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REMEDIAL INVESTIGATION FEASIBILITY STUDY HEALTH AND SAFETY PLAN VOLUME 3
OF 3 NCBC GULFPORT MS
12/1/1993
ABB ENVIRONMENTAL

**NAVAL CONSTRUCTION BATTALION CENTER
GULFPORT, MISSISSIPPI**

**RI/FS HEALTH AND SAFETY PLAN
VOLUME III**

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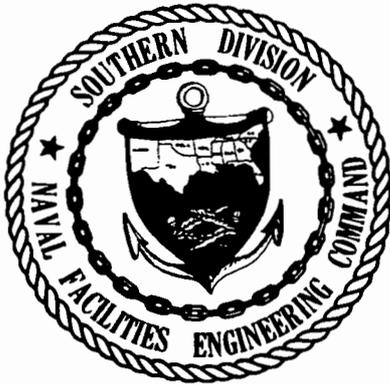
Prepared by:

**ABB Environmental Services Inc.
1400 Centerpoint Blvd., Suite 158
Knoxville, Tennessee 37932-1968**

Prepared for:

**Department of the Navy
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418**

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FOREWORD

In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the 1986 Superfund Amendments and Reauthorization Act (SARA), the 1976 Resource Conservation and Recovery Act (RCRA), as augmented by the 1984 Hazardous and Solid Waste Amendments (HSWA), and as directed in Executive Order 12580 of January 1987, the Department of Defense (DOD) conducts an Installation Restoration (IR) Program for evaluating and remediating problems related to releases and disposal of toxic and hazardous materials at DOD facilities.

The Naval Assessment and Control of Installation Pollutants (NACIP) program was developed by the Navy to implement the IR Program for all Naval and Marine Corps facilities. The NACIP program was originally conducted in three phases: (1) Phase I, Initial Assessment Study, (2) Phase II, Confirmation Study (including a Verification Step and a Characterization Step), and (3) Phase III, Planning and Implementation of Remedial Measures. The three-phase IR Program was modified and updated to be congruent with CERCLA/SARA and RCRA/HSWA driven DOD IR program.

The updated nomenclature for the RCRA/SARA process is as follows:

- Preliminary Assessment and Site Inspection,
- Remedial Investigation,
- Feasibility Study, and
- Planning and Implementation of Remedial Design.

Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) has the responsibility for implementation of the Navy and Marine Corps IR Program in the southeastern and midwestern United States. Questions regarding this report should be addressed to the SOUTHNAVFACENGCOM Engineer-in-Charge, Mr. Ken Barnes (Code 1865), at (803) 743-0669.

EXECUTIVE SUMMARY

A Remedial Investigation/Feasibility Study (RI/FS) is planned on selected sites at the Naval Construction Battalion Center (NCBC), Gulfport, Mississippi. The RI/FS will be conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the 1986 Superfund Amendments and Reauthorization Act (SARA). The process will consist of:

- Preliminary Assessment and Site Inspection
- Remedial Investigation
- Feasibility Study
- Record of Decision (ROD)

ABB Environmental Services, Inc. (ABB-ES), was contracted under the Comprehensive Long-Term Environmental Action, Navy (CLEAN) contract (Contract Number N62467-89-0-0317, Contact Task Order [CTO] Number 17) to prepare the RI/FS Workplan; Sampling and Analysis Plan (SAP), which includes the Field Sampling Plan (FSP) and the Quality Assurance Project Plan (QAPP); Health and Safety Plan (HASP); and Community Relations Plan (CRP). Together the volumes present the scope of the RI/FS process.

The Workplan (Volume I) addresses the discussion of the sites, provides a record of site history, describes regional environmental factors, details previous investigative results, describes RI/FS tasks, and describes site-specific investigative methodology, project organization, and schedule.

The SAP (Volume II) focuses on field investigations, analytical methods, and quality assurance/quality control (QA/QC) procedures. The SAP provides a project description, describes site management and field methods, details the technical approach and sampling plans for each site, and describes quality assurance and quality control requirements for sample collection, sample analysis, data assessment, corrective action, and reporting.

The HASP (Volume III) outlines health and safety procedures for field tasks. The HASP includes material safety data sheets for chemicals that may be encountered at the site and provides emergency information and telephone numbers.

The CRP describes procedures for public meetings, public comment, and methods of keeping the community informed.

The objectives of the RI are to collect sufficient data to: characterize and quantify the extent of contamination, to assess potential risks to human health and the environment posed by contaminants of concern, to support an FS at sources of contamination where remedial action is warranted, and to support a ROD at all sites.

The FS is designed to evaluate remedial alternatives, conduct treatability studies, and design remedial actions. Remedial actions are performed to mitigate threats to human health and the environment by removing, containing, or treating contaminated matrices to established target levels.

Two previous investigations were conducted at NCBC Gulfport, the Initial Assessment Study (IAS) and Verification Study. From these investigative studies, it was determined that six landfill and rubble disposal areas and one site containing two former burn pits require evaluation under the RI/FS process. The IAS provided information concerning the types and quantities of wastes reportedly disposed and methods of disposal at each site. During the Verification Study, 18 monitoring wells were installed; soil, groundwater, and surface water sampling was performed; and geophysical surveys were conducted. The data that were generated during the Verification Study are insufficient to adequately characterize the nature and extent of contamination.

The remedial investigation activities proposed within this workplan were selected to obtain three primary objectives: (1) to determine the location and orientation of the landfill and rubble disposal areas and the burn pits; (2) to determine the composition, magnitude, and extent of soil contamination; and (3) to determine the composition, magnitude, and extent of groundwater and surface water contamination. These objectives will be accomplished by analysis of aerial photographs, more extensive geophysical surveying, TerraProbe sampling, subsurface soil boring and sampling, surface soil sampling, sediment sampling, screening of existing monitoring wells, monitoring well installation and sampling, surface water sampling, and chemical analysis. For health and safety reasons, invasive sampling techniques performed within the boundaries of the disposal areas will be limited.

In addition to field screening and sampling activities, an ecological and population survey and a public health survey will be conducted. The ecological and population survey will be performed to identify potential receptors, to provide data for wetland and floodplain assessments, and to evaluate potential risk assessment exposure pathways. The public health survey will be conducted to examine on-base and off-base communities, activities, and drinking water sources. All of the information and data gathered from these activities will be evaluated for applicability and used to conduct a Baseline Risk Assessment to determine if the potential contaminants of each of the seven sites pose a risk to human and/or ecological receptors.

Final data interpretation of the remedial investigation activities will conclude with an evaluation of the degree and distribution of contamination, if present, and a recommendation for one of the following:

- take no further action or initiate long-term monitoring and prepare a Record of Decision;
- perform source removal or migration mitigation (interim or early remedial action);
- obtain additional RI data needed for adequate characterization;
- conduct a Focused Feasibility Study;
- conduct Treatability Studies; and/or
- conduct a Feasibility Study.

Should a Feasibility Study be warranted, the study will include a compilation of Applicable or Relevant and Appropriate Requirements (ARARs), development of remedial alternatives, screening of remedial alternatives, detailed analysis of remedial alternatives, an engineering description of selected remedial alternatives, RI/FS reports, proposed plans, public meetings, and a ROD.

ACKNOWLEDGEMENTS

In preparing this report, the personnel at ABB Environmental Services, Inc., commend the support, assistance, and cooperation provided by the personnel at NCBC Gulfport and SOUTHNAVFACENGCOM. In particular, we acknowledge the outstanding effort, dedication, and professionalism provided by the following people in the preparation of this report.

