408 Rinsate Blank                  | Not Applicable                         | 17:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Water      | 8290               | ND             | no                     |  |
| 5/21/2008 | 52108 Rinsate Blank                  | Not Applicable                         | 16:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Water      | 8290               | ND             | no                     |  |
| 5/7/2008  | 5708 Rinsate Blank                   | Not Applicable                         | 17:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Water      | 8290               | ND             | no                     |  |
| 5/8/2008  | 5808 Rinsate Blank                   | Not Applicable                         | 15:10 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Water      | 8290               | ND             | no                     |  |
| 6/2/2008  | 91B-PV-IS-00-001                     | Grid B91/flagged                       | 14:05 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.238          | no                     |  |
| 6/2/2008  | 91B-PV-IS-00-001                     |  |       |      |                        |              |            |                    | 0.238          | no                     |  |
| 6/2/2008  | 97B-PV-IS-00-001 (#2)                | Grid B97/flagged                       | 13:55 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.136          | no                     | Mistakenly over-excavated and re-sampled                   |
| 6/17/2008 | 9th Street Ditch/001Dit-PV-IS-00-001 | South side of 9th Street               | 13:15 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 1.32           | no                     | Material removed from ditch on NCBC base                   |
| 6/17/2008 | 9th Street Ditch/002Dit-PV-IS-00-001 | South side of 9th Street               | 13:25 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.112)    | no                     | Material removed from ditch on NCBC base                   |
| 6/17/2008 | 9th Street Ditch/003Dit-PV-IS-00-001 | South side of 9th Street               | 13:30 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.132)    | no                     | Material removed from ditch on NCBC base                   |
| 6/17/2008 | 9th Street Ditch/003Dit-PV-IS-dd-001 | South side of 9th Street               | 13:35 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | ND (<0.119)    | no                     | Material removed from ditch on NCBC base - duplicate       |
| 6/16/2008 | Drum Set A                           | NCBC/Gulfport                          | 10:45 | Comp | Dioxin: 2,3,7,8-TCDD   | NA           | Soil       | 8290               | 25.6           | NA                     | Sample container drums from previous events stored on base |
| 6/16/2008 | Drum Set B                           | NCBC/Gulfport                          | 11:00 | Comp | Dioxin: 2,3,7,8-TCDD   | NA           | Soil       | 8290               | 9.37           | NA                     | Sample container drums from previous events stored on base |
| 6/16/2008 | Edward's Property                    | East side of Canal Road                | 12:00 | Grab | Dioxin: 2,3,7,8-TCDD   | Yes          | Soil       | 8290               | 0.284          | no                     | Material removed from ditch on the Edward's property       |
| 6/10/2008 | Rinsate 61008                        | Not Applicable                         | 16:20 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Water      | 8290               | ND             | no                     |  |
| 6/9/2008  | Rinsate 6908                         | Not Applicable                         | 17:20 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Water      | 8290               | ND             | no                     |  |
| 9/19/2008 | Rinsate61908                         | Not Applicable                         | 9:15  | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Water      | 8290               | ND             | no                     |  |
| 3/6/2008  | S-1-PE-Sediment baseline             | S. end of contam. berm/flagged         | 14:35 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 96.9           | yes                    | Removed for transport to NCBC base                         |
| 3/6/2008  | S-2-On-base sediment baseline        | S. end of on-base laydown area/flagged | 15:30 | Grab | Dioxin: 2,3,7,8-TCDD   | No           | Soil       | 8290               | 4.62           | NA                     | On NCBC base   |

|                                     |
|-------------------------------------|
| Above regulatory limits             |
| Clean initial sample results        |
| Clean over-ecavation sample results |

Note: Samples collected 4/16/08 with disposable materials; no rinsate required.

Note: Samples collected 4/29/08 with disposable materials; no rinsate required.

Note: Samples collected 5/1, 2, 5/08 with disposable materials; no rinsate required.

Note: Samples collected 5/14/08 with disposable materials; no rinsate required.

Note: Samples collected 6/11, /08 with disposable materials; no rinsate required.

Note: Samples collected 6/13/08 with disposable materials; no rinsate required.

Note: Samples collected 6/16, 17/08 with disposable materials; no rinsate required.

Note: No dredged piles were observed due to wellands or drainage ditches at sections 003 to 005 and 030 to 034.

**TABLE 2**  
 Summary of Confirmatory Sample Results  
 Site 8 Ditch Remediation – NCBC Gulfport, MS

| Sample ID | Toxicity Equivalent (TEQ) |
|-----------|---------------------------|
| 30-CS-43  | 0.542                     |
| 30-CS-44  | 0.732                     |
| 30-CS-45  | 0.061                     |
| 30-CS-46  | 0.344                     |
| 30-CS-47  | 0.455                     |
| 30-CS-48  | 0.449                     |
| 30-CS-49  | 5.96                      |
| 30-CS-50  | 0.554                     |
| 30-CS-51  | 1.52                      |
| 30-CS-52  | 1.19                      |
| 30-CS-53  | 0.798                     |
| 30-CS-54  | 1.59                      |
| 30-CS-55  | 2.2                       |
| 30-CS-56  | 2.78                      |
| 30-CS-57  | 1.44                      |
| 30-CS-58  | 3.61                      |
| 30-CS-59  | 5.48                      |
| 30-CS-60  | 0.414                     |
| 30-CS-61  | 1.55                      |
| 30-CS-62  | 0.972                     |
| 30-CS-63  | 0.26                      |
| 30-CS-64  | 0.968                     |
| 30-CS-65  | 0.403                     |
| 30-CS-66  | 0.569                     |
| 30-CS-67  | 0.827                     |
| 30-CS-68  | 0.551                     |
| 30-CS-69  | 0.357                     |
| 30-CS-70  | 0.276                     |
| 30-CS-71  | 0.265                     |

**Note:**

All concentrations in parts per trillion.

