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NAS CECIL FIELD, FL
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CONSTRUCTION COMPLETION REPORT FOR INSTALLATION OF NUTRIENT INJECTION SYSTEM AT BUILDING 9 NAS CECIL FIELD FL

12/1/2001

CH2MHILL CONSTRUCTORS INC

Construction Completion Report
Installation of Nutrient Injection System at Building 9

Naval Air Station Cecil Field
Jacksonville, Florida

Revision No. 00

Contract No. N62467-98-D-0995
Contract Task Order No. 0002

Prepared by:

CH2MHILL Constructors, Inc.

115 Perimeter Center Place, N.E.
Suite 700
Atlanta, GA 30346

Submitted to

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

December 2001

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CH2MHILL Constructors, Inc.

115 Perimeter Center Place, N.E.
Suite 700
Atlanta, GA 30346

December 2001

Prepared/Approved By:

Samuel M. Ross, Project Manager — Date

Approved By:

R. Scott Newman, Program Manager — Date

Client Acceptance:

U.S. Navy Responsible Authority — Date

CERTIFICATE OF COMPLETION

CH2M HILL Constructors, Inc., attests that, to the best of its knowledge and belief, the Installation of a Nutrient Injection System at Building 9, Naval Air Station Cecil Field, Jacksonville, Florida, delivered under Contract No. N62467-98-D-0995, Contract Task Order No. 0002, has been completed, inspected, and tested, and is in compliance with the contract.

_____ _____

Project Quality Control Manager Date

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Acronyms

sw	ABB Environmental Services, Inc.
AST	Aboveground Storage Tank
ASTM	American Society of Testing and Materials
bls	below land surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CCI	CH2M HILL Constructors, Inc.
CFR	Code of Federal Regulations
COC	chemical of concern
CTO	Contract Task Order
EESI	Engineered Environmental Solutions, Inc.
HLA	Harding Lawson Associates
J.A. Jones	J.A. Jones Environmental Services Company
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
O&M	operation and maintenance
OES	Omega Environmental Services, Inc.
OVA	organic vapor analyzer
PHA	Priester and Associates
PPE	Personal protective equipment
ppm	parts per million
psi	Pounds per square inch
PVC	Polyvinyl chloride
QC	quality control
SAR	Site Assessment Report
SVOC	semi-volatile organic compound
TCLP	toxicity characteristic leaching procedure
TRPH	total recoverable petroleum hydrocarbons
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

1.0 Introduction

CH2M HILL Constructors, Inc. (CCI), with J.A. Jones Environmental Services Company (J.A. Jones), has been contracted by the Department of the Navy, Southern Division, Naval Facilities Engineering Command (NAVFAC), to prepare this Construction Completion Report for work performed by CCI/J.A. Jones at Building 9 located at Naval Air Station (NAS) Cecil Field, Jacksonville, Florida. This work was performed under Contract No. N62467-98-D-0995, Contract Task Order (CTO) No. 0002 and in accordance with the management approach outlined in the CCI Contract Management Plan (CCI, July 1998), the NAS Cecil Field Basewide Work Plan, Revision No. 1 (CCI, November 1998), and the CTO No. 0002 Work Plan Addendum No. 10 (CCI, October 2000).

The objective of this report is to provide documentation of the construction activities associated with installation of a nutrient injection system at Building 9, NAS Cecil Field, Jacksonville, Florida.

1.1 Project Scope and Construction Objectives

On March 6, 2000, CCI/J.A. Jones received work authorization from Southern Division, NAVFAC to complete the following scope of work associated with the nutrient injection system at Building 9, NAS Cecil Field. Additional details on the proposed scope of work are included in the CTO No. 0002 Work Plan Addendum No. 10.

- Identification and of all aboveground and underground utilities
- Installation of one monitoring well to a depth of 14 feet below land surface (bls), finished in a flush-mounted traffic bearing vault;
- Installation of four nutrient injection wells to a depth of 30 feet bls, traffic bearing vaults, and associated piping and instrumentation
- Mobilization of a prefabricated nutrient injection system equipment and enclosure;
- Start-up and optimization of treatment system operation
- Preparation of a Construction Completion Report
- Site restoration
- Operation, maintenance, and monitoring of the treatment system for a period of 12 months

1.2 Site History

Building 9 served as the Main Base Fire Station and Safety Office for NAS Cecil Field from 1953 until the closing of NAS Cecil Field in 1999. Two 1,250-gallon underground storage tanks (USTs), Tanks 9L1 and 9L2, were removed from the site around 1985.

The Site Assessment Report (SAR) prepared for Building 9 (Harding Lawson Associates [HLA], 1998) concluded that operation of the two former USTs had resulted in contamination of soil and groundwater with fuel-related compounds, including benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, acenaphthylene, and total recoverable petroleum hydrocarbons (TRPH). The SAR determined that an area of soil approximately 3,000 square feet in size at the location of the former USTs was highly contaminated to a depth of 7 feet bls and acted as a source of groundwater contamination. The SAR also established that groundwater contamination extends only to the shallow surficial aquifer (7 to 25 feet bls) to a depth of 20 feet bls over an area approximately 3,000 square feet in size, which coincides with the area of soil contamination.

The remediation objectives of the nutrient injection system are to reduce both the soil and groundwater contaminant concentrations to below state mandated target levels. Tables 1-1 and 1-2 list the soil and groundwater chemical of concern (COCs) with their respective maximum concentrations and remediation goals reported in either milligrams per kilogram (mg/kg) or micrograms per liter (µg/L).

TABLE 1-1
Chemical of Concern in Soil at Building 9

Chemical of Concern	Maximum Concentration (mg/kg)	Remediation Goal (mg/kg)
Acenapthylene	26	22
Ethylbenzene	140	0.40
Naphthalene	34	1
Toluene	44	0.40
Total Xylenes	1,100	0.30
TRPH	7,500	340

mg/kg = milligrams per kilogram

TABLE 1-2
Chemical of Concern in Groundwater at Building 9

COCs	Maximum Concentration (µg/L)	Remediation Goal (µg/L)
Benzene	61	1
Ethylbenzene	360	30
Naphthalene	38	20
Toluene	97	40
Total Xylenes	1,000	20
TRPH	10,000	5,000

µg/L = micrograms per liter

1.3 Chronology of Events

The chronology of events for the construction at the site is listed in Table 1-3. Specific details describing the construction activities are found in Section 4.0 of this report.

TABLE 1-3
Construction Sequence Summary

Event	Date
Mobilization	November 1, 2000
Pre-construction Survey	November 1 – 2, 2000
Monitoring Well Installation	November 29, 2000
Nutrient Injection Well Installation	November 8 – 9, 2000
Trenching and Pipe Installation	November 21-December 7, 2000
Nutrient Injection Well Vault Installation	November 9 – 10, 2000
Nutrient Injection System Installation	January 8 – January 9, 2001
Nutrient Injection System Startup	January 9 – 16, 2001
Site Restoration	January 9 – 16, 2001
Post-Construction Survey	February 7, 2001
Transportation and Disposal of Wastes	January 10, 2001; January 17,2001
Demobilization	January 17, 2001

1.4 Problems Encountered

No significant problems were encountered during the construction activities at Building 9.

2.0 Performance Standards and Construction Quality Control

The following quality controls were implemented during the course of the project and are described in detail in this section:

- Field observation
- Site preparation
- Surveying
- Well installation
- Trenching and pipe installation
- Prefabricated remediation system installation
- System startup
- Equipment decontamination
- Waste profile packages
- Transportation and disposal of contaminated materials

2.1 Field Observation

CCI/J.A. Jones provided oversight of all field operations throughout the course of the project. CCI/J.A. Jones field oversight staff included a project superintendent, a project quality control (QC) manager, and a site health and safety specialist. Detailed records of subcontractor activities were maintained in field logbooks and site field records. Photographs of site activities were collected throughout the project and representative photographs are provided in Appendix A.

2.2 Site Preparation

Site preparation activities conducted by CCI/J.A. Jones included establishing site controls and conducting utility clearances. Utility clearances were obtained through coordination with the Sunshine State One Call and the facility operation and maintenance contractor for underground utilities.

2.3 Surveying

The nutrient injection well and nutrient injection system equipment enclosure location were surveyed by Holland and Bassett Surveyors, Inc. using existing monitoring wells at the site as reference points. A site map is provided in Figure 2-1.

2.4 Well Installation

Prior to well installation, manufacturers' catalog data for all well materials were reviewed and approved by the CCI/J.A. Jones Project QC Manager. All well materials utilized were

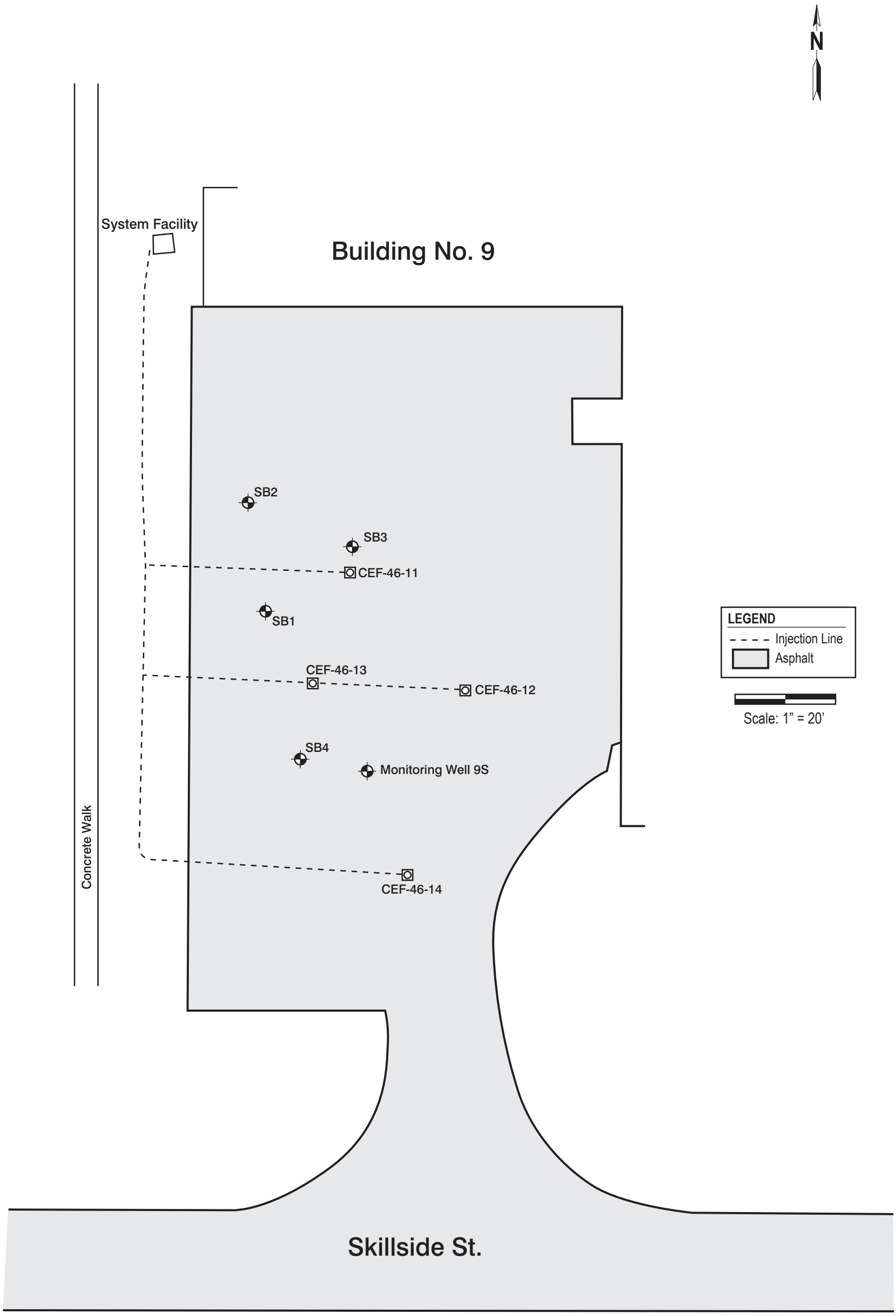

Figure 2-1
Site Map
Building 9
NAS Cecil Field
Jacksonville, Florida

CH2MHILL

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inspected upon receipt to the job site and were determined to be in compliance with the approved submittals. Each well was installed by Partridge Well Drilling, a certified well driller, in accordance with the approved CTO No. 0002 Work Plan Addendum No. 10 and the total well and screen depths, and well materials and depths verified. The well driller certification is provided in Appendix B. The generated drill cuttings were containerized in a 20 cubic yard roll-off box and development water was containerized in a portable aboveground storage tank (AST), for characterization and offsite transportation and disposal. Additional details for well installation are provided in Section 4.0. The monitoring well construction diagram for new monitoring well CEF-9-9S, a typical well construction diagram for the injection wells, and well completion records from the licensed well driller are provided in Appendix C.