Name	Title	Position	Location
Ken Barnes	Engineer	Engineer-in-Charge	SOUTHNAVFACENGCOM
Gordon Crane	Environmental Coordinator	Environmental Coordinator	NCBC Gulfport

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GLOSSARY OF ACRONYMS AND ABBREVIATIONS

ABB-ES	ABB Environmental Services
ARAR	Applicable or Relevant and Appropriate Requirement
CED	Construction Equipment Department
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-term Environmental Action Navy
CNS	central nervous system
COC	contaminant of concern
COD	chemical oxygen demand
COPC	Contaminant of Potential Concern
CPR	cardio-pulmonary resuscitation
CRP	Community Relations Plan
CRZ	contamination reduction zone
CTO	Contract Task Order
DDT	dichlorodiphenyltrichloroethane
DOD	Department of Defense
EP	extraction procedure
FS	Feasibility Study
FSP	field sampling plan
HASP	Health and Safety Plan
HLA	Harding Lawson Associates
HSM	Health and Safety Manager
HSO	Health and Safety Officer
HSS	Health and Safety Supervisor
HSWA	Hazardous and Solid Waste Amendments
IAS	Initial Assessment Study
IR	Installation Restoration
NACIP	Naval Assessment and Control of Installation Pollutants
NCBC	Naval Construction Battalion Center
NCF	Naval Construction Force
NCR	Naval Construction Regiment
NCTC	Naval Construction Training Center
OSHA	Occupational Safety and Health Administration
OVA	organic vapor analyzer
PCB	polychlorinated biphenyls
PID	photoionization detector
ppm	parts per million

GLOSSARY OF ACRONYMS AND ABBREVIATIONS (Continued)

QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act
SDIV	Southern Division
SOP	standard operating procedures
SVOC	semivolatile organic compounds
TOC	Total organic carbon
TOM	Task Order Manager
USEPA	U.S. Environmental Protection Agency
VOA	volatile organic analytes
VOC	volatile organic compound
WW II	World War II

SECTION 1

1.0 GENERAL

1.1 SCOPE AND PURPOSE. This Health and Safety Plan (HASP) has been prepared in conformance with the ABB Environmental Services, Inc. (ABB-ES) Generic HASP developed under the Comprehensive Long-Term Environmental Action Navy (CLEAN) District I Contract (CLEAN HASP) and is intended to meet the requirements of 29 Code of Federal Regulations (CFR) 1910.120. As such, the HASP addresses activities that are associated with field operations for Naval Construction Battalion Center (NCBC), Gulfport, Mississippi. Compliance with this HASP is required for all ABB-ES personnel, contractor personnel, or third parties that enter the site.

The objectives of the Remedial Investigation (RI) are to collect sufficient data to: characterize and quantify the extent of contamination, assess the potential risks to human health and the environment posed by contaminants of potential concern (COPCs), support a Feasibility Study (FS) at sites where remedial action is warranted, and support a Record of Decision (ROD) at all sites.

The FS is designed to evaluate remedial alternatives, conduct treatability studies, and design remedial actions. Remedial actions are performed to mitigate threats to human health and the environment by removing, containing, or treating contaminated matrices to established target levels.

1.1.1 Remedial Investigation/Feasibility Study (RI/FS) Planning Documents The HASP is Volume III of a three volume set of RI/FS planning documents:

Volume I,	Workplan;
Volume II,	Sampling and Analysis Plan (SAP; Field Sampling Plan [FSP] and Quality Assurance Project Plan [QAPP]); and
Volume III,	Health and Safety Plan.

Together the volumes present the scope of the RI/FS program. The workplan (Volume I) provides a record of site history, describes regional environmental factors, details previous investigative results, describes RI/FS tasks, and describes RI/FS-specific investigative methodology, project organization, and schedule. The workplan provides a more comprehensive overview of site history, facility background, regional environmental factors, and program organization. These components are also summarized in the subsequent volumes.

The SAP (Volume II) focuses on the field investigation, analytical methods, and quality assurance/quality control (QA/QC) procedures. The FSP provides a project description, describes site management and field methods, and details the technical approach and sampling plans for each site. The QAPP describes QA/QC requirements for sample collection, analysis, data assessment, corrective action, and reporting. The SAP focuses on the rationale and details necessary to conduct the field and laboratory sampling and analytical program.

The HASP (Volume III) outlines project personnel and corporate health and safety policies; provides a brief site characterization and description of the scope of work; outlines potential hazards, protective measures, and monitoring for each site; and summarizes decontamination procedures. In addition, the HASP includes material safety data sheets for chemicals that may be encountered at the sites and provides emergency information, a map to the hospital, and telephone numbers.

The site-specific HASP references the CLEAN contract generic HASP where possible. The CLEAN generic HASP is included as an attachment for on-site reference.

The Community Relations Plan (CRP) describes procedures for public meetings, public comment, and methods of keeping the community informed. The format and scope of these documents are in compliance with the 1988 RI/FS guidance under Superfund and the Installation Restoration (IR) Manual of 1992 (Navy, 1992).

1.2 PROJECT PERSONNEL.

1.2.1 Task Order Manager The Task Order Manager (TOM) is responsible for the overall management of the project. Responsibilities as they relate to health and safety include provision for the development of the site-specific HASP, the necessary resources to meet requirements of this HASP, the coordination of staff assignments to ensure that personnel who are assigned to the project meet medical and training requirements, and the means and materials necessary to resolve any health and safety issues that are identified or that develop during the project.

1.2.2 General Site Supervisor The General Site Supervisor has vested authority from the TOM to carry out day-to-day site operations.

1.2.3 Health and Safety Officer The Health and Safety Officer (HSO) for the Naval Construction Battalion Center (NCBC) Gulfport facility is designated by the TOM with concurrence of the Health and Safety Supervisor (HSS) or Health and Safety Manager (HSM). The HSO is responsible for developing and implementing this site-specific HASP in accordance with the CLEAN HASP. The HSO will investigate all accidents, illnesses, and incidents occurring on-site. The HSO will also conduct safety briefings and site-specific training for on-site personnel. As necessary, the HSO will accompany all United States Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), or other governmental agency personnel visiting the NCBC Gulfport sites in response to health and safety issues. The HSO, in consultation with the HSS or HSM, is responsible for updating and modifying this HASP as site or environmental conditions change.

1.3 TRAINING. Training is defined under the CLEAN HASP, and all personnel entering potentially contaminated areas at the NCBC Gulfport sites must meet the requirements of 29 CFR 1910.120. Personnel without the required training will not be permitted in any area with potential for exposure to toxic substances or harmful physical agents (i.e., downrange). (Refer to Chapter 3.0 of the CLEAN HASP for further information.)

1.4 MEDICAL SURVEILLANCE. All personnel entering potentially contaminated areas of this site will be medically qualified for site assignment through a medical surveillance program that is outlined in the ABB-ES generic HASP. Personnel who have not received medical clearance will not be permitted in any area with potential for exposure to toxic substances or harmful physical agents (i.e., downrange). (Refer to Chapter 4.0 of the CLEAN HASP for further information.)