**Containment Area Cover**

Upon completion of contaminated material excavation and placement in the containment area, waste within the containment area was covered with a 20-mil HDPE liner. The liner is manufactured with carbon black to protect against ultraviolet light degradation. The edges of the liner were anchored and tied into the surrounding berm to shed water (see Photograph 10 in Attachment A).

M:\SE-ATLANTA PROJECTS\0 SE505\0 SE 5005 GULFPORT\FINAL REMEDIAL ACTION\ NCBC GULFPORT FOR06.dwg 02/06/2008 lgrtrcrayen CH



CANAL ROAD DREDGE PILES

TURKEY CREEK (MAIN BRANCH)  
 TURKEY CREEK CANAL  
 TURKEY CREEK (MAIN BRANCH)  
 TURKEY CREEK (SOUTHERN BRANCH)

NOW OR FORMERLY ANDERSON

NOW OR FORMERLY EDWARDS  
 32.5+ACRES

NOW OR FORMERLY ARNDT  
 33.02+ACRES

GLEN TERRACE SUBDIVISION

32th STREET

31th STREET

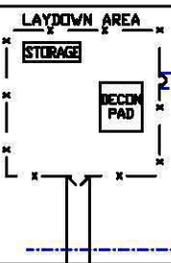
NOW OR FORMERLY BENNETT  
 36.30+ACRES

POPULAR AVENUE

59th AVENUE

58th AVENUE

NOTE:  
 LAYDOWN AREA  
 Not To Scale



CANAL ROAD

CANAL ROAD

CANAL ROAD

COLBY AVENUE

CANAL NO. 1

NOW OR FORMERLY MURRAY

NOW OR FORMERLY JEBCO, INC.

28th STREET

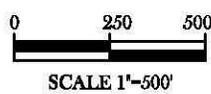
OUTFALL 1

OUTFALL 3

NCBC GULFPORT

NCBC PROPERTY LINE

SOURCE: EE/CA, TetraTech NUS, Inc. MARCH 2007



DRAWN BY:  
 KG  
 REVIEWED:  
 No 2  
 APPROVED:

DATE  
 13 SEPTEMBER 2007  
 PROJECT NO.  
 SE5005-001-001  
 DWG. FILE NO.  
 NCBC GULFPORT

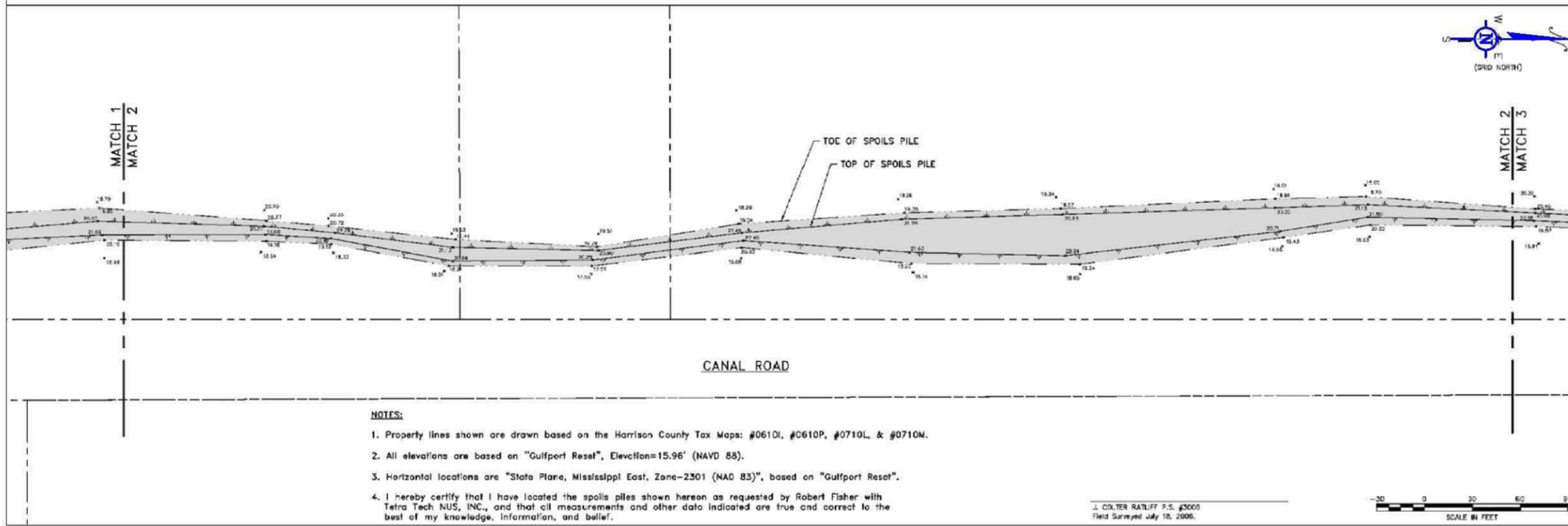
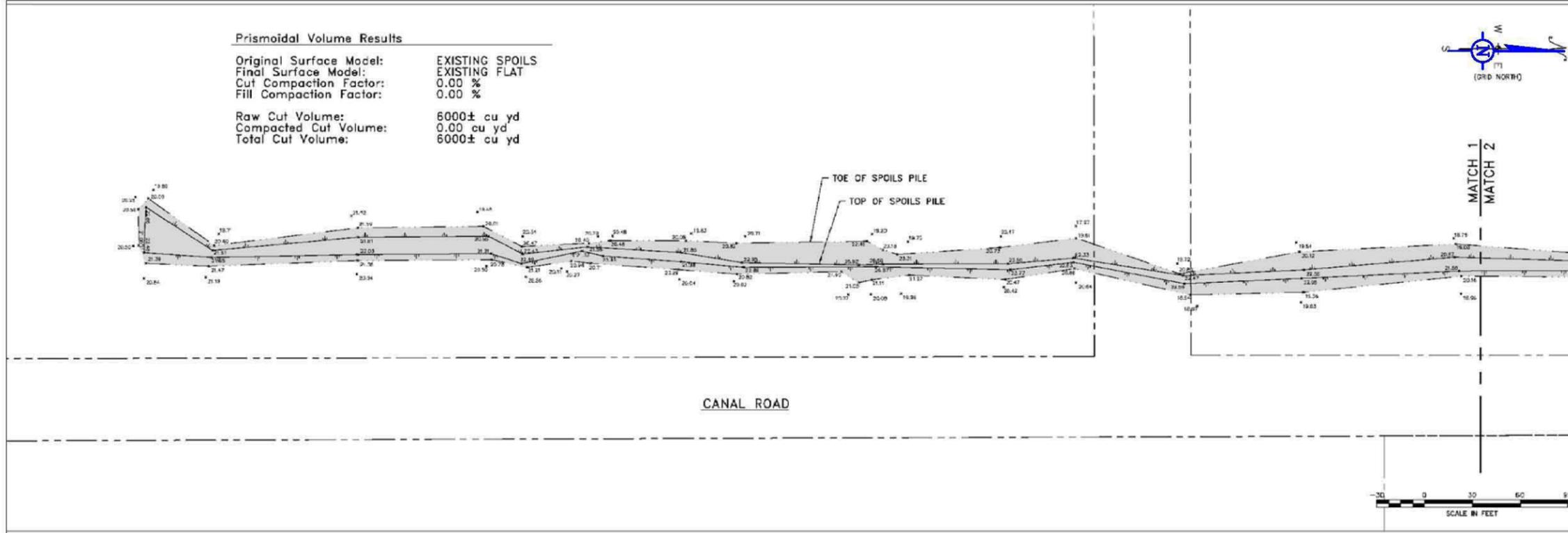
FIGURE 7-1