2.5 Trenching and Pipe Installation

Prior to trenching and pipe installation at Building 9, manufacturers' catalog data for all pipe and well vault materials were reviewed and approved by the CCI/J.A. Jones QC Manager. All piping and well vault materials utilized were inspected upon receipt to the job site and were in compliance with the approved submittals. Trenching activities were conducted by CCI/J.A. Jones in accordance with the approved CTO No. 0002 Work Plan Addendum No. 10. The locations and depths of each trench were verified daily during trenching activities. All piping and well vault materials were installed in accordance with the manufacturer's recommendations, the approved submittals, and CTO No. 0002 Work Plan Addendum No. 10. Based upon organic vapor analyzer (OVA) screening which indicated that all excavated soil was below the 10 parts per million (ppm) action criteria, native soil was used for pipe bedding as the native soil was sandy and free from debris.

The trenches for pipe and well vault installation at the site were backfilled and restored by CCI/J.A. Jones in accordance with the approved submittals and CTO No. 0002 Work Plan Addendum No. 10. Trenches were backfilled in 1-foot lifts with the excavated material, followed with 1-foot of imported lime rock, with each lift machine-compacted. Because the site was in an abandoned, inactive location, no compaction testing was required. Additional details for trenching and pipe/well vault installation are provided in Section 4.0.

2.6 System Equipment Installation

A pre-fabricated, remediation system was installed by Priester and Associates (PHA), the remediation technology vendor, under a performance-based subcontract with CCI/ J.A. Jones. Because the remediation technology is considered proprietary by PHA, manufacturers' catalog data system equipment was not reviewed by the CCI/J.A. Jones Project QC Manager. System equipment installation was conducted by PHA in accordance with the manufacturer's recommendations and CTO No. 0002 Work Plan Addendum No. 10.

Prior to the electrical connections for the system equipment, manufacturers' catalog data for all electrical materials were submitted to the CCI/J.A. Jones QC Manager for approval. All electrical materials utilized were inspected upon receipt to the job site and were found to be in compliance with the approved submittals. Electrical installation was conducted by

CCI/J.A Jones subcontractor C and C Powerline in accordance with the manufacturer's recommendations, the National Electric Code, the approved submittals, and CTO No. 0002 Work Plan Addendum No. 10. Following electrical installation, each system was tested to ensure the proper voltage was being delivered to the system equipment, and each system component was tested for proper rotation. Because the installed system is a prefabricated, portable, leased unit, and is considered proprietary by the technology vendor, as-built drawings will not be provided for the Building 9 system.

2.7 System Startup

System startup was performed by PHA in accordance manufacturer's instructions and CTO No. 0002 Work Plan Addendum No. 10. System startup data is provided in the Quarterly Operations and Maintenance Reports for Building 9.

2.8 Equipment Decontamination

All equipment was decontaminated prior to removal from the site. In addition, the drill rig and equipment was decontaminated with a steam cleaner between each well installation. All wastes generated by decontamination activities were containerized in a temporary AST for offsite transportation and disposal. Decontamination of personnel and personal protective equipment (PPE) was performed in accordance with the site health and safety plan and applicable provisions of 29 Code of Federal Regulations (CFR) 1910.120. Upon completion of decontamination, the CCI/J.A. Jones QC Manager inspected all equipment prior to demobilization.

2.9 Waste Profile Packages

Because extensive sampling of the wastestreams had already been performed during previous environmental investigations, the liquid and solid wastes generated during the scope of work were profiled utilizing generator knowledge. Prior to offsite disposal of any waste, a waste profile package for each waste stream was generated. The solid and liquid wastes were profiled as non-hazardous wastes. The completed waste profile for the soil was received from the applicable disposal facility and presented to the NAS Cecil Field Caretaker Site Officer for approval. The liquid was disposed of with Industrial Water Services under a blanket profile with Jacksonville Pollution Control for oily wastewater. Once waste profile approval was received, pre-printed manifests were generated and provided for signature to the NAS Cecil Field Caretaker Site Officer. The signed waste profiles and manifests are provided in Appendix D.

2.10 Transportation and Disposal of Contaminated Materials

At the completion of the job, the 20 cubic yard roll-off container was picked up and transported by semi-truck and contents of ththe temporary AST were evacuated and transported by a vacuum tanker truck for offsite disposal. A total of approximately 1 ton of drill cuttings and PPE and approximately 100 gallons of development/decontamination water were disposed. Prior to loading the wastes for transportation, each vehicle was

inspected by the CCI/ J.A. Jones Project QC Manager for integrity, cleanliness, and proper certifications/licenses. All manifests were signed by the NAS Cecil Field Caretaker Site Officer. The manifests and certificates of disposal that are provided in Appendix D also include approximately 17.07 tons of drill cuttings/PPE and 2,330 gallons of development/decontamination water from the Building 46 nutrient injection system installation and other petroleum sites at NAS Cecil Field.

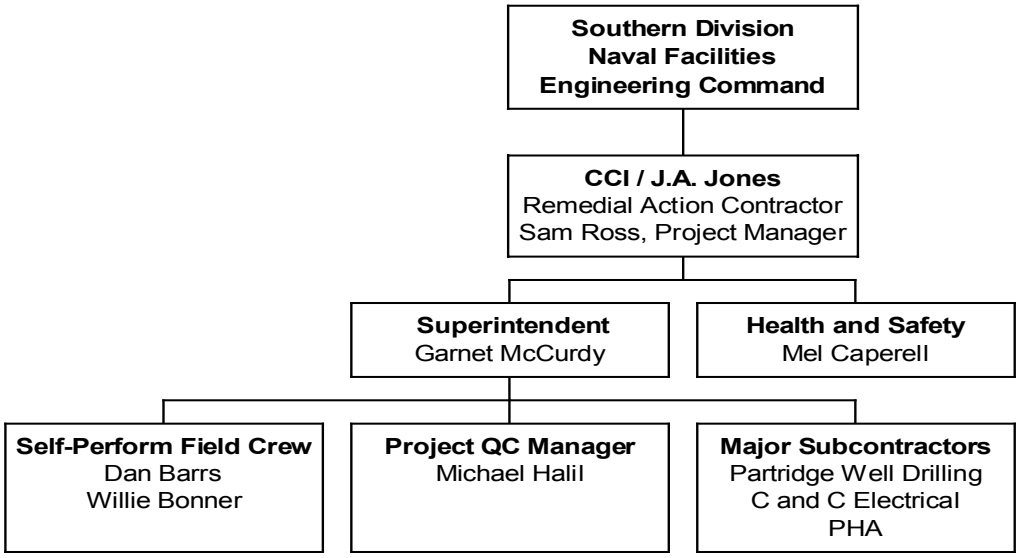
The transportation and disposal log, copies of each disposal facility-signed manifest, and certificates of disposal are provided in Appendix D.

3.0 Construction Activities

3.1 Construction Participants

The Construction participants and their respective responsibilities for the project are discussed in this section. The primary construction participants are shown below in Figure 3-1.

FIGURE 3-1
Organization of Construction Participants



3.2 Summary of Construction Activities

The following sections describe the construction activities and schedule related to: surveying, well installation, trenching and pipe installation, system and compound installation, and system startup. Because the installed system is a prefabricated, portable, leased unit, and is considered proprietary by the technology vendor, as-built drawings will not be provided for the Building 9 system.

3.2.1 Surveying

Pre-construction surveying activities were performed on November 1 and 2, 2000. Post-construction surveying activities were performed on February 7, 2001. Pre- and post-construction surveying was completed by Holland and Bassett Surveyors, Inc., who functioned as a subcontractor to CCI/J.A. Jones.

3.2.2 Well Installation

All wells were installed by Partridge Well Drilling, which functioned as a subcontractor to CCI/J.A. Jones. A total of four nutrient injection wells and one monitoring well were installed on November 9 and 10, 2000. The wells were installed using hollow stem auger drilling techniques. Each well location was post-holed to a depth of 4 feet bls prior to drilling. All of the injection wells were constructed with one-half-inch diameter black iron pipe with 0.010-inch slot, stainless steel screens. For the injection wells, silica sand (20/30 grain) was placed to 2 feet above the top of the screen followed by neat cement gout to the surface. The nutrient injection wells were installed to a depth of 30 feet bls with screened intervals from 27 to 30 feet bls. The new monitoring well was constructed with 2-inch diameter schedule 40 polyvinyl chloride (PVC) with 0.010-inch slot, PVC screens. For the new monitoring well, silica sand (20/30 grain) was placed to 1 foot above the top of the screen followed by a 1 foot layer of bentonite and neat cement gout to the surface. The monitoring well was installed to a depth of 14 feet bls with a screened interval from 4 to 14 feet bls.

Each injection/monitoring well was fully developed until clear. The injection wells were completed with a round, 1-foot by 8-inch locking, galvanized steel, well vault placed within a 6-inch thick concrete pad. The monitoring well was completed with a round, 8-inch by 8-inch locking, galvanized steel, well vault placed within a 6-inch thick concrete pad. The monitoring well construction diagram for CEF-9-9S, a typical well construction diagram for the injection wells, and well completion records from the licensed well driller are provided in Appendix C.

3.2.3 Trenching and Pipe Installation

Trenching and underground pipe installation was completed by CCI/J.A. Jones from November 21 to December 7, 2000. Trenching was completed with a backhoe to a depth of 2 feet bls with a trench width of 2 feet. All underground piping was constructed of one-half-inch 200 pounds per square inch (psi) rubber steam hose. All piping within the injection well vaults was constructed of one-half-inch 200 psi rubber steam hose, black iron elbows, and brass hose bibs.

Native soil was used for pipe bedding as the native soil was sandy and free from debris. Trenches were backfilled to 1-foot bls with the excavated material and machine-compacted, prior to placement of a 1-foot lift of lime rock to grade. No backfill compaction tests were required due to the abandoned status of the site.

3.2.4 System and Compound Installation

This section describes the remediation system installation activities completed during implementation of the scope of work. The remediation system was assembled offsite and was installed at the site on January 8 and 9, 2001. The remediation system electrical service installation and electrical hook-up was conducted from December 21, 2000 to January 9, 2001. The system was installed by PHA and consists of a skid-mounted air compressor and associated piping and instrumentation covered by a metal enclosure. The secondary electrical service was connected to the system by PHA and C and C Powerline, CCI/J.A. Jones subcontractor, from a primary electrical service provided by the Jacksonville Electric Authority.

3.2.5 System Startup

The nutrient injection system startup was conducted by PHA on January 9, 2001. Remediation system startup activities and data are provided in the Quarterly Operations and Maintenance Reports for Building 9.