SECTION 2



2.0 SITE CHARACTERIZATION AND ANALYSIS

2.1 SITE NAME, LOCATION, AND SIZE. NCBC Gulfport is located in the western part of Gulfport, Harrison County, Mississippi (Figure 2-1). It is situated approximately 2 miles southwest of the Gulfport-Biloxi regional airport. The activity occupies 1,100 acres that lie immediately south of 28th Street. NCBC Gulfport is used for support of four battalions of the Naval Construction Force (NCF) and the storage and maintenance of pre-positioned war reserve material stock.

2.2 SITE HISTORY AND LAYOUT. NCBC Gulfport has a population of approximately 6,000 persons including civilians and military personnel. The average on-board population is about 4,000 because two battalions are usually in deployment status.

Two previous investigations were performed to assess and characterize potential sources of contamination identified at NCBC Gulfport. These investigations included an Initial Assessment Study (IAS) concluded in 1985 (Envirodyne Engineers, 1985) and a Verification Study concluded in 1987 (HLA, 1987).

The IAS was conducted by Envirodyne Engineers, Inc., to identify and assess sites that pose a potential threat to human health or to the environment as a result of contamination from past hazardous materials disposal practices. Nine potentially contaminated sites were identified at NCBC Gulfport based on historical data, aerial photographs, field inspections, and personnel interviews. All nine sites were evaluated to determine contamination characteristics, migration pathways, and potential receptors. The nine sites included:

- Site 1, Disaster Recovery Disposal Area
- Site 2, World War II (WW II) Landfill
- Site 3, Northwest Landfill and Burn Pit
- Site 4, Golf Course Landfill
- Site 5, Heavy Equipment Training Area Landfill
- Site 6, Fire-Fighting Training Area
- Site 7, Rubble Disposal Area
- Site 8, Air Force Herbicide Orange Spill Area
- Site 9, Building Foundation 271 Excavated Drum Storage Area

The primary pathways identified for migration of contaminants from the nine IAS sites include erosion, surface water runoff, and groundwater transport. The IAS concluded that six of the nine sites warranted further investigation under the Naval Assessment and Control of Installation Pollutants (NACIP) program to assess long-term impacts. The primary recommendation of the study was to conduct a confirmation study to confirm or disprove the existence of the suspected contamination, and to quantify the extent of any existing problems.

The six sites recommended for confirmation study, in order of priority, were as follows:

1. Site 5, Heavy Equipment Training Area Landfill
2. Site 6, Fire-Fighting Training Area
3. Site 4, Golf Course Landfill

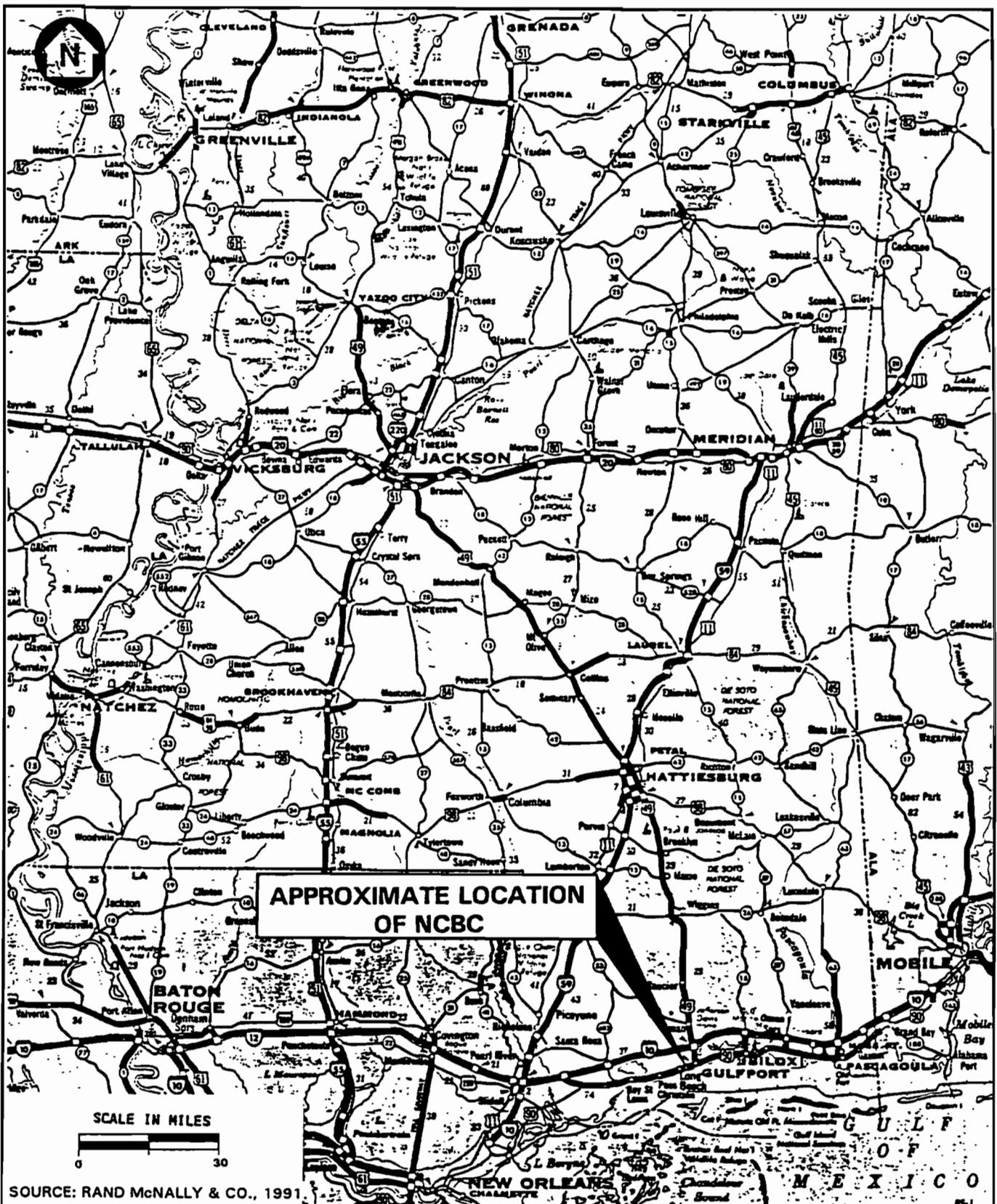


FIGURE 2-1
NCBC GULFPORT, MS, LOCATION



RI/FS HASP
NAVAL CONSTRUCTION
BATTALION CENTER
GULFPORT, MISSISSIPPI

4. Site 3, Northwest Landfill and Burn Pit
5. Site 1, Disaster Recovery Disposal Area
6. Site 2, WW II Landfill

A Confirmation Study at each of these sites was recommended to determine: (1) whether a threat to human health or the environment existed, (2) the extent of contamination, and (3) the potential for contaminant migration.

A Verification Study was conducted by Harding Lawson Associates (HLA, 1987) to verify the existence of contamination at the NCBC sites: (a) the six sites recommended for further evaluation by the IAS (sites 1, 2, 3, 4, 5, and 6), and (b) one additional site (Site 7) included by HLA because of its proximity to Site 2 and ease of integration into the Verification Study.