OFF-BASE AOC  
 SITE LAYDOWN AREA  
 NCBC GULFPORT  
 MISSISSIPPI

M:\SE-ATLANTA PROJECTS\0 SE50\0 SE 5005 GULFPORT\FINAL REMEDIAL ACTION\ NCBC GULFPORT FGR.dwg 02/06/2008 kgnguyen CH

**Prismoidal Volume Results**

Original Surface Model: EXISTING SPOILS  
 Final Surface Model: EXISTING FLAT  
 Cut Compaction Factor: 0.00 %  
 Fill Compaction Factor: 0.00 %  
 Raw Cut Volume: 6000± cu yd  
 Compacted Cut Volume: 0.00 cu yd  
 Total Cut Volume: 6000± cu yd



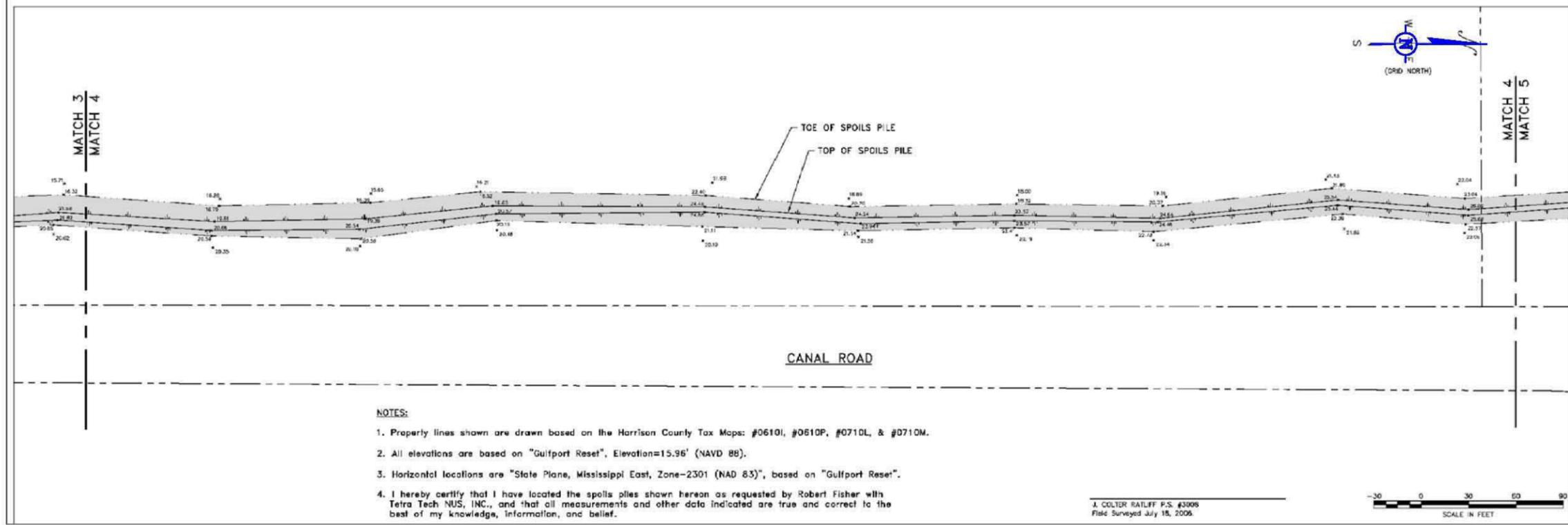
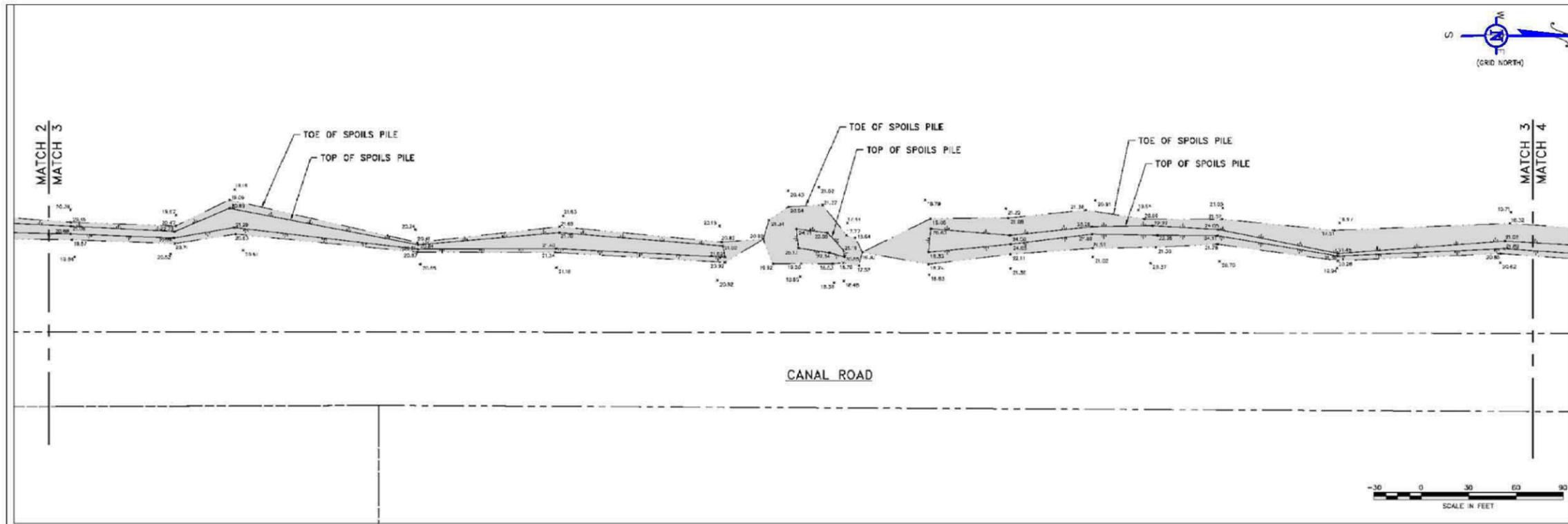
**NOTES:**

1. Property lines shown are drawn based on the Harrison County Tax Maps: #0610I, #0610P, #0710L, & #0710M.
2. All elevations are based on "Gulfport Resat", Elevation=15.96" (NAVD 88).
3. Horizontal locations are "State Plane, Mississippi East, Zone-2301 (NAD 83)", based on "Gulfport Resat".
4. I hereby certify that I have located the spoils piles shown hereon as requested by Robert Fisher with Tetra Tech NUS, INC., and that all measurements and other data indicated are true and correct to the best of my knowledge, information, and belief.

J. COLTER RATLIFF P.S. #3008  
 Field Surveyed July 18, 2006.

|           |                                |                               |  |
|-----------|--------------------------------|-------------------------------|--|
|           | DRAWN BY:                      | DATE                          | FIGURE 7-2A<br><br>AOC SEDIMENT STOCKPILE<br>TOPOGRAPHIC SURVEY<br>REMEDIAL ACTIONS<br>FOR SITE 8B AND 8C<br>AT NCBC GULFPORT<br>MISSISSIPPI |
|           | KG                             | 13 SEPTEMBER 2007             |  |
|           | REVIEWED: No 2                 | PROJECT NO.<br>SE5005-001-001 |  |
| APPROVED: | DWG. FILE NO.<br>NCBC GULFPORT |                               |  |