4.0 Final Inspection and Site Status Summary

No final inspection was conducted by the Navy, however the CCI/J.A. Jones Project QC Manager inspected the sites for compliance with the approved CTO No. 0002 Work Plan Addendum No. 10.

4.1 Participants

The following individuals participated in the final inspection:

- CCI/J.A. Jones Project Superintendent
- CC/J.A. Jones Project QC Manager
- PHA Project Superintendent

4.2 Deficiencies

During the inspection, no items were noted for correction.

4.3 Resolution of Deficiencies

None required.

4.4 Site Status Summary

As outlined in the project scope and construction objectives, CCI/J.A. Jones has conducted the following activities at Building 9, Former NAS Cecil Field, Jacksonville, Florida:

- Identification of all aboveground and underground utilities
- Installation of one monitoring well to a depth of 14 feet bls, finished in a flush-mounted traffic bearing vault
- Installation of four nutrient injection wells to a depth of 30 feet bls, traffic bearing vaults, and associated piping and instrumentation
- Construction of a treatment system compound and enclosure
- Mobilization and rental of prefabricated nutrient injection system equipment and enclosure
- Start-up and optimization of treatment system operation
- Preparation of an Construction Completion Report

In addition, CCI /J.A. Jones performed the following activities:

- Managed liquid and solid waste generated during remediation activities in an environmentally protective manner
- Conducted construction QC oversight and inspections and provided environmental and construction testing reports to document the remediation efforts

5.0 References

CH2M HILL Constructors, Inc. November 1998. Basewide Work Plan, Revision No. 1, Naval Air Station Cecil Field, Jacksonville, Florida.

CH2M HILL Constructors, Inc. September 2000. CTO 0002 Work Plan Addendum, No. 10, Building 9 Work Plan Addendum No. 08, Nutrient Injection System Installations at Building 9, Former Tanks 9L1 and 9L2 and Building 46, Former Tanks 46R, 46D, 46SUL, and 46UL, NAS Cecil Field, Jacksonville, Florida.

Harding Lawson Associates. 1998. Site Assessment Report, Building 9, Naval Air Station Cecil Field, Jacksonville, Florida.

Appendix A

Site Photographs

Photo 1:	Preconstruction Survey in Progress
Photos 2-6:	Installation of Nutrient Injection Wells in Progress
Photos 7-12:	Trenching and Pipe Installation in Progress
Photos 13-17:	Prefabricated Nutrient Injection System Installation in Progress
Photo 18:	Final Electrical Connection in Progress
Photo 19:	View of the Installed Nutrient Injection System

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

Photo 12

Photo 13

Photo 14

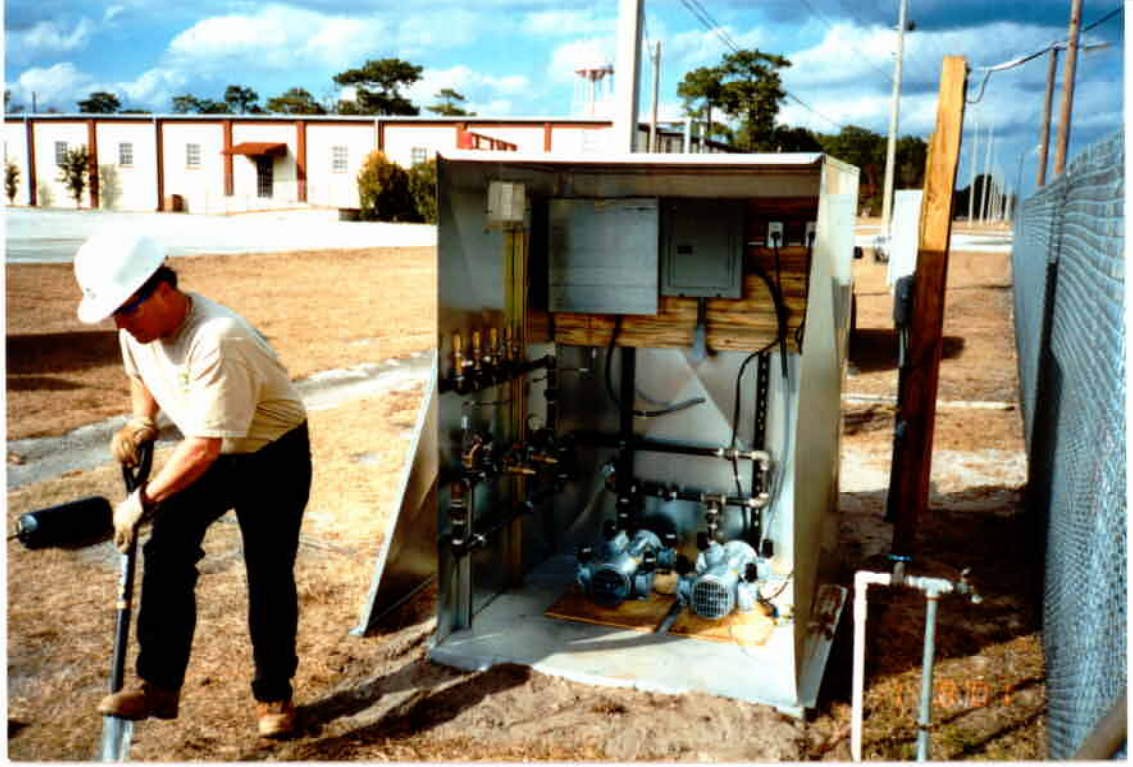


Photo 15

Photo 16

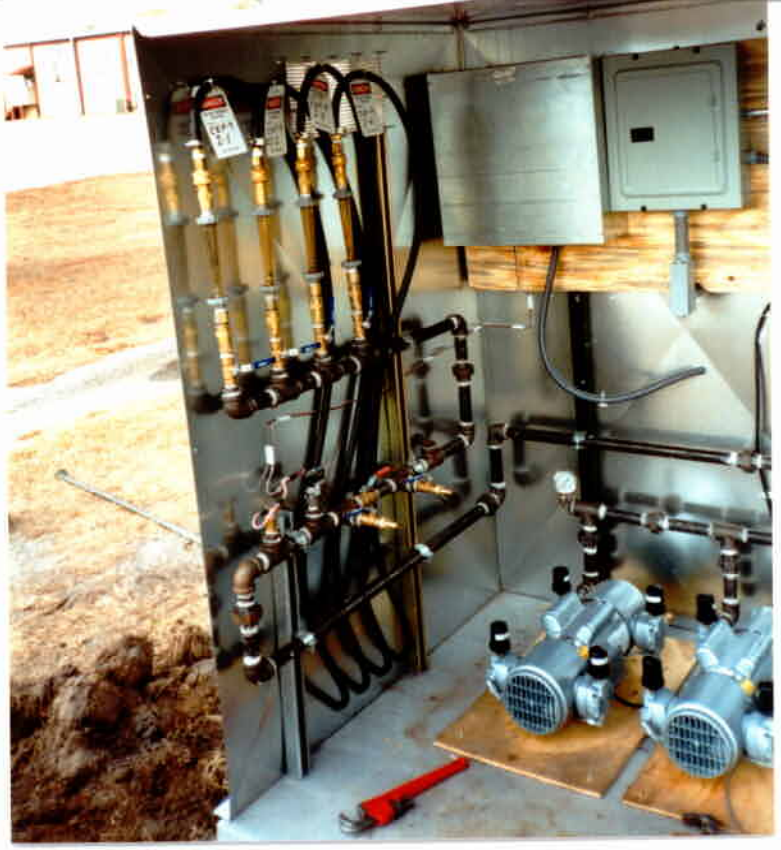


Photo 17

Photo 18

Photo 19

Appendix B

Miscellaneous Certifications

- Well Driller Certification
- Surveyor License

STATE OF FLORIDA

WATER WELL CONTRACTOR LICENSE

Issued to

Donal M "Pat" Partridge Jr

By

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

License No. **1927** Expires **July 31, 2003**

DISTRICT CERTIFICATION OFFICER

FLORIDA STATE BOARD
of
PROFESSIONAL SURVEYORS AND MAPPERS

CERTIFICATE No. LB-0006755

CERTIFICATE OF AUTHORIZATION PERMITTING INDIVIDUAL REGISTERED PROFESSIONAL SURVEYORS AND MAPPERS TO OFFER PROFESSIONAL SERVICES TO THE PUBLIC THROUGH A CORPORATION, PARTNERSHIP, ASSOCIATION, FICTITIOUS NAME OR FIRM.

WHEREAS

HOLLAND & BASSETT SURVEYORS, INC.

HAS MET THE REQUIREMENT OF CHAPTER 472.021, FLORIDA STATUTES, FLORIDA STATE BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS AUTHORIZES THE SAID CORPORATION TO OFFER TO THE PUBLIC PROFESSIONAL SURVEYING AND MAPPING SERVICES.

IN TESTIMONY WHEREOF, WITNESS THE SIGNATURE OF THE PROGRAM ADMINISTRATOR UNDER SEAL OF THE BOARD THIS 12TH DAY OF DECEMBER, 1996.

Carrie Flynn

Program Administrator

AC# 5440627

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
BOARD OF PROF SURVEYORS & MAPPERS

DATE	BATCH NUMBER	LICENSE NBR
12/23/1998	98901984	LB -0006755

The SURVEYING & MAPPING BUSINESS
Named below IS CERTIFIED
Under the provisions of Chapter 472 FS.
Expiration date: FEB 28, 2001

HOLLAND & BASSETT SURVEYORS INC
7601 ALTON AVE
JACKSONVILLE FL 32211

LAWTON CHILES
GOVERNOR

DISPLAY AS REQUIRED BY LAW

RICHARD T. FARRELL
SECRETARY

AC# 5440638

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
BOARD OF PROF SURVEYORS & MAPPERS

DATE	BATCH NUMBER	LICENSE NBR
12/23/1998	98901984	LS -0004242

The SURVEYOR AND MAPPER
Named below IS LICENSED
Under the provisions of Chapter 472 FS.
Expiration date: FEB 28, 2001

HOLLAND, ROBERT ERIC
7601 ALTON AVE
JACKSONVILLE FL 32211

LAWTON CHILES
GOVERNOR

DISPLAY AS REQUIRED BY LAW

RICHARD T. FARRELL
SECRETARY

AC# 5440642

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
BOARD OF PROF SURVEYORS & MAPPERS

DATE	BATCH NUMBER	LICENSE NBR
12/23/1998	98901984	LS -0004591

The SURVEYOR AND MAPPER
Named below IS LICENSED
Under the provisions of Chapter 472 FS.
Expiration date: FEB 28, 2001

BASSETT, CHARLES R JR
7601 ALTON AVENUE
JACKSONVILLE FL 32211

LAWTON CHILES

RICHARD T. FARRELL

2000-2001 OCCUPATIONAL LICENSE TAX

LYNWOOD ROBERTS

OFFICE OF THE TAX COLLECTOR

CITY OF JACKSONVILLE and/or COUNTY OF DUVAL, FLORIDA

231 EAST FORSYTH STREET ROOM 130, JACKSONVILLE, FL 32202 PHONE: (904)630-2080 FAX: (904)630-1437

Note - A penalty is imposed for failure to keep this license exhibited conspicuously at your establishment or place of business.

This license is furnished in pursuance of chapter 770-772 City ordinence codes.