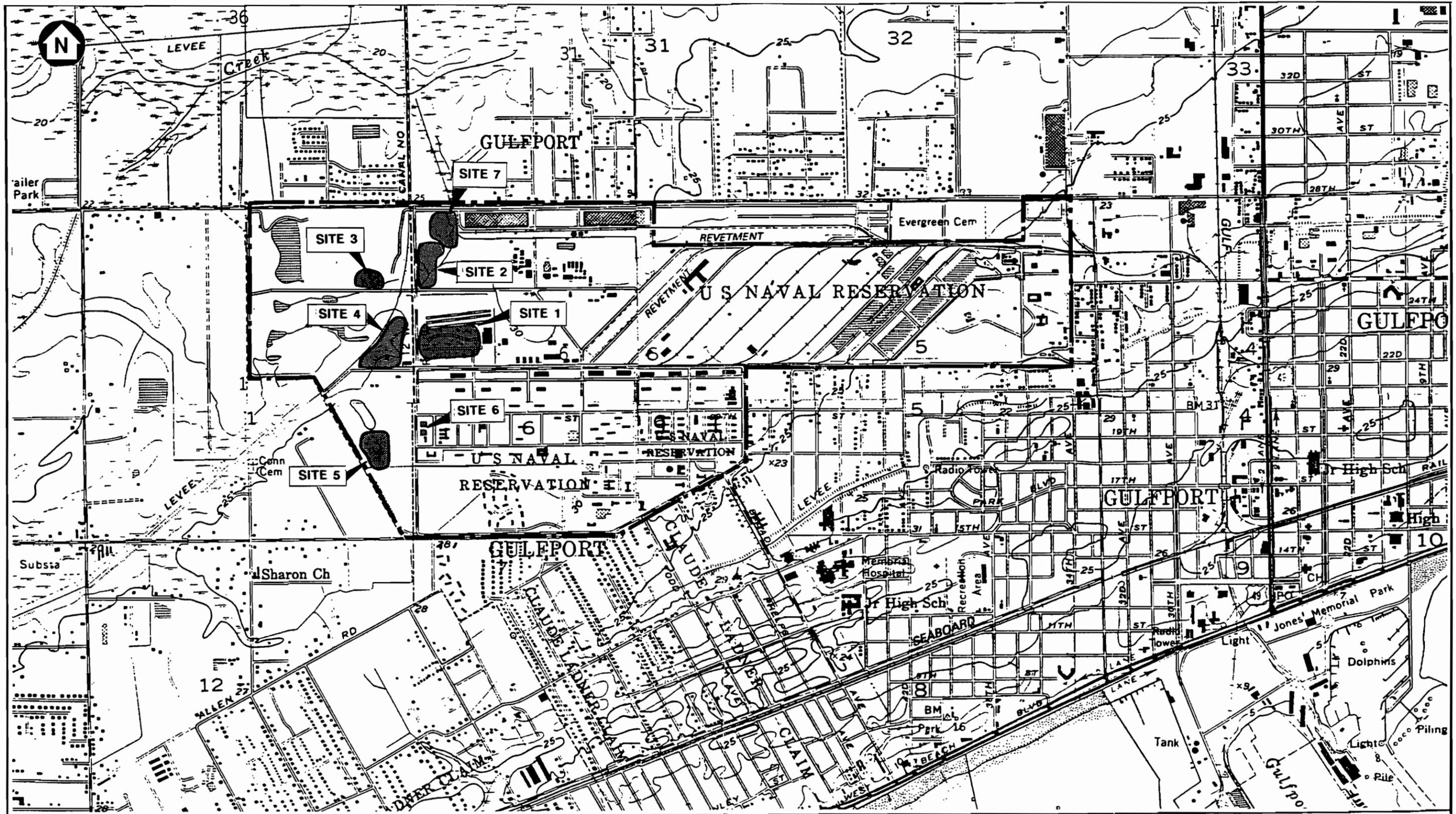
Laboratory analyses that were performed during the Verification Study included volatile organic analytes (VOAs), pesticide and polychlorinated biphenyls (Pest/PCBs), acid and base-neutral extractable organics (semivolatile organic compound [SVOC]), selected Extraction Procedure (EP) toxicity metals, total organic carbon (TOC), total organic halogen, chemical oxygen demand (COD), oil and grease, pH, and specific conductance. Summaries of laboratory results from this investigation are presented in Tables 2-7 through 2-12 of the RI/FS Workplan. No pesticides or PCBs were detected above quantitation limits in any of the samples. The primary contaminants detected were cadmium, chromium, and lead. A summary of all of the identified sites at NCBC Gulfport is presented in Table 2-1. Locations of these sites are shown in Figure 2-2.

2.3 SCOPE OF WORK (WORKPLAN). The RI at NCBC Gulfport will consist of geophysical investigations; monitoring well installation; well development and purging; soil, sediment, surface water, and groundwater sampling; soil borings; and aquifer testing. Table 2-2 lists the objectives for each of the seven sites and the methods proposed to achieve them.

Table 2-1 Past Disposal Potential Sources of Contamination, RI/FS Health and Safety Plan, NCBC Gulfport, Mississippi

Site No.	Site Name	Period of Operation	Waste Types	Estimated Quantities	Sources
1	Disaster Recovery Disposal Area	1942-1948	Paints, oils, solvents, paint strippers, and cleaning compounds.	Unknown	Public work shops and supply.
2	WW II Landfill	1942-1948	General refuse, paints, oils, solvents, paint strippers, and cleaning compounds.	Unknown	Dumpsters throughout NCBC.
3	Northwest Landfill and Burn Pit	1948-1966	Solid waste, pesticides, paints, paint strippers, solvents, oils, and cleaning compounds.	30,000 tons of solid waste; unknown quantities of liquid wastes, 130,000 gallons of flammable liquids burned in pit.	All NCBC industrial operations.
4	Golf Course Landfill	1966-1972	Solid waste, oils, fuels, paints, paint strippers, solvents, and cleaning compounds.	16,000 tons of solid waste; unknown quantities of other liquid wastes.	All NCBC industrial operations.
5	Heavy Equipment Training Area Landfill	1972-1976	Refuse and tree clippings, DDT, paints, oils, solvents, paint strippers, and cleaning compounds.	6,000 cubic yards of solid waste; 50 to 100 drums of DDT.	All NCBC industrial operations.
6	Fire-Fighting Training Area	1966-1975	Waste fuels, oils, solvents, paint, and paint strippers.	500,000 gallons	CED, 20th NCR, NCTC and public work shops.
7	Rubble Disposal Area	1978-1984	Concrete, lumber, scrap metal, and similar inert materials.	Unknown	Construction and building demolition debris.

Notes: CED = Construction Equipment Department
NCR = Naval Construction Regiment
DDT = Dichlorodiphenyltrichloroethane
NCTC = Naval Construction Training Center
NCBC = Naval Construction Battalion Center



SCALE IN FEET
 0 500 1000 2000
 SOURCE: USGS QUADRANGLE
 GULFPORT NW, MISS 1985.