M:\SE-ATLANTA PROJECTS\0 SE50\0 SE 5005 GULFPORT\FINAL REMEDIAL ACTION\ NCBC GULFPORT\F08a.dwg 02/08/2008 kgnguyen CH

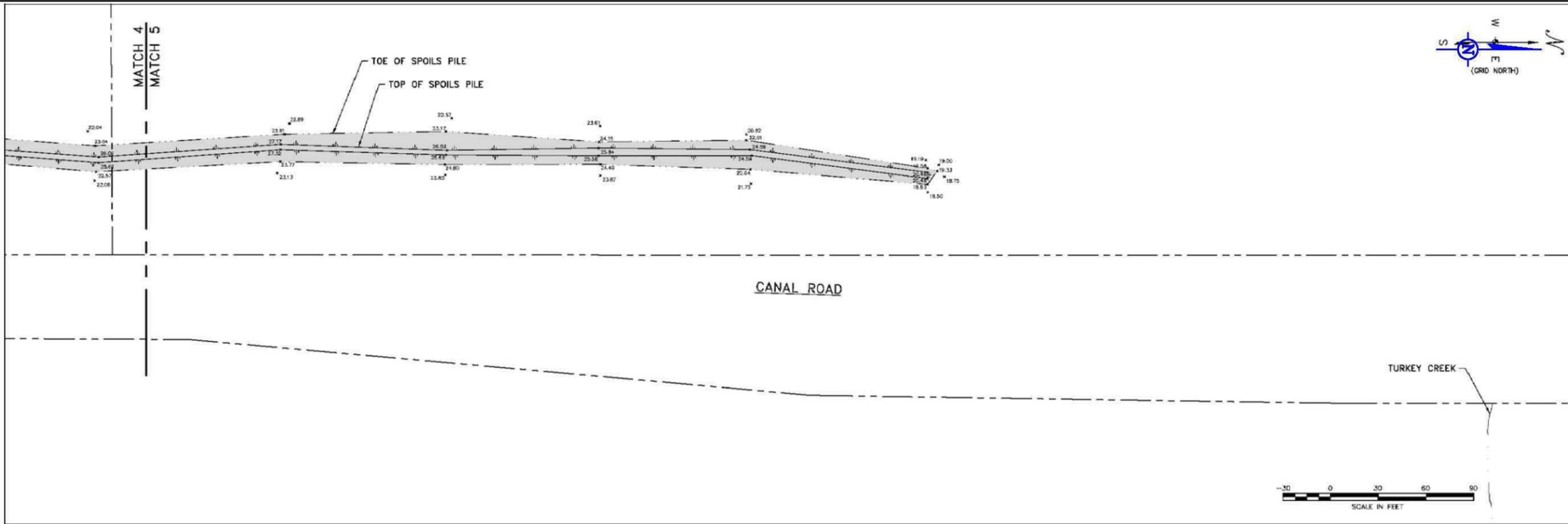


- NOTES:
1. Property lines shown are drawn based on the Harrison County Tax Maps: #0610I, #0610P, #0710L, & #0710M.
  2. All elevations are based on "Gulfport Reset", Elevation=15.96' (NAVD 88).
  3. Horizontal locations are "State Plane, Mississippi East, Zone-2301 (NAD 83)", based on "Gulfport Reset".
  4. I hereby certify that I have located the spoils piles shown hereon as requested by Robert Fisher with Tetra Tech NUS, INC., and that all measurements and other data indicated are true and correct to the best of my knowledge, information, and belief.

A. COLTER RATLIFF P.S. #3008  
Field Surveyed July 18, 2006.

|  |                 |                                |             |   |
|--|-----------------|--------------------------------|-------------|---|
|  | DRAWN BY:<br>KG | DATE:<br>13 SEPTEMBER 2007     | FIGURE 7-2B | AOC SEDIMENT STOCKPILE<br>TOPOGRAPHIC SURVEY<br>REMEDIAL ACTIONS<br>FOR SITE 8B AND 8C<br>AT NCBC GULFPORT<br>MISSISSIPPI |
|  | REVIEWED: No 3  | PROJECT NO.<br>SE5005-001-001  |             |   |
|  | APPROVED:       | DWG. FILE NO.<br>NCBC GULFPORT |             |   |

M:\SE-ATLANTA PROJECTS\0 SE50\0 SE 5005 GULFPORT\FINAL REMEDIAL ACTION\ NCBC GULFPORT FGR.dwg 02/08/2008 kgnguyen CH



**NOTES:**

1. Property lines shown are drawn based on the Harrison County Tax Maps: #0610I, #0610P, #0710L, & #0710M.
2. All elevations are based on "Gulfport Resel", Elevation=15.96' (NAVD 88).
3. Horizontal locations are "State Plane, Mississippi East, Zone-2301 (NAD 83)", based on "Gulfport Resel".
4. I hereby certify that I have located the spoils piles shown hereon as requested by Robert Fisher with Tetra Tech NUS, INC., and that all measurements and other data indicated are true and correct to the best of my knowledge, information, and belief.

J. COLTER RATJFF P.S. #3008  
Field Surveyed July 18, 2006.

SOURCE: EE/CA, TetraTech NUS, Inc. MARCH 2007



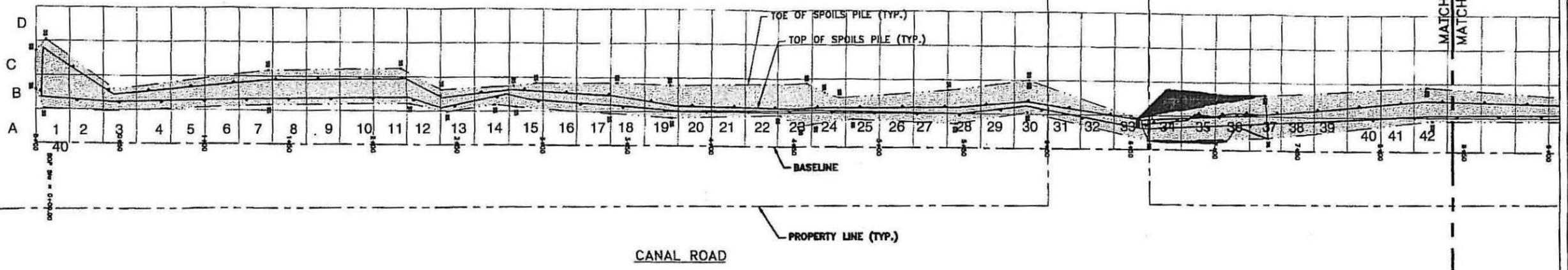
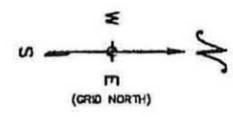
|           |    |                   |
|-----------|----|-------------------|
| DRAWN BY: |    | DATE              |
| KG        |    | 13 SEPTEMBER 2007 |
| REVIEWED: | No | PROJECT NO.       |
|           | 2  | SE5005-001-001    |
| APPROVED: |    | DWG. FILE NO.     |
|           |    | NCBC GULFPORT     |