HOLLAND, ROBERT ERIC 03
HOLLAND & BASSETT SURVEYORS
INC
7601 ALTON AV
JACKSONVILLE, FL 32211

ACCOUNT NUMBER: 054659-0000-5

LOCATION ADDRESS: 7601 ALTON AV
32211

DESCRIPTION: SURVEYOR, LAND

County License Code:	770.322-039	County Tax:	$30.00
Municipal License Code:	772.325	Municipal Tax:	$50.00
		Total Tax Paid:	$80.00

VALID FROM OCTOBER 1, 2000 TO SEPTEMBER 30, 2001

RCPT #: 001T003055 DATE: 8/24/2000 AMT: $80.00

ATTENTION

*****The Following Construction Contractors Require Additional Licensure*****

ALARM	POOL	ALUMINUM/VINYL
RESIDENTIAL	BUILDING	ROOFING
ELECTRICAL	SHEET METAL	SOLAR
MECHANICAL	PLUMBING	IRRIGATION
GENERAL	CARPENTRY	WATER TREATMENT
UNDERGROUND UTILITY	HEATING	AIR CONDITIONING
REFRIGERATION		

This is an occupational license tax only. It does not permit the licensee to violate any existing regulatory or zoning laws of the County or City. Nor does it exempt the licensee from any other license or permit required by law. This is not a certification of the licensee's qualification.

TAX COLLECTOR

THIS BECOMES A RECEIPT AFTER VALIDATION

Appendix C

Well Construction Diagrams

Bldg # 3

WELL COMPLETION REPORT (Please complete in black ink or type.)

PERMIT # _____ CUP # _____ DID # _____
Number of wells drilled 1 /WUP # _____
Indicate remaining wells to be cancelled _____
(All wells drilled need an individual completion report)
WATER WELL CONTRACTOR'S SIGNATURE Pat Partridge License # 1927
I certify that the information provided in this report is accurate and true)

OWNER'S NAME CH2M Hill Constructors
COMPLETION DATE 11/9/00 Florida Unique I.D. _____
WELL USE: DEP/Public ____ Irrigation ____ Domestic ____ Monitor ____
HRS Limited ____ 62-524 ____ Other Injection Wells
DRILL METHOD ☑ Rotary ☐ Cable Tool ☐ Combination
☐ Jet ☐ Auger Other _____

Grout	No. of Bags	From (ft.)	To (ft.)
Neat Cement:	6	0	25
Bentonite:			

WELL LOCATION: Site Address Cecil Field Bldg 3 County Duval
Qtr: ____ Qtr: ____ Sec: 22 Twp: 3S Rge: 24e
Latitude _____ Longitude _____

DATE STAMP
Official Use Only

Sketch of well location on property N
103rd
GATE
Cecil Field
Bldg
Give distances from septic tank and house or other reference points

Measured Static Water Level _____ Measured Pumping Water Level _____
After ____ Hours at ____ G.P.M. Measuring Pt. (Describe): _____
Which is ____ Ft. ☐ Above ☐ Below Land Surface
Casing: ☐ Black Steel ☐ Galv. ☐ PVC Other _____

☐ Open Hole ☑ Screen	Depth (Ft.) From	To	DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Give color, grain size, and type of material. Note cavities, depth to producing zones.
Casing Diameter & Depth (Ft.)			
Diameter 1/2	0	17	SAND
From 0	17	20	HARD PAN
To 27	20	30	SAND HARD PAN
Diameter SCR			
From 27			
To 30			
Liner ☐ or Casing ☐			
Diameter			
From			
To			

CHEMICAL ANALYSIS
Iron: ____ ppm Sulfate: ____ ppm
Chlorides: ____ ppm
[ ] Lab Test [ ] Field Test Kit
Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible
[ ] Turbine
Horsepower ____ Capacity ____ G.P.M. ____
Pump Depth ____ Ft. Intake Depth ____ Ft.

Driller's Name: (print or type) Alan Kelly

WELL COMPLETION REPORT (Please complete in black ink or type.)

PERMIT # _____ CUP # _____ DID # _____
Number of wells drilled 3 /WUP # _____
Indicate remaining wells to be cancelled _____
(All wells drilled need an individual completion report)
WATER WELL CONTRACTOR'S SIGNATURE Pat Partridge License # 1927
I certify that the information provided in this report is accurate and true)

OWNER'S NAME CH2M Hill Constructors
COMPLETION DATE 11/8/00 Florida Unique I.D. _____
WELL USE: DEP/Public ____ Irrigation ____ Domestic ____ Monitor ____
HRS Limited ____ 62-524 ____ Other Injection Wells
DRILL METHOD ☑ Rotary ☐ Cable Tool ☐ Combination
☐ Jet ☐ Auger Other _____

Grout	No. of Bags	From (ft.)	To (ft.)
Neat Cement:	6	0	25
Bentonite:			

WELL LOCATION: Site Address Building 3 Cecil Field County Duval
Qtr: ____ Qtr: ____ Sec: 22 Twp: 3S Rge: 24e
Latitude _____ Longitude _____

DATE STAMP
Official Use Only

Sketch of well location on property N
103rd
GATE
Cecil Field
Bldg
Give distances from septic tank and house or other reference points

Measured Static Water Level _____ Measured Pumping Water Level _____
After ____ Hours at ____ G.P.M. Measuring Pt. (Describe): _____
Which is ____ Ft. ☐ Above ☐ Below Land Surface
Casing: ☐ Black Steel ☐ Galv. ☐ PVC Other _____

☐ Open Hole ☑ Screen	Depth (Ft.) From	To	DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Give color, grain size, and type of material. Note cavities, depth to producing zones.
Casing Diameter & Depth (Ft.)			
Diameter 1/2	0	17	SAND
From 0	17	20	HARD PAN
To 27	20	30	SAND HARDPAN
Diameter SCR			
From 27			
To 30			
Liner ☐ or Casing ☐			
Diameter			
From			
To			

CHEMICAL ANALYSIS
Iron: ____ ppm Sulfate: ____ ppm
Chlorides: ____ ppm
[ ] Lab Test [ ] Field Test Kit
Pump Type
[ ] Centrifugal [ ] Jet [ ] Submersible
[ ] Turbine
Horsepower ____ Capacity ____ G.P.M. ____
Pump Depth ____ Ft. Intake Depth ____ Ft.

Driller's Name: (print or type) Alan Kelly

ELL COMPLETION REPORT (Please complete in black ink or type.)

:RMIT # _____ CUP # _____ DID # _____

umber of wells drilled 1 /WUP # _____

dicate remaining wells to be cancelled _____

ll drilled need an individual completion report)

A /ELL CONTRACTOR'S

GNATURE Pat Partridge License # 1927

I certify that the information provided in this report is accurate and true)

OWNER'S NAME CH2M Hill Constructors BLG 4

COMPLETION DATE 11/29/00 Florida Unique I.D. _____

WELL USE: DEP/Public ____ Irrigation ____ Domestic ____ Monitor ✓

HRS Limited ____ 62-524 ____ Other ____

DRILL METHOD ☑ Rotary ☐ Cable Tool ☐ Combination

☐ Jet ☐ Auger Other ____

Grout	No. of Bags	From (ft.)	To (ft.)
eat Cement:	1	0	2
entonite:			

Measured Static Water Level ____ Measured Pumping Water Level ____

After ____ Hours at ____ G.P.M. Measuring Pt. (Describe): ____

Which is ____ Ft. ☐ Above ☐ Below Land Surface

Casing: ☐ Black Steel ☐ Galv. ☐ PVC Other ____

/ELL LOCATION: Site Address Building 4 County: Duval

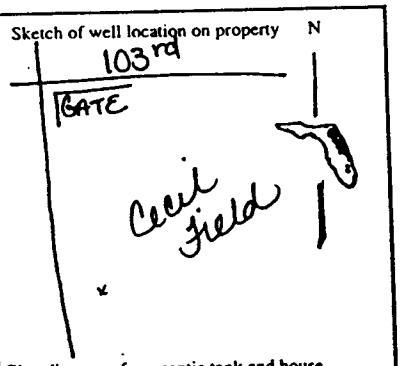
Qtr: ____ Qtr: ____ Sec: ____ Twp: ____ Rge: ____

atitude ____ Longitude ____

DATE STAMP

Official Use Only

Sketch of well location on property



Give distances from septic tank and house or other reference points

☐ Open Hole ☑ Screen	Depth (Ft.) From	Depth (Ft.) To	DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Give color, grain size, and type of material. Note cavities, depth to producing zones.
Casing Diameter & Depth (Ft.)			
Diameter 2	0	5	SAND
From 0	5	7	SAND HARDPAN
To 4	7	14	HARD PAN
Diameter SCR			
From 4			
To 14			
Liner ☐ or Casing ☐			
Diameter ____			
From ____			
To ____			

CHEMICAL ANALYSIS

Iron: ____ ppm Sulfate: ____ ppm

Chlorides: ____ ppm

[ ] Lab Test [ ] Field Test Kit

Pump Type

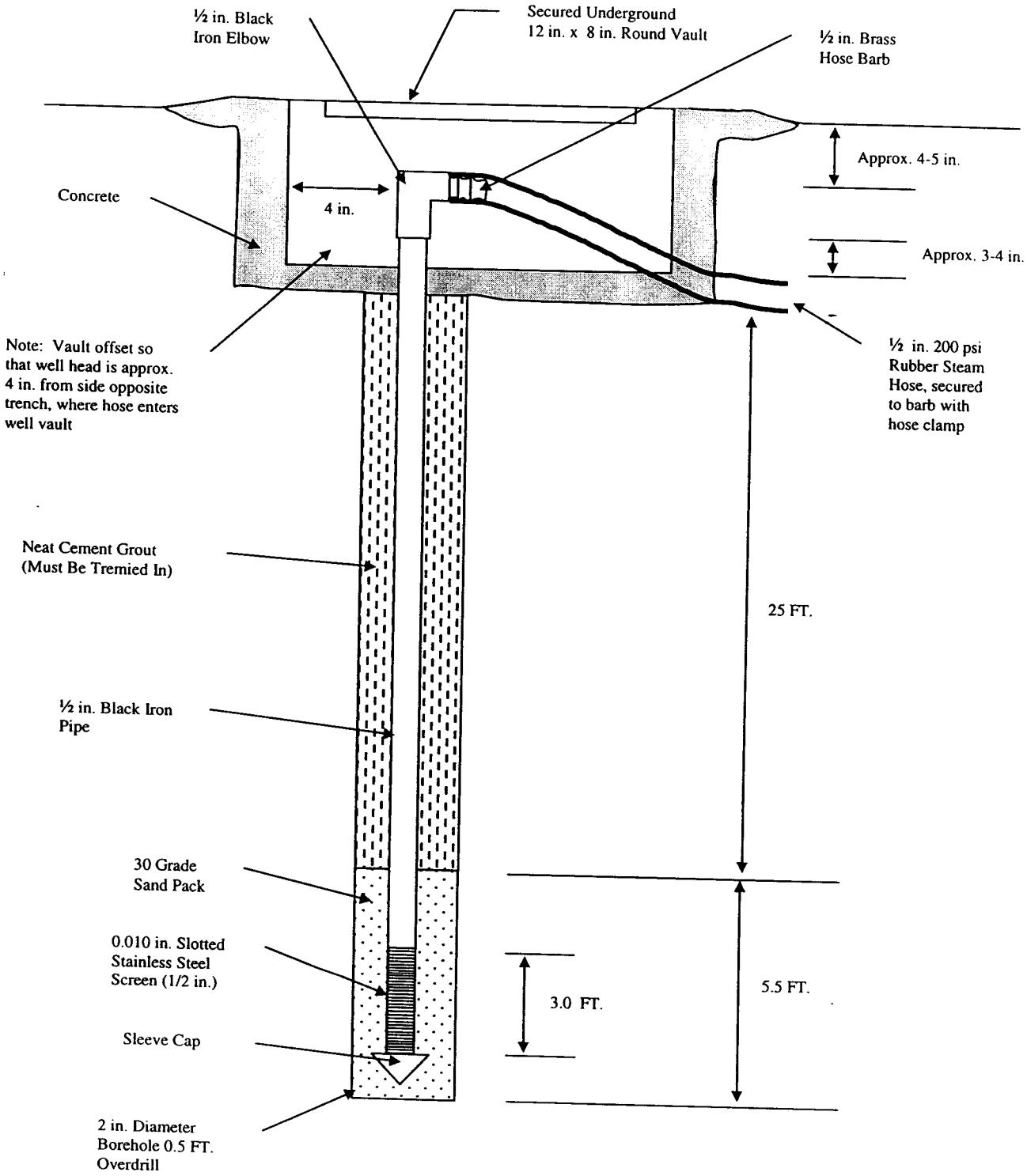
[ ] Centrifugal [ ] Jet [ ] Submersible

[ ] Turbine

Horsepower ____ Capacity ____ G.P.M. ____

Pump Depth ____ Ft. Intake Depth ____ Ft.