 APPROXIMATE SITE AREA
 - - - - - BASE BOUNDARY

 MISS
 QUADRANGLE LOCATION

**FIGURE 2-2
 NCBC LAYOUT AND
 SITE LOCATION**



RI/FS HASP
 NAVAL CONSTRUCTION
 BATTALION CENTER
 GULFPORT, MISSISSIPPI

Table 2-2 Objectives of Investigation, RI/FS Health and Safety Plan, NCBC Gulfport, Mississippi

Site No.	Objectives	Methods
1	To determine extent, location, and orientation of landfill.	Magnetometer, ground-penetrating radar and terrain conductivity surveys.
	To determine composition, magnitude, and extent of soil contamination.	Sediment and subsurface soil sampling.
	To determine the composition and magnitude of groundwater and surface water contamination.	Well installation and sampling, surface water sampling and sampling of existing wells.
2 and 7	To determine extent, location, and orientation of landfill.	Magnetometer, ground-penetrating radar and terrain conductivity surveys.
	To determine composition, magnitude, and extent of soil contamination.	Sediment and subsurface soil sampling.
	To determine the composition and magnitude of groundwater and surface water contamination.	Well installation and sampling, surface water sampling, sampling of existing wells.
3	To determine extent, location, and orientation of landfill.	Magnetometer, ground-penetrating radar and terrain conductivity surveys.
	To determine composition, magnitude, and extent of soil contamination.	Surface soil, sediment, and subsurface soil sampling.
	To determine the composition and magnitude of groundwater and surface water contamination.	Well installation and sampling, surface water sampling, sampling of existing wells.
4	To determine extent, location, and orientation of landfill.	Magnetometer, ground-penetrating radar and terrain conductivity surveys.
	To determine composition, magnitude, and extent of soil contamination.	Sediment and subsurface soil sampling.
	To determine the composition and magnitude of groundwater and surface water contamination.	Well installation and sampling, surface water sampling, sampling of existing wells.
5	To determine extent, location, and orientation of landfill.	Magnetometer, ground-penetrating radar and terrain conductivity surveys.
	To determine composition, magnitude, and extent of soil contamination.	Subsurface soil sampling.
	To determine the composition and magnitude of groundwater and surface water contamination.	Well installation and sampling, surface water sampling, sampling of existing wells.
6	To determine extent, location, and orientation of burn pits.	Terrain conductivity and ground-penetrating radar surveys.
	To determine composition, magnitude, and extent of soil contamination.	Surface soil and subsurface soil sampling.
	To determine the composition and magnitude of groundwater and surface water contamination.	Well installation and sampling, surface water sampling, sampling of existing wells.

SECTION 3

3.0 HAZARD ANALYSIS

3.1 INVASIVE SAMPLING. Invasive sampling at NCBC Gulfport will include soil boring and monitoring well installation.

3.1.1 Hazardous Substances The contaminants of concern (COC) that are known or suspected to be present on the facility, along with any established exposure limits for those substances, are listed in Table 3-1.

3.1.2 Site Risks The following are the health and safety hazards that are expected to be encountered at each site.

3.1.2.1 Health Hazards Health hazards at NCBC Gulfport consist primarily of potential exposure to contaminated matrices. Contaminants to which personnel may be exposed are PCBs, pesticides, solvents, waste oil and fuels, cleaning compounds, paint wastes and paint strippers and their constituents. The primary constituents of those hazardous substances that represent potential health hazards are described below and summarized in Table 3-1.

All activities at NCBC Gulfport will be conducted in unconfined areas. This will minimize the potential for exposure by on-site personnel to either high vapor concentrations or strong liquid concentrations of any of the substances described above.

3.1.2.2 Safety Hazards Safety hazards include those hazards that personnel may be exposed to that are unrelated to hazardous wastes. These include hazards such as heat stress, operation and presence around heavy equipment, lifting of objects, vehicle traffic, snake and spider bites, and insect stings. Extreme caution should be exercised by all personnel while conducting work around drill rigs, backhoes, and other heavy equipment. During hot days, personnel should take time to drink fluids and cool off to avoid overheating and symptoms that are related to heat stress.

Lifting of heavy objects should be done with caution. Personnel should assist one another with moving heavy objects or use the appropriate equipment to accomplish these tasks. During all site activities, personnel should be aware of the possibility of an encounter with poisonous snakes, particularly rattlesnakes and water moccasins and black-widow and brown-recluse spiders.

Power substations, powerlines, underground utilities, and underground pipelines are to be avoided during drilling operations. Necessary work permits for activities such as excavations and drilling at the NCBC Gulfport will be obtained from the Public Works Department or the appropriate department (e.g., fire department).

3.1.2.3 Conclusions and Risk Assessment Based on all of the available information (i.e., nature of the work, potential on-site chemicals and their properties, exposure limits, etc.), hazards that may be associated with conducting the described field work are considered to be low, assuming appropriate health and safety practices are maintained.

Table 3-1 Contaminants of Potential Concern, RI/FS Health and Safety Plan, NCBC Gulfport, Mississippi

Chemical	Approximate Odor Threshold (ppm)	Permissible Exposure Limits (ppm)	Threshold Limit Value (ppm)	Physical Characteristics	Dermal Toxicity	Remarks
Benzene	4.7	1	10	Colorless liquid, pleasant aromatic odor.	Moderate skin irritant.	Inhalation of large amounts attacks central nervous system (CNS); chronic poisoning causes leukemia.
Ethylbenzene	140	100	100	Colorless liquid, aromatic odor.	Moderate skin irritant.	Liquid blisters skin; inhalation results in dizziness, and depression.
Toluene	0.17	100	100	Colorless liquid, pleasant aromatic odor.	Mild skin irritant.	Ingestion or aspiration can cause pulmonary edema, and depressed respiration.
Xylene	0.05	100	100	Colorless liquid, aromatic odor.	Moderate skin irritant.	Inhalation causes headache and dizziness; vapors irritate eyes; can be fatal if ingested.
Lead	--	0.05	0.15	Soft, ductile, gray, metal, soluble in water containing a weak acid.	None.	Lead poisoning may cause fatigue, anemia, abdominal pains, and neurological damage.
Trichloroethylene	5	50	50	Colorless liquid, sweet odor.	Can cause dermatitis.	Inhalation may cause eye and nose irritation, blurred vision, nausea, or CNS damage.
Polychlorinated biphenyl	--	0.5-1	0.5-1	Oily liquid to solid powder, weak odor.	Acne from skin contact.	None.
Cadmium	--	0.2	--	Metal: Silver-white, blue-tinged, lustrous odorless solid.	None.	Carcinogen; causes pulmonary edema, nausea, headache, vomiting, and kidney damage.
Chromium	--	0.5	0.5	Steel gray metal or silver powder.	Can cause Dermatitis.	Inhalation may cause irritation of nose, throat, respiratory passages, and lungs.
1,2-Dichloroethene	--	200	200	Colorless liquid, sweet odor.	Moderate skin irritant.	Inhalation causes nausea, vomiting, CNS system damage; eye irritant.

Chemical	Approximate Odor Threshold (ppm)	Permissible Exposure Limits (ppm)	Threshold Limit Value (ppm)	Physical Characteristics	Dermal Toxicity	Remarks
2-butanone (Methyl ethyl ketone)	10	200	200	Colorless liquid, sweet odor.	Moderate skin irritant.	Liquid causes eye burn. Vapor irritates eyes, nose, and throat. Can cause headache, dizziness, and loss of consciousness.
4,4'-DDT ²	--	¹ (skin)	1	Colorless, odorless solid.	Skin and eye irritant.	Symptoms range from headaches and fatigue to convulsions and pulmonary edema.
Stoddard solvent	--	200	200	Colorless liquid gasoline-like odor.	Skin and eye irritant.	High concentrations of vapors may cause intoxication, harmful to lungs if swallowed.
1,1'-Dichloroethane	--	100	200	Colorless oily liquid, chloroform odor.	Skin and eye irritant.	Ingestion of large amounts could cause nausea, vomiting, and cyanosis.
1,2'-Dichloroethane	--	100	200	Colorless liquid, chloroform like odor.	Skin and eye irritant.	Ingestion causes slight depression to deep narcosis.