FIGURE 7-2C

AOC SEDIMENT STOCKPILE  
TOPOGRAPHIC SURVEY  
REMEDIAL ACTIONS  
FOR SITE 8B AND 8C  
AT NCBC GULFPORT  
MISSISSIPPI

**Prismoidal Volume Results**

|                         |                 |
|-------------------------|-----------------|
| Original Surface Model: | EXISTING SPOILS |
| Final Surface Model:    | EXISTING FLAT   |
| Cut Compaction Factor:  | 0.00 %          |
| Fill Compaction Factor: | 0.00 %          |
| Raw Cut Volume:         | 6000± cu yd     |
| Compacted Cut Volume:   | 0.00 cu yd      |
| Total Cut Volume:       | 6000± cu yd     |



|                      |          |
|----------------------|----------|
| DESIGNED BY:         | RLM      |
| DRAWN BY:            | RLM      |
| CHECKED BY:          | RLM      |
| DATE:                | 08-24-08 |
| REVISIONS:           |          |
| DRAWING ISSUE:       |          |
| PREPARED BY:         |          |
| FOR APPROVAL:        |          |
| APPROVED FOR:        |          |
| APPROVED FOR CONST.: |          |

STAKE SET DRAWING WITH GRID LINES

SPOIL PILE STAKING  
"KEMRON"  
HARRISON COUNTY, MISSISSIPPI

14271 CREASOTE ROAD  
GULFPORT, MS 39503  
PHONE (228) 867-9100  
FAX (228) 867-0043  
www.kemronengineering.com



|              |         |
|--------------|---------|
| DRAWING NO.: | 3387.00 |
| STAKING-1    |         |
| REV.:        |         |
| SHEET:       | 1 OF 3  |
| PROJECT NO.: | 3387.00 |

**NOTES:**

- Property lines shown are drawn based on the Harrison County Tax Maps: #0610I, #0610P, #0710L, & #0710M.
- All elevations are based on "Gulfport Resel", Elevation=15.96' (NAVD 88).
- Horizontal locations are "State Plane, Mississippi East, Zone-2301 (NAD 83)", based on "Gulfport Resel".

**LEGEND:**

- xSS = TOE OF SPOIL PILE STAKED
- [Stippled Area] = SPOIL PILE
- [Hatched Area] = SPOIL PILE (DISTURBED)