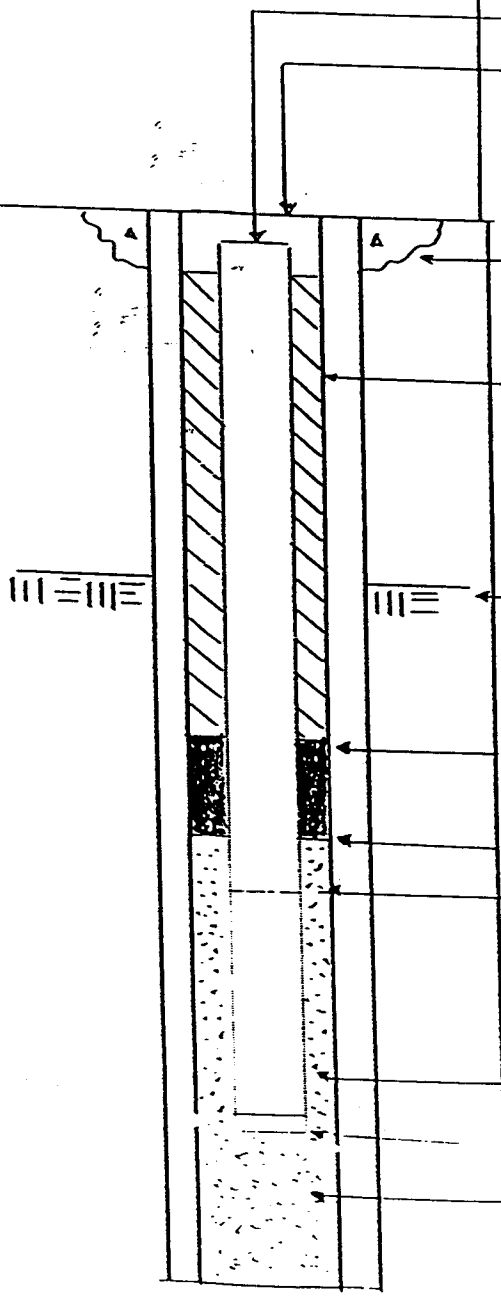
Driller's Name: (print or type) ALAN KELLY



Drawn By JPH — Date 9-4-00	Typical Injection Well Construction Details for Intermediate (30 Ft) Wells Building 9 Site, RAP Addendum NAS Cecil Field, Jacksonville, Florida	PHA-ER Fig. CF9-1
Scale NOT TO SCALE		Version 01

MONITORING WELL SHEET

Project Location BLDG 9	Drilling Co. PWO	WELL NUMBER	
Project Number CTO-2	Driller Alan Kelly	Boring Number	CEF-9-9S
Site NAS Cecil Field	Drill Method HSA	Date Completed	11/29/00
Geologist Mike Hall	DEV Method	Northing	
		Easting	



Elevation / Depth to Top of Riser 78.89 ft msl

Elevation / Height to Top of Surface Casing NA

I.D. of Surface Casing NA

Type of Surface Casing NA

Type of Surface Seal NA

I.D. of Riser 2"

Type of Riser Sch 40 PVC

Borehole Diameter 8"

Elevation / Depth to Rock NA

Type of Backfill Native

Elevation / Depth of Seal: 76.89

Type of Seal Bentonite

Elevation / Depth to Top of Filter Pack 75.89

Elevation / Depth to Top of Screen 74.89

Type of Screen Sch 40 PVC

Slot Size and Length 0.010 / 10'

I.D. of Screen 2"

Type pf Filter Pack 20/30 Sand

Elevation / Depth of Bottom of Screen 68.89

Elevation / Depth of Bottom of Filter Pack 68.39

Type of Backfill Below Well 20/30 Sand

Elevation / Total Depth of Borehole 68.39

NOT TO SCALE

Appendix D

Waste Disposal Information

- Transportation and Disposal Log
- Waste Disposal Facility Permits
- Waste Disposal Profiles and Manifests
- Certificates of Disposal

Transportation and Disposal Log

CTO No	Project No	Project Name	Site Description	Container Type	Waste Profile Sample No	Contractor	Transporter	Date Transported	Transporter EPA ID	Load ID	Disposal Facility	Disp Fac EPA ID	Media	Waste Type (Haz, Nonhaz, TSCA)	Waste Code/ Haz Waste No	Disposal Date	Manifest Number	Quantity	Unit	CD Rec'd?	Certif of Disp/ Destruc Date	Disp Treatment/ Method	Comments/ Notes
0002	149152	NAS Cecil Field	Building 9	Roll-Off	20122	Southland	Southland	01/11/01	N/A	1	Broadhurst Landfill	N/A	Soil	Nonhaz	N/A	01/11/01	8766	1	ton	yes	01/11/01	Landfill	Drill Cuttings
0002	149152	NAS Cecil Field	Building 9	Tanker	J020888	IWS	Jax Pollution Control	01/18/01	FLD 984257089	2	IWS	FLD98928484	Water	Nonhaz	N/A	01/18/01	P-47-02	100	Gal	yes	01/18/01	Treated/ Discharged	Development/ Decon Water

ENVIRONMENTAL PROTECTION DIVISION

DEPARTMENT OF NATURAL RESOURCES

STATE OF GEORGIA

PERMIT

SOLID WASTE HANDLING

Permit No: 151-014D(SL) Date: December 30, 1993

Permittee: Name: Wayne County Solid Waste Management Authority

Address: P.O. Box 217

Jesup, Georgia 31545

In accordance with the provisions of the Georgia Comprehensive Solid Waste Management Act, and the Rules promulgated pursuant thereto, this permit is issued for the following operation:

Construction and operation of a municipal solid waste landfill located on SR23 Southwest of Broadhurst in Wayne County.

This permit is conditioned upon the permittee complying with the attached conditions of operation, which are hereby made a part of this permit.

All statements and supporting data submitted to the Environmental Protection Division of the Department of Natural Resources have been evaluated, considered and relied upon in the issuance of this permit.

This permit is now in effect; however, under Georgia Law it is subject to appeal for thirty (30) days following issuance, and is subject to modification or revocation on evidence of noncompliance with any of the provisions of the Georgia Comprehensive Solid Waste Management Act, or any of the Rules promulgated pursuant thereto; or with any representation made in the above mentioned application or the statements and supporting data entered therein or attached thereto; or with any condition of this permit.

Harold F. Reneis, Director
Environmental Protection Division
Department of Natural Resources

Permit No: 151-014D(SL)

Issued to: Wayne County Solid Waste Management Authority
Conditions for Municipal Solid Waste Landfill:

1. The disposal facility shall be operated only under the direct supervision of an operator duly certified in accordance with Rule 391-3-4-.18.

2. Solid waste unloading shall be restricted to the working face of the operation in such a manner that waste may be easily incorporated into the municipal solid waste landfill with available equipment.

3. Solid waste shall be spread in uniform layers and compacted to its smallest practical volume before covering with earth.

4. A uniform compacted layer of clean earth cover at least six (6) inches in depth shall be placed over all exposed solid waste by the end of each day's operation, or more frequently as may be determined by the Division. In no case may solid waste be left uncovered for more than 24 hours.

5. A uniform compacted layer of clean earth cover not less than one (1) foot in depth shall be placed over each portion of any intermediate lift following completion of that lift.

6. A uniform compacted layer of clean earth cover not less than two (2) feet in depth shall be placed over the final lift not later than one month following placement of solid waste within that lift.

7. All-weather access roads shall be provided to the disposal facility and provisions shall be made for prompt equipment repair or replacement when needed.

8. Access to the municipal solid waste landfill shall be limited to authorized entrances which shall be closed when the facility is not in operation.

9. The disposal facility shall be graded and drained to minimize runoff onto the municipal solid waste landfill, to prevent erosion and to drain water from the surface of the municipal solid waste landfill.

10. Scattering of wastes by wind shall be controlled by fencing or other barriers and the entire facility shall be policed daily.

11. Regulated quantities of hazardous wastes shall not be disposed of at this facility.

12. Suitable measures to control fires that may start shall be provided. Stockpiled soil is considered to be the most satisfactory fire fighting material.

13. The Design and Operational Plan submitted by the permittee and approved by the Division for this municipal solid waste landfill is hereby made a part of this permit and the municipal solid waste landfill shall be operated in accordance with the plan.

14. This permit shall become null and void one year from the effective date if the permitted disposal operation has not commenced within one year from the effective date.

15. The permittee shall fully satisfy all applicable financial responsibility requirements, as provided by Chapter 391-3-4-.13.

16. The Permittee shall maintain compliance with the Rules for Solid Waste Management by accomplishing the following activities according to the specific dates:

    a) The groundwater and methane monitoring plan currently under review by the Division shall be revised to address any comments or deficiencies identified by the Division in accordance with the Rules for Solid Waste Management, Chapter 391-3-4 and shall be implemented upon approval. No waste shall be received for disposal at the facility before the first groundwater samples are collected in accordance with the approved monitoring plan and the facility has an approved methane monitoring system.

17. The permittee shall:
    A. Provide notice of final closure to the Director within thirty (30) days of receiving the final load of waste. Notice of closure must include the date of final waste receipt and an accurate legal description of the boundaries of the landfill.
    B. Include in all deeds for real property, a notice of the landfill operations, date the landfill operation commenced and terminated, an accurate legal description of the landfill location, and a description of the type of solid waste deposited at the landfill. Concurrent with the submission of notice of final closure to the Director, the permittee must submit to the Director, confirmation the information required in this condition has been noticed on the property deed.
    C. Provide the Division a certification signed by a professional engineer registered to practice in the state of Georgia, verifying that compliance with the closure requirements have been satisfied.
    D. Provide the closure certification on forms provided by the Division.

18. The post closure use of the landfill property shall never be allowed to disturb the integrity of the final cover, liner(s), or any other components of the containment system without prior approval of the proposed activities by the Division.

19. The permittee shall record and retain at the facility or other approved location the following information and documentation and shall notify the Division within thirty (30) days after the information or documentation has been placed or added to the record:
    - A. Records of random inspections of incoming loads or other measures used to ensure that incoming loads do not contain prohibited wastes.
    - B. The procedures to exclude receipt of prohibited wastes.
    - C. Training of facility personnel to recognize prohibited wastes.
    - D. Record of inspections.
    - E. Gas monitoring and gas remediation plans.
    - F. Design documentation for leachate and gas condensation control systems.
    - G. Closure and post-closure monitoring, testing, and analytical data and plans.
    - H. Effective April 9, 1995, financial assurance documentation.

ACORD CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YY) 30-JUN-2000

PRODUCER 40629
Willis Corroon Corporation of South Carolina
P.O. Box 2007
Greenville SC 29602
(864) 232-9999

Mary Ellen Lindsey

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED

Broadhurst Environmental, Inc.
P.O. Box 1272
Jesup GA 31598

COMPANIES AFFORDING COVERAGE

COMPANY A: 19429-002 (GREN) Insurance Company of the State of Pennsylvania

COMPANY B: 23817-001 (GREN) Illinois National Insurance Co.