¹mg/m³
²dichlorodiphenyltrichloroethane.

Notes: ppm = parts per million.

3.1.3 Protective Measures The following are the protective measures that will be used at the site.

3.1.3.1 Engineering Controls The use of engineering controls are not anticipated at NCBC Gulfport. If dry and dusty conditions exist, wet down the area to minimize dust exposure and contamination to the metals.

3.1.3.2 Levels of Protection Level D protective equipment will be used at NCBC Gulfport. Level D protection should only be used when the atmosphere contains no known hazard, all potential airborne contaminants can be monitored for, and work functions preclude splash, immersion, or the potential for unexpected inhalation or contact with hazardous levels of any chemical. If any splash, immersion, inhalation, or contact of a hazardous substance exists, upgrade to modified Level D is required.

3.1.4 Monitoring It is intended that real-time monitoring instrumentation will be used to monitor the work environment in order to ensure the appropriate level of protection for the site team.

3.1.4.1 Air Sampling To the extent feasible, the presence of airborne contaminants, oxygen-deficient and combustible atmospheres will be evaluated through the use of direct-reading instrumentation. The information that is gathered will be used to ensure the adequacy of the levels of protection being used at the site, and may be used as the basis for upgrading or downgrading the levels of protection in conformance with action levels provided in this HASP and at the direction of the site HSO.

The types of sampling equipment that may be used at the site are listed below. Refer to Chapter 7.0 of the CLEAN HASP for information on the calibration and maintenance of the equipment.

1. Foxboro™ Organic Vapor Analyzer 128 (OVA)
2. HNU™ IS101 and Photovac™ TIP Photoionization Detector (PID)
3. Benzene 0.5/a and 5/b draeger tubes

If the air monitoring equipment (PID or OVA) detects a steady measurable quantity of organic vapors above background, monitor with a benzene (0.5/a) draeger tube. If benzene levels exceed 1.0 ppm, upgrade to Level C. If benzene levels are below 1.0 ppm, continue work at Level D until the PID or OVA levels near 50 ppm, monitor with the benzene 5/b draeger tube. If benzene levels exceed 50 ppm, upgrade to Level B, otherwise continue working at Level C until readings are greater than 700 or 890 ppm on the OVA and PID respectively.

Level D is acceptable if:

- PID or OVA <20 ppm; and
- benzene (0/5a) draeger tube <1 ppm.

Level C is required if:

- PID reads between 20 and 890 ppm or the OVA reads between 20 and 700 ppm; and/or
- benzene reads between 1 and 50 ppm.

Level B is required if:

- PID reads greater than or equal to 890 ppm or the OVA reads greater than or equal to 700 ppm; or
- benzene reads greater than or equal to 50 ppm.

3.1.4.2 Personnel Monitoring All personnel on-site will be enrolled in the ABB-ES medical surveillance program. In addition, all personnel on-site will wear a thermoluminescent dosimetry body badge to measure possible exposure to radiation.

SECTION 4

4.0 DATA SHEETS FOR INVESTIGATIVE SET 1

CHROMIUM

Chemical: Chromium (II) and (III), Hexavalent (IV)

Permissible Exposure Limit: 0.5 ppm
0.05 ppm (human carcinogen)

Physical Characteristics: Steel-gray metal or silver metal powder.
Note: Properties vary depending upon specific compound.

Toxicity: The toxicity of chromium varies with different chromium compounds. Chromic acids and chromates appear to be more toxic than chromium metal dust or insoluble chromium salts. Exposure to certain hexavalent chromium compounds is associated with an increased lung cancer incidence in humans.

Symptoms: Inhalation: Dust may cause irritation of nose, throat, respiratory passages, and lungs. Repeated or prolonged exposure to chromic acid or dust may cause ulceration and perforation of the nasal septum.

Skin: Dermatitis, repeated exposure may cause an allergic skin rash.

Incompatibilities: Alkalies, dilute H_2SO_4 and HCl

CADMIUM

Chemical: Cadmium Dust (as Cd)

Permissible Exposure Limit: 0.2 mg/m³

Physical Characteristics: Metal: Silver-white, blue-tinged, lustrous, odorless solid. Note: Properties vary depending upon specific compound.

Symptoms: Carcinogen; causes pulmonary edema, cough, tightness in chest, headache, chills, muscle aches, nausea, vomiting, diarrhea, and mild anemia.

Target Organs: Respiratory system, kidneys, prostate, blood.

First Aid: Eyes - irrigate immediately.
Skin - wash with soap and water.
Inhalation - provide respiratory support.
Ingestion - seek medical attention immediately.



5.0 SITE CONTROL

5.1 ZONATION. The general zonation protocols that should be employed at hazardous waste sites are described in Chapter 8.0 of the CLEAN HASP. The site-specific zonation that will be used for this project is described as follows.

Each site will be divided into three zones: (1) the work area, considered the Exclusion Zone; (2) a perimeter area serving as the Support Zone; and (3) an area for decontamination called the Contamination Reduction Zone (CRZ).

5.2 COMMUNICATIONS. When radio communication is not used, the following air horn signals will be employed:

HELP	three short blasts	(. . .)
EVACUATION	three long blasts	(_ _ _)
ALL CLEAR	alternating long and short blasts	(_ . _ .)

5.3 WORK PRACTICES. General work practices to be used during ABB-ES projects are described in Chapter 9.0 of the CLEAN HASP. Work at the site will be conducted according to these established protocols and guidelines for the safety and health of all involved. Specific work practices necessary for this project or those that are of significant concern are described as follows.

- Work and sampling will be conducted in Level D clothing and equipment.



6.0 DECONTAMINATION AND DISPOSAL

All personnel and/or equipment that leaves the contaminated areas of the site will be subject to decontamination, which will take place in the CRZ. General decontamination practices to be used during ABB-ES projects are described in Chapter 13.0 of the CLEAN HASP.

6.1 PERSONNEL DECONTAMINATION. All personnel will follow standard decontamination practices when leaving hazardous waste sites, including proper decontamination, removal, and disposal of personal protective equipment and tools. Personal protection levels for decontamination will correspond with the level of protection used during the field activity.

6.1.1 Small Equipment Decontamination Small equipment will be protected from contamination as much as possible by keeping the equipment covered when at the site and placing the equipment on plastic sheeting, not on the ground. Sampling equipment to be used at the site will be used only once or will be field cleaned between samples in accordance with USEPA Region IV Standard Operating Procedures (SOPs) (USEPA, 1991).

6.1.2 Heavy Equipment Decontamination Drill rigs and other heavy equipment will be cleaned with high-pressure water or steam, followed by a soap and water wash and rinse. Loose material will be removed with a brush. Downhole tools and heavy equipment will be decontaminated in accordance with USEPA Region IV SOPs.

A decontamination pit will be constructed upwind of the site to allow collection of decontamination fluids.

6.2 COLLECTION AND DISPOSAL OF DECONTAMINATION PRODUCTS. Investigation-derived wastes will be collected, screened, and stored or disposed as described in the Workplan (Volume I) and Sampling and Analysis Plan (Volume II). Potentially contaminated materials (e.g., clothing and gloves) will be bagged or placed in 55-gallon drums as necessary and segregated for disposal. Contaminated waste materials shall be disposed of as required by the provisions that are included in the contract and consistent with NCBC and regulatory provisions. All non-contaminated materials shall be collected and bagged for appropriate disposal as normal domestic waste. Decontamination fluids from split-spoons and groundwater sampling equipment will be stored in containers for proper disposal.