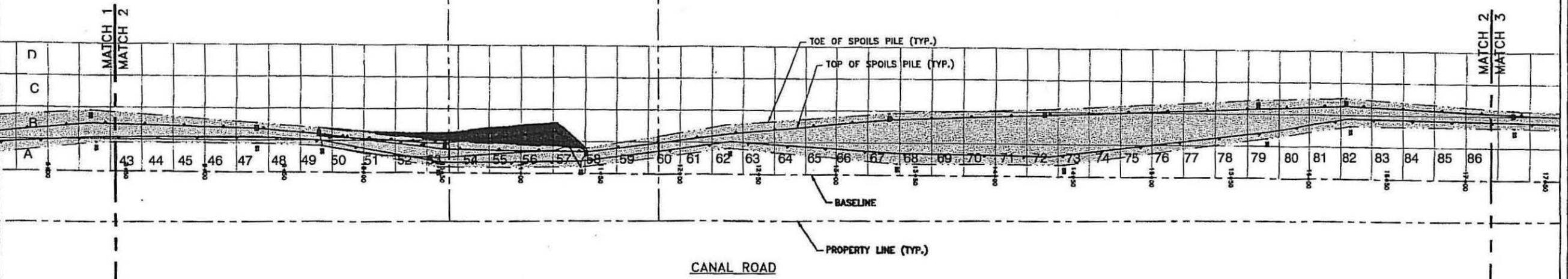
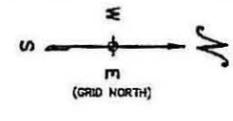
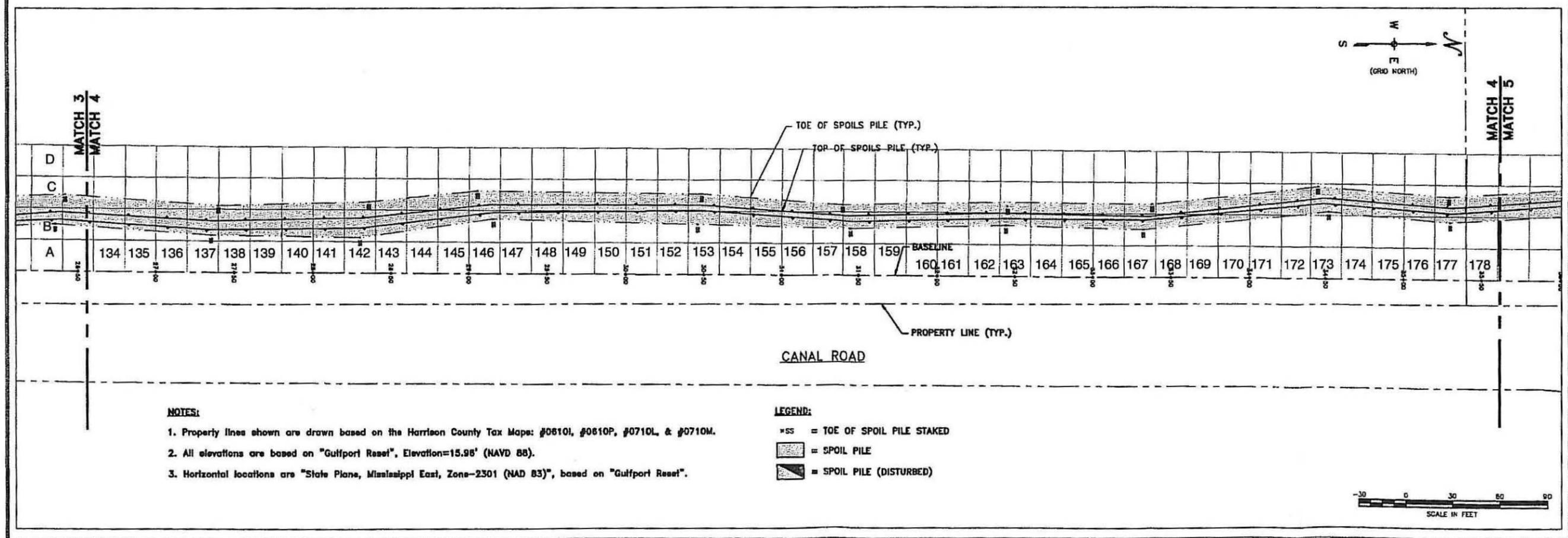
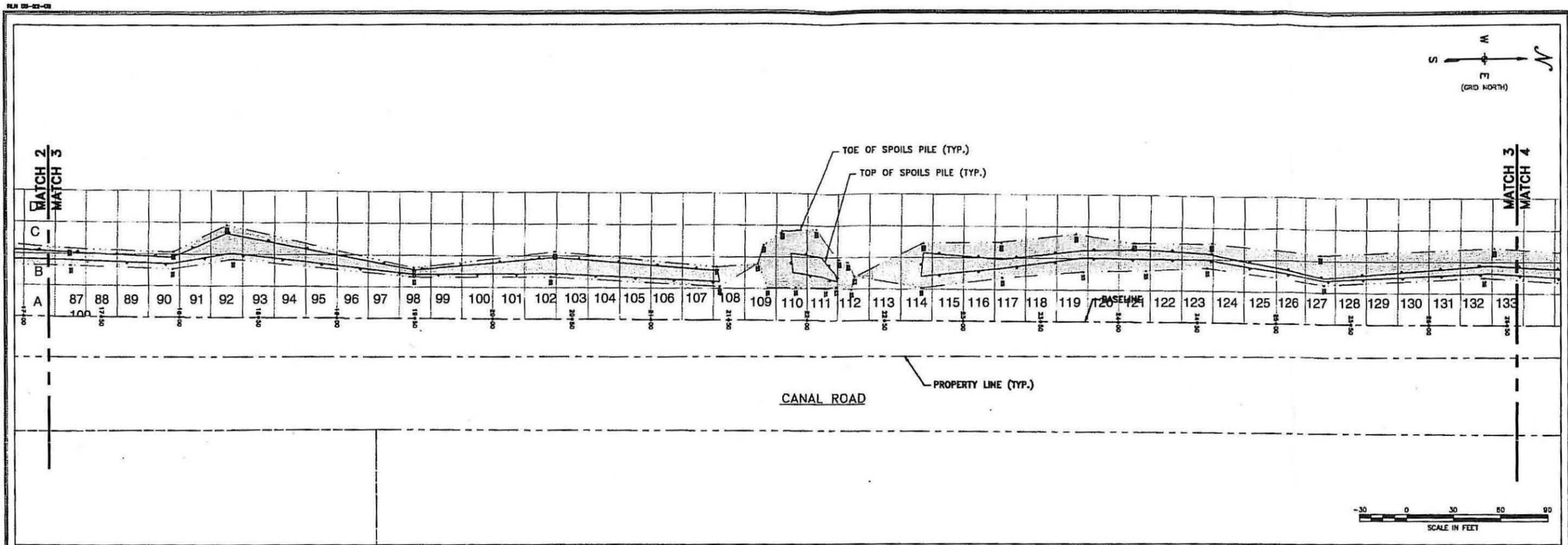