COMPANY C: 19720-001 (GREN) American Alternative Insurance Corporation

COMPANY D: 23043-003 (GREN) Liberty Mutual Insurance Company

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY	RMGL6122858	30-JUN-2000	30-JUN-2001	GENERAL AGGREGATE	$ 1,000,000
	X COMMERCIAL GENERAL LIABILITY				PRODUCTS-COMP/OP AGG	$ 1,000,000
	CLAIMS MADE X OCCUR				PERSONAL & ADV INJURY	$ 1,000,000
	OWNER'S & CONTRACTOR'S PROT				EACH OCCURRENCE	$ 1,000,000
					FIRE DAMAGE (Any one fire)	$
					MED EXP (Any one person)	$
B	AUTOMOBILE LIABILITY	RMCA5347243	30-JUN-2000	30-JUN-2001	COMBINED SINGLE LIMIT	$ 1,000,000
	X ANY AUTO				BODILY INJURY (Per person)	$
	ALL OWNED AUTOS				BODILY INJURY (Per accident)	$
	SCHEDULED AUTOS				PROPERTY DAMAGE	$
	X HIRED AUTOS					
	X NON-OWNED AUTOS					
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
	ANY AUTO				OTHER THAN AUTO ONLY:	
					EACH ACCIDENT	$
					AGGREGATE	$
C	EXCESS LIABILITY	01A2UM000022001	30-JUN-2000	30-JUN-2001	EACH OCCURRENCE	$ 4,000,000
	X UMBRELLA FORM				AGGREGATE	$ 4,000,000
	OTHER THAN UMBRELLA FORM					$
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	WA775D004207010	30-JUN-2000	30-JUN-2001	X WC STATUTORY LIMITS / OTHER	
D	THE PROPRIETOR/ PARTNERS/EXECUTIVE OFFICERS ARE: INCL / EXCL	WC7751004207020	30-JUN-2000	30-JUN-2001	EL EACH ACCIDENT	$ 1,000,000
					EL DISEASE-POLICY LIMIT	$ 1,000,000
					EL DISEASE-EA EMPLOYEE	$ 1,000,000
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

SEE ATTACHED

CERTIFICATE HOLDER

CH2M Hill Constructors
6219 Authority Avenue
Jacksonville FL 32215

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE
Susan S. Finley

Willis **CERTIFICATE OF INSURANCE** PAGE 2 OF 2

ISSUE DATE (MM/DD/YY) 30-JUN-2000

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED 40629

Broadhurst Environmental, Inc.
P.O. Box 1272
Jesup GA 31598

PRODUCER
Willis Corroon Corporation of South Carolina
P.O. Box 2007
Greenville SC 29602
(864) 232-9999

Mary Ellen Lindsey

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS MAY HAVE BEEN REDUCED BY PAID CLAIMS.

TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
Environmental Impairment	PEC0003502	06/30/2000	06/30/2001	$10,000,000

Issuing Carrier: Greenwich Insurance Company

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

SEE ATTACHED
It is agreed that CH2M Hill Constructors is included as an Additional Insured in regards to General, Automobile and Umbrella Liability, but solely as respects all work performed and vehicles used by or on behalf of the Named Insured.

CERTIFICATE HOLDER

CH2M Hill Constructors
6219 Authority Avenue
Jacksonville FL 32215

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE
Susan S. Finley

© WILLIS 1994

ACORD CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YY) 22-FEB-2000

PRODUCER
Willis Corroon Corporation of South Carolina 36416
P.O. Box 2007
Greenville SC 29602
(864) 232-6333

Mary Ellen Lindsey

INSURED

Republic Services, Inc.
110 Southeast Sixth St.
29th Floor
Ft.Lauderdale FL 33301

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

COMPANIES AFFORDING COVERAGE

COMPANY A: 19429-002 (GREN) Insurance Company of the State of Pennsylvania

COMPANY B: 23817-001 (GREN) Illinois National Insurance Co.

COMPANY C: 19720-001 (GREN) American Alternative Insurance Corporation

COMPANY D: 23043-003 (GREN) Liberty Mutual Insurance Company

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY	RMGL612208G	30-JUN-1999	30-JUN-2000	GENERAL AGGREGATE	$ 1,000,000
	X COMMERCIAL GENERAL LIABILITY				PRODUCTS-COMP/OP AGG	$ 1,000,000
	CLAIMS MADE X OCCUR				PERSONAL & ADV INJURY	$ 1,000,000
	OWNER'S & CONTRACTOR'S PROT				EACH OCCURRENCE	$ 1,000,000
					FIRE DAMAGE (Any one fire)	$
					MED EXP (Any one person)	$
B	AUTOMOBILE LIABILITY	RMCA5347243	30-JUN-1999	30-JUN-2000	COMBINED SINGLE LIMIT	$ 1,000,000
	X ANY AUTO				BODILY INJURY (Per person)	$
	ALL OWNED AUTOS				BODILY INJURY (Per accident)	$
	SCHEDULED AUTOS				PROPERTY DAMAGE	$
	X HIRED AUTOS					
	X NON-OWNED AUTOS					
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
	ANY AUTO				OTHER THAN AUTO ONLY:	
					EACH ACCIDENT	$
					AGGREGATE	$
C	EXCESS LIABILITY	01A2UM000022000	30 JUN-1999	30-JUN-2000	EACH OCCURRENCE	$ 4,000,000
	X UMBRELLA FORM				AGGREGATE	$ 4,000,000
	OTHER THAN UMBRELLA FORM					$
D	WORKERS COMPENSATION AND	WA265D004207019	30-JUN-1999	30-JUN 2000	WC STATUTORY LIMITS / OTHER	
D	EMPLOYER'S LIABILITY	WCZ651004207029	30-JUN-1999	30-JUN 2000	E.L. EACH ACCIDENT	$ 1,000,000
	THE PROPRIETOR/ PARTNERS/EXECUTIVE OFFICERS ARE INCL / EXCL				E.L. DISEASE-POLICY LIMIT	$ 1,000,000
					E.L. DISEASE-EA EMPLOYEE	$ 1,000,000
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

CERTIFICATE HOLDER

CITIZMIN
Contracts Group
115 Perimeter Ctr Pl NE
Suite 700
Atlanta GA 30346

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE
Suzanne S. Finley

ACORD 25-S (7/90)

Southland Waste Systems

January 10, 2001

Mr. Mike Halil
CH2M Hill Constructors
6219 Authority Avenue
Jacksonville, Florida 32215

Dear Mr. Halil,

Thank you for speaking with me recently regarding the disposal of the petroleum contaminated soil generated by Cecil Field in Jacksonville, Florida. We have reviewed Special Waste Acceptance Application number 20122 and have approved the material for disposal at our Broadhurst Landfill. This approval number will be used to track this waste stream throughout its transportation and disposal. This approval expires on May 1, 2001.

A manifest must accompany each load and reference the approved profile number. The waste must pass a paint filter test prior to disposal. This approval is for petroleum contaminated soil generated from the cleanup of a release from an underground storage tank only. All other material must be profiled and approved separately. The price for disposal of this material is $14 per ton.

Thank you for the opportunity to do business with CH2M Hill Constructors. If I can be of any further assistance, please contact me at (904)731-2456.

Sincerely,

Donna Davis-Harrell

Donna Davis-Harrell
Director of Special Waste Services

8619 WESTERN WAY • JACKSONVILLE, FL 32256 • P.O. BOX 56110 (32241)
SERVICE (904) 731-1232 • SALES (904) 731-1732 • ADMINISTRATIVE / BILLING (904) 731-2456

REPUBLIC SERVICES, INC.

App. # 20122

Special Waste Acceptance Application

A. GENERATOR INFORMATION

1. Generator Name: U.S. NAVY
2. Site Location: BUILDING 46, NAS CECIL FIELD
3. City: JACKSONVILLE
   State: FL Zip: 32221
4. Phone: (904) 777-8850
5. Fax: (904) 778-6567
6. Contact DAVE KRUZICKI
7. Title ENVIRONMENTAL DIRECTOR

B. CUSTOMER INFORMATION

1. Customer Name: CH2M HILL CONSTRUCTORS, INC. (CCI)
2. Address: 115 PERIMETER CENTER PLACE, NE SUITE 700
3. City: Atlanta
   State: GA Zip: 30346-1278
4. Phone: (904) 777-4812
5. Fax: (904) 777-4262
6. Contact: COLLEEN KURTZ
7. Title SUBCONTRACTS ADMINISTRATION - CECIL FIELD OFFICE

C. WASTE STREAM INFORMATION

1. Common Name of Waste: PETROLEUM-CONTAMINATED SOIL/DRILL CUTTINGS
2. Detailed Description of Process Generating Waste and Material Description: LEAKS/DISCHARGES FROM PETROLEUM-CONTAINING USTs
3. Industrial Generator [ ]Yes [X]No If yes, please list the SIC Code_____
4. Municipal Generator [ ]Yes [X]No
5. Physical State at 70° [X]Solid [ ]Semisolid [ ]Liquid [ ]Powder [ ]Combination
6. Odor: [X]None [ ]Mild [ ]Semisolid (describe)_____
7. Color BROWN 8. Flash Point >140°F 9. Viscosity N/A (NON-FLOWABLE SOLID)
10. Reactive [ ]Yes [X]No With: _____ 11. pH Range: 6-8
12. Free Liquid: [ ]Yes [X]No 13. Water Content: NONE (90-100% SOLID) % by Water
14. Is the analytical attached derived from testing a representative sample in accordance with 40 CFR 261.35? [X] N/A [ ] Yes [ ] No
15. Does the waste contain radioactive or U.S. D.O.T. hazardous material materials? [ ] Yes [X] No

D. SUPPLEMENTAL INFORMATION

[ ] None [ ] MSDS [ ] Analytical Data [ ] Memo/Letter [X] Process Knowledge No. of Pages 7

E. SHIPPING INFORMATION

1. Packaging: [ ] Bulk Solids [ ] Bulk Liquids [ ] Drum [X] Roll-off [ ] Dump Truck [ ] Tank Truck
2. Estimated Volume: 20 [ ] Tons [X] Cubic yards [ ] Gallons [ ] Other _____
3. Shipping Frequency: ONCE Designated Landfill: BROADHURST LANDFILL - JESUP, GA

F. GENERATOR / CUSTOMER CERTIFICATION

I hereby certify that all information submitted and all attached documents contain true and accurate descriptions of this waste. No deliberate or willful omissions of composition or properties exist, and all known or suspected hazards have been disclosed. I further certify that the waste is not designated a Hazardous Waste defined by the USEPA in 40 CFR 261, nor does it contain PCB's regulated under TSCA 40 CFR 761.

I, DAVID J. KRUZICKI (Name, Please Print), am employed by U.S. NAVY (Company Name), and am authorized to sign this request for:

U.S. NAVY (Company Name), [signature] (Signature), 1/9/01 (Date).

Form SWO1 (99)

REMEDIAL ACTION PLAN ADDENDUM
FOR
BUILDING 46, FORMER TANKS 46R, 46D, 46SUL, AND 46UL

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0065

JUNE 2000

PREPARED UNDER THE SUPERVISION OF:

JOSEPH W. LOGAN
TASK ORDER MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

APPROVED FOR SUBMITTAL BY:

DEBBIE WROBLEWSKI
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

1.0 INTRODUCTION

This Remedial Action Plan (RAP) Addendum for Naval Air Station (NAS) Cecil Field, Building 46, Former Tanks 46R, 46D, 46SUL, and 46UL (Building 46) has been prepared by Tetra Tech NUS, Inc. (TtNUS) for the Southern Division Naval Facilities Engineering Command (SOUTHDIVNAVFACENGCOM) under the Navy Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, Contract Number N62467-94-D-0888, Contract Task Order (CTO) 0065. The purpose of this RAP Addendum is to provide the conceptual design of a modification to the previously selected remedial alternative at Building 46. This remedial action is being performed according to Florida Administrative Code (F.A.C) regulations covering leaks and discharges of petroleum products, as described in F.A.C 62-770.