SECTION 7

7.0 EMERGENCY AND CONTINGENCY PLAN

This section identifies emergency and contingency planning that has been undertaken for operations at this site. Most sections of the HASP provide information that would be used under emergency conditions. General emergency planning information is addressed in Chapter 14.0 of the CLEAN HASP. The following subsections present site-specific emergency and contingency planning information.

7.1 PERSONNEL ROLES, LINES OF AUTHORITY, AND COMMUNICATION. The site HSO or the Health and Safety designee is the primary authority for directing operations at the site under emergency conditions. All communications both on-site and off-site will be directed through the HSO or designee.

7.2 EVACUATION. In the event of an emergency situation such as fire, explosion or significant release of toxic gases, an air horn or other appropriate device will be sounded for three long blasts (- - -) indicating the initiation of evacuation procedures. All personnel will evacuate the work area. The location of safe areas shall be upwind of the site. For efficient and safe site evacuation and assessment of the emergency situation, the HSO will have authority to initiate proper action if outside services are required. Under no circumstances will incoming personnel or visitors be allowed to proceed into the area once the emergency signal has been given. The HSO must see that access for emergency equipment is provided and that all combustible apparatuses have been shut down once the alarm has been sounded. Evacuation from the NCBC Gulfport will be conducted by travelling north from Sites 5 and 6 on Colby Avenue to 4th Street, turn right (east) on 4th street, travel to the main gate, and exit the Base via Broad Avenue.

From Sites 2, 3, and 7 travel south on Colby Avenue to 7th Street, turn left on 7th Street, continue on 7th to Dong Xoai Avenue, turn right on Dong Xoai Avenue to the main gate, and exit the Base via Broad Avenue. Sites 1 and 4 are adjacent to 7th Street and will be evacuated by travelling east on 7th Street to Dong Xoai Avenue, turn right, and exit to Broad Street via the main gate.

7.3 EMERGENCY MEDICAL TREATMENT AND FIRST AID. Any personnel that may be injured on-site will be rendered first aid as appropriate and transported to competent medical facilities for further examination and/or treatment. The preferred method of transport would be through professional emergency transportation means; however, when this is not readily available or would result in excessive delay, other transport will be authorized. Under no circumstances will injured persons transport themselves to a medical facility for emergency treatment.

SECTION 8



8.0 ADMINISTRATION

8.1 PERSONNEL AUTHORIZED DOWNRANGE. Personnel that are authorized to participate in downrange activities at this site have been reviewed and certified for site operations by the Task Order Manager (TOM) and the Health and Safety Supervisor (HSS). Certification involves the completion of appropriate training, a medical examination, and a review of this site-specific HASP. All persons who enter the site must use the buddy system, and check in with the Site Manager and/or Health and Safety Officer (HSO) before going downrange.

CERTIFIED ABB ENVIRONMENTAL TEAM PERSONNEL:

Laura Harris *+	Site Supervisor and HSO
Andrew Rucinski*+	Hydrogeologist
Nora Weber	Chemist
Bob Fisher	Geologist
Johnny Kirkland *+	Environmental Technician

OTHER CERTIFIED PERSONNEL:
To be assigned.

- * FIRST-AID-TRAINED
- + CPR-TRAINED

8.2 HEALTH AND SAFETY PLAN (HASP) APPROVALS. By their signatures, the undersigned certify that this HASP will be used for the protection of the health and safety of all persons entering this site.

_____	_____
Health and Safety Officer	Date
_____	_____
Task Order Manager	Date
_____	_____
Health and Safety Manager/Supervisor	Date

8.3 FIELD TEAM REVIEW. I have read and reviewed the health and safety information in the HASP. I understand the information and will comply with the requirements of the HASP.

NAME: _____

DATE: _____

SITE/PROJECT: _____

8.4 MEDICAL DATA SHEET. This Medical Data Sheet will be completed by all on-site personnel and will be kept in the Support Zone during site operations. It is not a substitute for the Medical Surveillance Program requirements consistent with the CLEAN HASP. This data sheet will accompany any personnel when medical assistance or transport to hospital facilities is required. If more space is required, use the back of this sheet.

Project: _____

Name: _____

Address: _____

Home telephone: area code () _____

Age: _____ Height: _____ Weight: _____

In case of emergency, contact: _____

Address: _____

Telephone: area code () _____

Do you wear contact lenses? Yes () No ()

Allergies: _____

List medication(s) taken regularly: _____

Particular sensitivities: _____

Previous/current medical conditions or exposures to hazardous chemicals:

Name of personal physician: _____

Telephone: area code () _____

8.5 EMERGENCY TELEPHONE NUMBERS.

Base Security	(601) 871-2102
Rescue Service	911
Primary Hospital (Gulfport Memorial Hospital)	(601) 865-3120
Alternate Hospital (Garden Park Community Hospital)	(601) 865-1188
Fire Department	911
Off-site Emergency Services (Gulfport Police)	(601) 868-5900
Poison Control Center	(800) 492-2414
National Response Center	(800) 424-8802
Regional USEPA Emergency Response	(800) 414-8802
Site HSO: <u>Laura Harris - on site</u>	(615) 531-1922 (800) 462-3073
Environmental Coordinator: <u>Gordon Crane</u>	(601) 871-2859
Task Order Manager: <u>Frank Cater</u>	(615) 531-1922
ABB Environmental HSM: <u>C.E. Sundquist</u>	(800) 341-0460 x2101
SDIV Engineer-in-Charge (EIC): <u>Ken Barnes</u>	(803) 743-0669

8.6 ROUTES TO EMERGENCY MEDICAL FACILITIES.

The primary source of medical assistance for the site is:

Facility Name: Gulfport Memorial Hospital

Address: 4500 13th Street, Gulfport, Mississippi 39501

Telephone Number: (601) 865-3120

Directions to primary source of medical assistance: (attach map)

Exit NCBC Gulfport via the main gate and travel south (right) on Broad Avenue approximately 3/8 mile. Hospital is on the left (see Figure 8-1)

Alternative source of medical assistance:

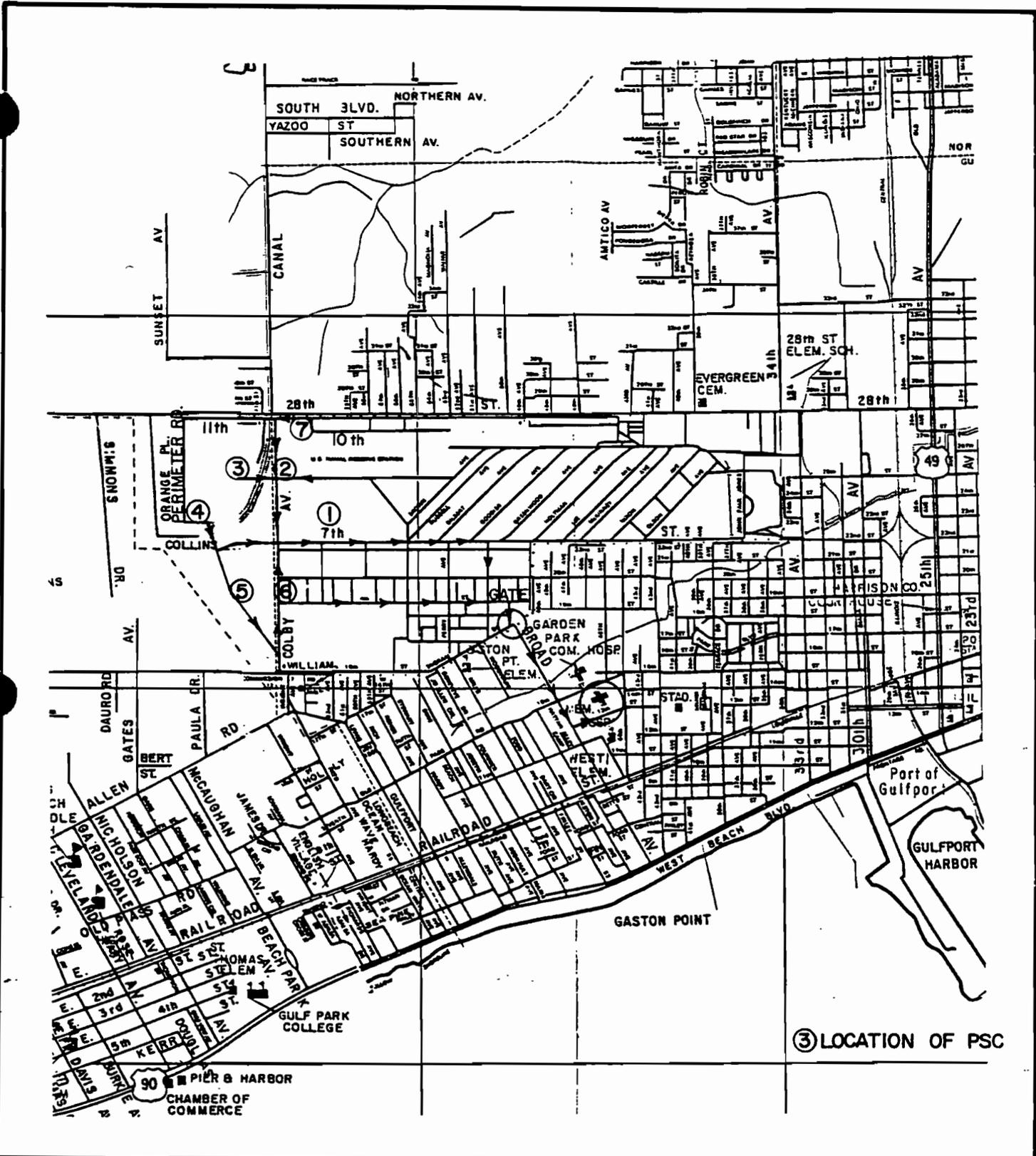
Facility Name: Garden Park Community Hospital

Address: 1520 Broad Avenue, Gulfport, Mississippi 39501

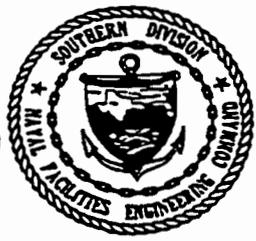
Telephone Number: (601) 865-1188

Directions to alternate source of medical assistance: (attach map)

Exit NCBC Gulfport via main gate and travel south (right) on Broad avenue approximately 1/4 mile. Hospital is on the left (see Figure 8-1).



③ LOCATION OF PSC



LOCATION AND ROUTE TO MEDICAL FACILITY



FIGURE 8-1

JOB SAFETY & HEALTH PROTECTION

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Requirements of the Act include the following:

EMPLOYERS

All employers must furnish to employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm or employees. Employers must comply with occupational safety and health standards issued under the Act.

EMPLOYEES

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct jobsite inspections to help ensure compliance with the Act.

INSPECTION

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

COMPLAINT

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides the employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with their nearest OSHA office within 30 days of the alleged discriminatory action.

CITATION

If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

PROPOSED PENALTY

The Act provides for mandatory civil penalties against employers of up to \$7,000 for each serious violation and for optional penalties of up to \$7,000 for each nonserious violation. Penalties of up to \$7,000 per day may be proposed for failure to correct violations within the proposed time period and for each day the violation continues beyond the prescribed abatement date. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to \$70,000 for each such violation. A violation of posting requirements can bring a penalty of up to \$7,000.

There are also provisions for criminal penalties. Any willful violation resulting in the death of any employee, upon conviction, is punishable by a fine of up to \$250,000 (or \$500,000 if the employer is a corporation), or by imprisonment for up to six months, or both. A second conviction of an employer doubles the possible term of imprisonment. Falsifying records, reports, or applications is punishable by a fine of \$10,000 or up to six months in jail or both.

VOLUNTARY ACTIVITY

While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Programs recognize outstanding efforts of this nature.

OSHA has published Safety and Health Program Management Guidelines to assist employers in establishing or perfecting programs to prevent or control employee exposure to workplace hazards. There are many public and private organizations that can provide information and assistance in this effort, if requested. Also, your local OSHA office can provide considerable help and advice on solving safety and health problems or can refer you to other sources for health such as training.

VOLUNTARY ACTIVITY

Free assistance in identifying and correcting hazards and in improving safety and health management is available to employers, without citation or penalty, through OSHA-supported programs in each State. These programs are usually administered by the State labor or Health department or a State university.

POSTING INSTRUCTIONS

Employees in States operating OSHA approved State Plans should obtain and post the State's equivalent poster.

Under provisions of Title 29, Code of Federal Regulations, Part 1903.2(a)(1) employers must post this notice (or facsimile) in a conspicuous place where notices to employees are customarily posted.

More Information

Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from your employer or from the nearest OSHA Regional Office in the following locations:

Atlanta, Georgia
Boston, Massachusetts
Chicago, Illinois
Dallas, Texas
Denver, Colorado
Kansas City, Missouri
New York, New York
Philadelphia, Pennsylvania
San Francisco, California
Seattle, Washington

(404) 347-3573
(617) 565-7164
(312) 353-2220
(214) 767-4731
(303) 844-3061
(816) 426-5861
(212) 337-2378
(215) 596-1201
(415) 744-6670
(206) 442-5930

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OSHA 2203

Lynn Martin, Secretary of Labor
U.S. Department of Labor
Occupational Safety and Health Administration

To report suspected fire hazards, imminent danger safety and health hazards in the workplace, or other job safety and health emergencies, such as toxic waste in the workplace, call OSHA's 24-hour hotline: 1-800-321-OSHA.

REFERENCES

Envirodyne Engineers, Inc., 1985, Initial Assessment Study of Naval Construction Battalion Center, Gulfport, Mississippi, UIC: N62605, prepared for Navy Assessment and Control of Installation Pollutants Department, Navy Energy and Environmental Support Activity; Port Hueneme, California, July 1985.

Harding Lawson Associates (HLA), 1987, Draft Final Verification Report, Naval Construction Battalion Center, Gulfport, Mississippi, prepared for Department of the Navy, Southern Division Naval Facilities Engineering Command, Houston, Texas, November 1987.

U.S. Environmental Protection Agency, 1991, Environmental Compliance Branch, Standard Operating Procedures and Quality Assurance Manual: USEPA Region IV, Environmental Services Division, Athens, Georgia, February 1991.

U.S. Navy/Marine Corps (Navy), 1992, Installation Restoration Manual, U.S. Navy and Marine Corps.