Figure 7-2d

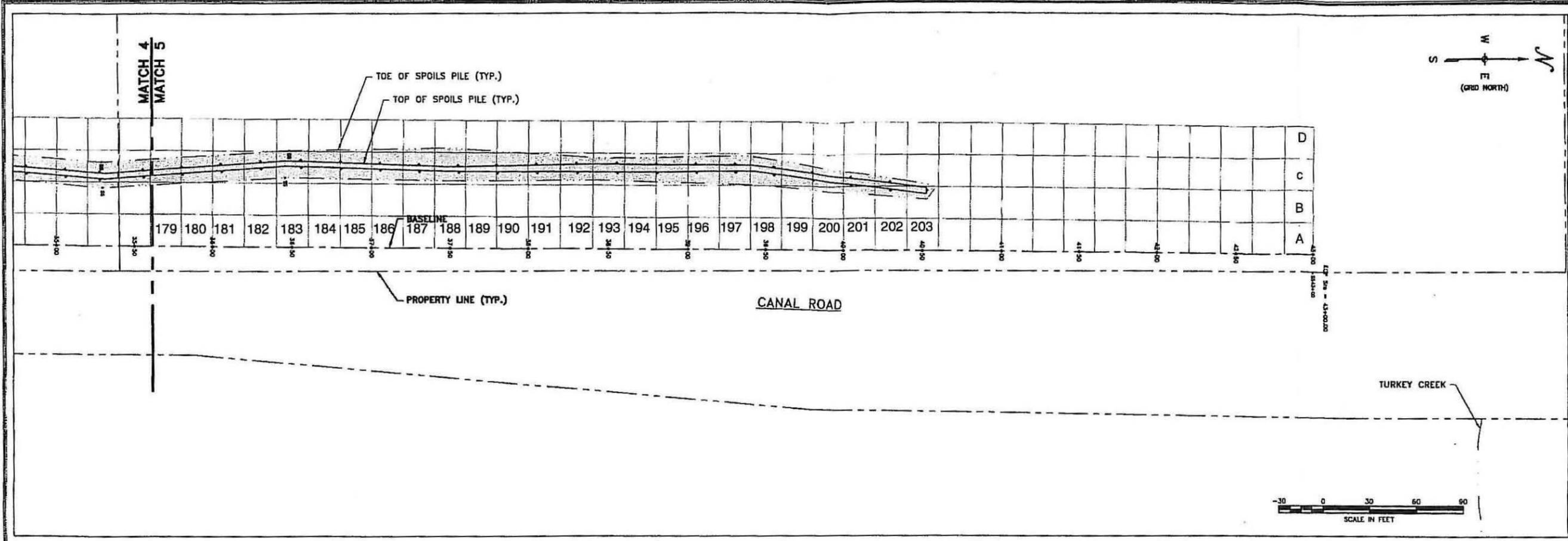


- NOTES:**
1. Property lines shown are drawn based on the Harrison County Tax Maps: #0810I, #0810P, #0710L, & #0710M.
  2. All elevations are based on "Gulfport Reser", Elevation=15.98' (NAVD 88).
  3. Horizontal locations are "State Plane, Mississippi East, Zone-2301 (NAD 83)", based on "Gulfport Reser".

- LEGEND:**
- ✕SS = TOE OF SPOIL PILE STAKED
  - ▨ = SPOIL PILE
  - ▩ = SPOIL PILE (DISTURBED)

| <p>DESIGNED BY: [Blank]</p> <p>CHECKED BY: [Blank]</p> <p>DATE: [Blank]</p> <p>REVISIONS:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table> | NO.  | DATE        | DESCRIPTION |  |  |  | <p><b>DRAWING ISSUE</b></p> <p>DATE: [Blank]</p> <p>BY: [Blank]</p> <p>FOR APPROVAL:</p> <p>APPROVED FOR MD: [Blank]</p> <p>APPROVED FOR CORRECT: [Blank]</p> |
|--|------|-------------|-------------|--|--|--|---|
| NO.  | DATE | DESCRIPTION |             |  |  |  |   |
|  |      |             |             |  |  |  |   |
| <p><b>STAKE SET DRAWING WITH GRID LINES</b></p>  |      |             |             |  |  |  |   |
| <p><b>SPOIL PILE STAKING "KEMRON"</b></p> <p>HARRISON COUNTY, MISSISSIPPI</p>  |      |             |             |  |  |  |   |
| <p>14331 CRENSHAW ROAD<br/>         GULFPORT, MS 39503<br/>         PHONE (728) 867-9100<br/>         FAX (728) 865-0043<br/>         email: info@knesalengineering.com<br/>         www.knesalengineering.com</p> <p><b>KNESAL ENGINEERING</b><br/>         SURVEYORS, INC.</p> |      |             |             |  |  |  |   |
| <p>DRAWING NO. 2017-02<br/> <b>STAKING-2</b></p> <p>REV. 2</p> <p>SHEET 2 OF 3</p> <p>PROJECT NO. 2017-02</p>  |      |             |             |  |  |  |   |

Figure 7-2c



|             |          |
|-------------|----------|
| DESIGNED BY | RLK      |
| DRAWN BY    | RLK      |
| CHECKED BY  | OB       |
| DATE        | 10-10-08 |
| REVISED     |          |

|               |              |
|---------------|--------------|
| DRAWING ISSUE |              |
| ISSUED BY     | RLK          |
| DATE          | 10-10-08     |
| ISSUED FOR    | PRELIMINARY  |
| APPROVED FOR  | FOR APPROVAL |
| APPROVED BY   |              |
| DATE          |              |

STAKE SET DRAWING WITH GRID LINES

SPOIL PILE STAKING  
"KEMRON"  
HARRISON COUNTY, MISSISSIPPI

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|             |        |
|-------------|--------|
| DRAWING NO. | 1807-3 |
| PROJECT NO. | 1807-3 |
| SHEET       | 3 OF 3 |

**NOTES:**

1. Property lines shown are drawn based on the Harrison County Tax Maps: #0810I, #0610P, #0710L, & #0710M.
2. All elevations are based on "Gulfport Reseal", Elevation=15.96' (NAVD 88).
3. Horizontal locations are "State Plane, Mississippi East, Zone-2301 (NAD 83)", based on "Gulfport Reseal".

**LEGEND:**

- xss = TOE OF SPOIL PILE STAKED
- [Hatched Pattern] = SPOIL PILE
- [Diagonal Hatched Pattern] = SPOIL PILE (DISTURBED)

Figure 7-2f