Building 46 was the former base gas station and featured eight underground storage tanks (USTs), all of which were removed in June 1988. Four of these tanks were in operation before 1970. These four tanks were unidentified and their contents were unknown, but facility drawings indicate that these tanks each had a 2,000-gallon capacity and were located just south of Building 46. The remaining four tanks, identified as 46R, 46D, 46SUL, and 46UL were installed in 1970 adjacent to Building 46 itself. Tanks 46R and 46UL both had a 10,000-gallon capacity and were used to store regular and unleaded gasoline, respectively. Tanks 46D and 46SUL both had a 6,000-gallon capacity and were used to store diesel and super unleaded gasoline, respectively.

The Site Assessment Report (SAR) prepared for Building 46 (Harding Lawson Associates [HLA], 1998) concluded that operation of the USTs had resulted in contamination of soil and groundwater with fuel-related compounds, including benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl-tertbutylether (MTBE), naphthalene, and total recoverable petroleum hydrocarbons (TRPHs). The SAR determined that an area of soil approximately 5,500 square feet (ft^2) in size at the location of the former USTs was highly contaminated down to a depth of 7 feet below ground surface (bgs) and acted as a source of groundwater contamination. The SAR also established that the areal extent of the groundwater contaminant plume in the shallow (7 to 25 ft bgs), intermediate (25 to 50 ft bgs), and deep (50 to 92 ft bgs) zones of the surficial aquifer were approximately 25,300 ft^2, 95,700 ft^2, and 31,000 ft^2, respectively. Figure 1-1 illustrates the approximate horizontal extent of groundwater contamination.

A RAP for Building 46 was previously prepared and submitted by TtNUS in March 1999 (TtNUS, 1999). The 1999 RAP described a remedial action that included the following components:

- Air Sparging/Vapor Extraction (AS/VE) for the remediation of the highly contaminated soil and groundwater in the source area

Table 5-1
Summary of Soil Analytical Results
August 1998

Site Assessment Report
Building 46, Tanks 46R, 46D, 46SUL, and 46UL
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Soil Boring Identification and Sampling Depth			Chapter 62-770, FAC, FDEP Soil Cleanup Target Levels[1]
	SB-18 (4 ft bls, OVA = 1,300 ppm)	SB-34 (3 ft bls, OVA = >5,000 ppm)	SB-36 (5 ft bls, OVA = 2,500 ppm)	
Polynuclear Aromatic Hydrocarbons (mg/kg)				
Anthracene	ND	0.022	ND	19,000/2,000
Naphthalene	ND	1.3	ND	1,000/1
Phenanthrene	ND	0.071	ND	1,900/120
Fluoranthene	0.034	ND	ND	2,800/550
Fluorene	0.005	ND	ND	2,100/87
Benzo(a)anthracene	0.019	0.010	0.005	1.4/2.9
Chrysene	0.029	0.008	0.007	140/80
Dibenz(a,h)anthracene	0.240	ND	ND	0.1/14
Benzo(b)fluoranthene	0.120	0.007	0.033	1.4/9.8
Benzo(k)fluoranthene	0.032	0.008	0.014	15/25
Benzo(a)pyrene	0.140	0.010	0.013	0.1/7.8
Benzo(g,h,i)perylene	0.190	ND	0.031	2,300/13,000
1-Methylnaphthalene	ND	1.1	ND	NA
2-Methylnaphthalene	ND	2.4	ND	NA
Indeno(1,2,3-cd)pyrene	0.180	ND	0.010	1.5/28
Pyrene	0.380	0.022	ND	2,200/570
Volatile Organic Compounds (mg/kg)				
Benzene	ND	0.420	ND	1.1/0.007
Toluene	0.016	94	ND	300/0.4
Ethylbenzene	ND	52	ND	240/0.4
Total xylenes	ND	280	ND	290/0.3
Total Recoverable Petroleum Hydrocarbons (TRPH) (mg/kg)				
TRPH	150	840	200	350/340

[1] Direct Exposure, Table I/Leachability, Table V.

Notes: Bold indicates that values exceed Chapter 62-770, FAC, direct exposure and/or leachability soil cleanup target levels.

ft bls = feet below land surface.
OVA = organic vapor analyzer.
ppm = parts per million.
> = greater than.
mg/kg = milligrams per kilogram.
FAC = Florida Administrative Code.
FDEP = Florida Department of Environmental Protection.
ND = not detected.
NA = not applicable.

Table 5-2
Summary of Groundwater Analytical Results
June 1998

Site Assessment Report
Building 46, Tanks 46R, 46D, 46SUL, and 46UL
Naval Air Station Cecil Field
Jacksonville, Florida

Parameter	Monitoring Well CEF-46-									Groundwater Cleanup Target Levels[1]
	1S	2S	3S	3SD	4S	5I	6D	7I	8I	
Volatile Organic Compounds (µg/ℓ)										
Benzene	13,000	1,300	ND	ND	ND	260	5.7	9,000	ND	1
Ethylbenzene	3,200	180	ND	ND	220	24	18	2,000	ND	30
Toluene	44,000	660	ND	ND	24	79	84	12,000	ND	40
Xylenes	18,000	610	ND	ND	650	150	110	11,000		20
78,200		2,740								
Semivolatile Organic Compounds (µg/ℓ)										
Acenaphthene	26	7.5	ND	ND	ND	ND	ND	ND	ND	20
Acenaphthylene	39	2.4	ND	ND	ND	ND	ND	ND	ND	210
1-Methylnaphthalene	210	2.5	ND	ND	6.8	3.2	ND	100	ND	NA
2-Methylnaphthalene	86	3.4	ND	ND	2.7	ND	ND	ND	ND	NA
Polynuclear Aromatic Hydrocarbons (µg/ℓ)										
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,100
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5
Benzo(d)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	210
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Naphthalene	660	34	ND	ND	18	5	ND	260	ND	20
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	210
Lead[2] (µg/ℓ)										
Lead	.035 26/7.9	ND	ND	ND	ND	.017 17/ND	ND	ND	ND	15
Total Recoverable Petroleum Hydrocarbons (TRPH) (mg/ℓ)										
TRPH	60	5.9	0.86	0.65	31	1.4	1.6	3	ND	5

See notes at end of table.

Table 5-2 (Continued)
Summary of Groundwater Analytical Results
June 1998

Site Assessment Report
Building 46, Tanks 46R, 46D, 46SUL, and 46UL
Naval Air Station Cecil Field
Jacksonville, Florida

Parameter	Monitoring Well CEF-46-									Groundwater Cleanup Target Levels[1]
	9I	10I	11I	12I	13I	14D	15I	16I	17D	
Volatile Organic Compounds (µg/ℓ)										
Benzene	ND	ND	ND	1.3	99	ND	ND	ND	ND	1
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	30
Toluene	ND	ND	ND	ND	ND	ND	ND	1.8	ND	40
Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	20
Semivolatile Organic Compounds (µg/ℓ)										
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	20
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	210
1-Methylnaphthalene	ND	ND	ND	1.4	ND	ND	ND	ND	ND	NA
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Polynuclear Aromatic Hydrocarbons (µg/ℓ)										
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,100
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5
Benzo(d)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	210
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	20
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	210
Lead[2] (µg/ℓ)										
Lead	ND	ND	ND	ND	ND	ND	ND	5.3	ND	15
Total Recoverable Petroleum Hydrocarbons (TRPH) (mg/ℓ)										
TRPH	ND	ND	ND	1.1	1.3	ND	ND	ND	ND	5

See notes at end of table.

Table 5-2 (Continued)
Summary of Groundwater Analytical Results
June 1998

Site Assessment Report
Building 46, Tanks 46R, 46D, 46SUL, and 46UL1
Naval Air Station Cecil Field
Jacksonville, Florida

Parameter	Monitoring Well CEF-46-								Groundwater Cleanup Target Levels[1]
	18I	18ID	19I June 1998	19I October 1998	20I	21I	22I	23D	
Volatile Organic Compounds (µg/ℓ)									
Benzene	2 .002	1.9	21	5	ND	10	ND	ND	1
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	2	30
Toluene	ND	ND	1.2	ND	ND	20	ND	11	40
Xylenes	27	25	ND	ND	ND	3.7	ND	4.2	20
Semivolatile Organic Compounds (µg/ℓ)									
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	20
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	210
1-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	NA
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	NA
Polynuclear Aromatic Hydrocarbons (µg/ℓ)									
Anthracene	ND	ND	ND	ND	ND	ND	ND	0.2	2,100
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	0.39	0.2
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	0.24	0.2
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	0.1	0.5
Benzo(d)pyrene	ND	ND	ND	ND	ND	ND	ND	0.32	0.2
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	ND	0.51	210
Chrysene	ND	ND	ND	ND	ND	ND	ND	0.38	5
Naphthalene	ND	ND	ND	–	ND	ND	ND	ND	20
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	0.14	0.2
Pyrene	ND	ND	ND	ND	ND	ND	ND	1.2	210
Lead[2] (µg/ℓ)									
Lead	ND	ND	ND	–	ND	ND	ND	ND	15
Total Recoverable Petroleum Hydrocarbons (TRPH) (mg/ℓ)									
TRPH	ND	ND	0.66	–	ND	0.55	ND	ND	5

See notes at end of table.

Table 5-2 (Continued)
Summary of Groundwater Analytical Results
June 1998

Site Assessment Report
Building 46, Tanks 46R, 46D, 46SUL, and 46UL1
Naval Air Station Cecil Field
Jacksonville, Florida

[1] Based on Chapter 62-770, Florida Administrative Code.
[2] Lead concentrations in unfiltered and filtered samples (Unfiltered/Filtered) are reported for groundwater samples which were collected with turbidity readings greater than 10 nephelometric turbidity units.

Notes: Bold-faced values exceed applicable regulatory criteria.

S = monitoring well screened in the shallow surficial aquifer from 5 to 15 feet below land surface (bls).
I = monitoring well screened from 25 to 30 feet bls or 40 to 45 feet bls.
D = monitoring well screened in the deep surficial aquifer from 80 to 85 feet bls.
3SD = duplicate sample of monitoring well CEF-46-3S.
18ID = duplicate sample of monitoring well CEF-46-18I.

µg/ℓ = micrograms per liter.
ND = not detected.
mg/ℓ = milligrams per liter.
-- = not sampled.

REMEDIAL ACTION PLAN ADDENDUM
FOR
BUILDING 9, FORMER TANKS 9L1 AND 9L2

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0065

JUNE 2000

PREPARED UNDER THE SUPERVISION OF:

JOSEPH W. LOGAN
TASK ORDER MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

APPROVED FOR SUBMITTAL BY:

DEBBIE WROBLEWSKI
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

1.0 INTRODUCTION

This Remedial Action Plan (RAP) Addendum for Naval Air Station (NAS) Cecil Field, Building 9, Former Tanks 9L1 and 9L2 (Building 9) has been prepared by Tetra Tech NUS, Inc. (TtNUS) for the Southern Division Naval Facilities Engineering Command (SOUTHDIVNAVFACENGCOM) under the Navy Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, Contract Number N62467-94-D-0888, Contract Task Order (CTO) 0065. The purpose of this RAP Addendum is to provide the conceptual design of a modification to the previously selected remedial alternative at Building 9. This remedial action is being performed according to the Florida Administrative Code (F.A.C) regulations covering leaks and discharges of petroleum products, as described in F.A.C 62-770.

Building 9 has served as the Main Base Fire Station and Safety Office for NAS Cecil Field since 1953. Two 1,250-gallon gasoline underground storage tanks (USTs), Tanks 9L1 and 9L2, were removed from this site around 1985.

The Site Assessment Report (SAR) prepared for Building 9 (Harding Lawson Associates [HLA], 1998) concluded that operation of the two former USTs had resulted in contamination of soil and groundwater with fuel-related compounds, including benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, acenaphthylene, phenantrene, and total recoverable petroleum hydrocarbons (TRPHs). The SAR determined that an area of soil approximately 3,000 square feet (ft^2) in size at the location of the former USTs was highly contaminated down to a depth of 7 feet below ground surface (bgs) and acted as a source of groundwater contamination. The SAR also established that groundwater contamination extends only to the shallow surficial aquifer (7 to 25 ft bgs) to a depth of 20 feet bgs over an area approximately 3,000 ft^2 in size, which coincides with the area of soil contamination. Figure 1-1 illustrates the approximate horizontal extent of groundwater contamination.

A RAP for Building 9 was previously prepared and submitted by TtNUS in February 1999 (TtNUS, 1999). This RAP described a remedial action that featured air sparging/vapor extraction (AS/VE) for the restoration of contaminated soil and groundwater.

Since the issuance of the 1999 RAP, the Navy has identified an opportunity to improve the proposed remedial action by integrating an innovative technology that would allow for more effective site cleanup. This technology features a nutrient-enhanced biosparging system known as the PHOSter Nutrient Injection System. The process will improve the effectiveness of the air sparging (AS) component of the previously proposed remedy through pulsed injection of oxygen, nitrogen, and phosphorus which stimulates the growth of indigenous petrophilic microorganisms. This results in a significantly wider radius of influence for each air sparging well, allowing active remediation of the entire groundwater contaminant

Table 5-1
Summary of Soil Analytical Results, August 1998

Site Assessment Report
Building 9, Tanks 9L1 and 9L2
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Soil Boring Identification and Sampling Depth			Chapter 62-770, FAC, FDEP Soil Cleanup Target Levels for Leachability
	SB-14 (6 ft bls, OVA = >5,000 ppm)	SB-13 (6 ft bls, OVA = 210 ppm)	SB-7 (6 ft bls, OVA = >5,000 ppm)	
Polynuclear Aromatic Hydrocarbons (mg/kg)				
Naphthalene	**34**	ND	0.480	1
Acenaphthylene	**26**	ND	ND	22
Phenanthrene	0.350 J	0.046 J	ND	120
Fluoranthene	ND	0.090	ND	550
Benzo(a)anthracene	ND	0.049	ND	2.9
Chrysene	ND	0.051	ND	80
Benzo(b)fluoranthene	ND	0.060	ND	9.8
Benzo(k)fluoranthene	ND	0.051	ND	25
Benzo(a)pyrene	ND	0.140	ND	7.8
Benzo(g,h,i)perylene	ND	0.310	ND	13,000
Indeno(1,2,3-cd)pyrene	ND	0.170	ND	28
Volatile Organic Compounds (mg/kg)				
Toluene	**44**	ND	ND	0.4
Ethylbenzene	**140**	ND	ND	0.4
Total xylenes	**1,100**	ND	**10.6**	0.3
Total Recoverable Petroleum Hydrocarbons (TRPH) (mg/kg)				
TRPH	**7,500**	340	64	340

Notes: Bold indicates that values exceed Chapter 62-770, FAC, residential, industrial, or leachability soil cleanup target levels.

ft bls = feet below land surface.
FAC = Florida Administrative Code.
FDEP = Florida Department of Environmental Protection.
mg/kg = milligrams per kilogram.
ND = not detected.
J = analyte detected; value between the Method Detection Level and the Practical Quantitation Level.
OVA = organic vapor analyzer.
ppm = parts per million.

Table 5-2
Summary of Groundwater Analytical Results, June 1998

Site Assessment Report
Building 9, Tanks 9L1 and 9L2
Naval Air Station Cecil Field
Jacksonville, Florida

Parameter	Monitoring Well Number, CEF-9-											Groundwater Cleanup Target Levels[1]
	2S		3S		3SD	4S		5S	6S	7D	8S	
	1997	1998	1997	1998	1998	1997	1998	1998	1998	1998	1998	
Volatile Organic Compounds (µg/ℓ)												
Benzene	ND	**18**	46	**53**	**54**	90	**61**	ND	ND	ND	ND	1
Toluene	7.1	1.1	240	**62**	**66**	96	**97**	ND	ND	ND	ND	40
Ethylbenzene	67	**39**	390	**220**	**220**	380	**360**	ND	ND	ND	ND	30
Xylenes	190	11	1,900	**680**	**670**	1,600	**1,000**	ND	ND	ND	ND	20
Polynuclear Aromatic Hydrocarbons (µg/ℓ)												
Naphthalene	NA	4.4	NA	**24**	**35**	NA	**38**	ND	ND	ND	ND	20
Lead[2] (µg/ℓ)												
Lead	ND	4.7/ND	ND	ND/ND	ND/ND	5.7	3.2/ND	9/ND	ND/ND	ND/ND	ND/ND	15
TRPH (mg/ℓ)												
TRPH	NA	2.6	NA	**10**	**8.8**	NA	**7.9**	ND	ND	ND	ND	5

[1] Based on Chapter 62-770, Florida Administrative Code.
[2] Unfiltered and filtered sample results are reported here (Unfiltered/Filtered). Filtered samples were collected when turbidity values were greater than 10 NTU.

Notes: Bold-faced values exceed cleanup target levels.

µg/ℓ = micrograms per liter.
ND = not detected.
TRPH = total recoverable petroleum hydrocarbons.
mg/ℓ = milligrams per liter.
S = monitoring well screened in the shallow surficial aquifer (4 to 14 feet below land surface [bls]).
3SD = duplicate sample of monitoring well 3S.
D = monitoring well screened in the deep surficial aquifer (26 to 30 feet bls).
NTU = nephelometric turbidity unit.
NA = parameter not analyzed for during confirmatory sampling in 1997.

Table 5-2
Summary of Groundwater Analytical Results, June 1998

Site Assessment Report
Building 9, Tanks 9L1 and 9L2
Naval Air Station Cecil Field
Jacksonville, Florida

Parameter	Monitoring Well Number, CEF-9-											Groundwater Cleanup Target Levels[1]
	2S		3S		3SD	4S		5S	6S	7D	8S	
	1997	1998	1997	1998	1998	1997	1998	1998	1998	1998	1998	
Volatile Organic Compounds (µg/ℓ)												
Benzene	ND	**18**	46	**53**	**54**	90	**61**	ND	ND	ND	ND	1
Toluene	7.1	1.1	240	**62**	**66**	96	**97**	ND	ND	ND	ND	40
Ethylbenzene	67	**39**	390	**220**	**220**	380	**360**	ND	ND	ND	ND	30
Xylenes	190	11	1,900	**680**	**670**	1,600	**1,000**	ND	ND	ND	ND	20
Polynuclear Aromatic Hydrocarbons (µg/ℓ)												
Naphthalene	NA	4.4	NA	**24**	**35**	NA	**38**	ND	ND	ND	ND	20
Lead[2] (µg/ℓ)												
Lead	ND	4.7/ND	ND	ND/ND	ND/ND	5.7	3.2/ND	9/ND	ND/ND	ND/ND	ND/ND	15
TRPH (mg/ℓ)												
TRPH	NA	2.6	NA	**10**	**8.8**	NA	**7.9**	ND	ND	ND	ND	5

[1] Based on Chapter 62-770, Florida Administrative Code.
[2] Unfiltered and filtered sample results are reported here (Unfiltered/Filtered). Filtered samples were collected when turbidity values were greater than 10 NTU.

Notes: Bold-faced values exceed cleanup target levels.

µg/ℓ = micrograms per liter.
ND = not detected.
TRPH = total recoverable petroleum hydrocarbons.
mg/ℓ = milligrams per liter.
S = monitoring well screened in the shallow surficial aquifer (4 to 14 feet below land surface [bls]).
3SD = duplicate sample of monitoring well 3S.
D = monitoring well screened in the deep surficial aquifer (26 to 30 feet bls).
NTU = nephelometric turbidity unit.
NA = parameter not analyzed for during confirmatory sampling in 1997.

Table 5-1
Summary of Soil Analytical Results, August 1998

Site Assessment Report
Building 9, Tanks 9L1 and 9L2
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Soil Boring Identification and Sampling Depth			Chapter 62-770, FAC, FDEP Soil Cleanup Target Levels for Leachability
	SB-14 (6 ft bls, OVA = >5,000 ppm)	SB-13 (6 ft bls, OVA = 210 ppm)	SB-7 (6 ft bls, OVA = >5,000 ppm)	
Polynuclear Aromatic Hydrocarbons (mg/kg)				
Naphthalene	**34**	ND	0.480	1
Acenaphthylene	**26**	ND	ND	22
Phenanthrene	0.350 J	0.046 J	ND	120
Fluoranthene	ND	0.090	ND	550
Benzo(a)anthracene	ND	0.049	ND	2.9
Chrysene	ND	0.051	ND	80
Benzo(b)fluoranthene	ND	0.060	ND	9.8
Benzo(k)fluoranthene	ND	0.051	ND	25
Benzo(a)pyrene	ND	0.140	ND	7.8
Benzo(g,h,i)perylene	ND	0.310	ND	13,000
Indeno(1,2,3-cd)pyrene	ND	0.170	ND	28
Volatile Organic Compounds (mg/kg)				
Toluene	**44**	ND	ND	0.4
Ethylbenzene	**140**	ND	ND	0.4
Total xylenes	**1,100**	ND	**10.6**	0.3
Total Recoverable Petroleum Hydrocarbons (TRPH) (mg/kg)				
TRPH	**7,500**	340	64	340

Notes: Bold indicates that values exceed Chapter 62-770, FAC, residential, industrial, or leachability soil cleanup target levels.

ft bls = feet below land surface.
FAC = Florida Administrative Code.
FDEP = Florida Department of Environmental Protection.
mg/kg = milligrams per kilogram.
ND = not detected.
J = analyte detected; value between the Method Detection Level and the Practical Quantitation Level.
OVA = organic vapor analyzer.
ppm = parts per million.

Table 5-2
Summary of Groundwater Analytical Results
June 1998

Site Assessment Report
Building 46, Tanks 46R, 46D, 46SUL, and 46UL
Naval Air Station Cecil Field
Jacksonville, Florida

Parameter	Monitoring Well CEF-46-									Groundwater Cleanup Target Levels[1]
	1S	2S	3S	3SD	4S	5I	6D	7I	8I	
Volatile Organic Compounds (µg/ℓ)										
Benzene	13,000	1,300	ND	ND	ND	260	5.7	9,000	ND	1
Ethylbenzene	3,200	180	ND	ND	220	24	18	2,000	ND	30
Toluene	44,000	660	ND	ND	24	79	84	12,000	ND	40
Xylenes	18,000	610	ND	ND	650	150	110	11,000		20
78,200		2,740								
Semivolatile Organic Compounds (µg/ℓ)										
Acenaphthene	26	7.5	ND	ND	ND	ND	ND	ND	ND	20
Acenaphthylene	39	2.4	ND	ND	ND	ND	ND	ND	ND	210
1-Methylnaphthalene	210	2.5	ND	ND	6.8	3.2	ND	100	ND	NA
2-Methylnaphthalene	86	3.4	ND	ND	2.7	ND	ND	ND	ND	NA
Polynuclear Aromatic Hydrocarbons (µg/ℓ)										
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,100
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5
Benzo(d)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	210
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Naphthalene	660	34	ND	ND	18	5	ND	250	ND	20
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	210
Lead[2] (µg/ℓ)										
Lead	25/7.9	ND	ND	ND	ND	17/ND	ND	ND	ND	15
Total Recoverable Petroleum Hydrocarbons (TRPH) (mg/ℓ)										
TRPH	60	5.9	0.86	0.65	31	1.4	1.6	3	ND	5

See notes at end of table.

Table 5-2 (Continued)
Summary of Groundwater Analytical Results
June 1998

Site Assessment Report
Building 46, Tanks 46R, 46D, 46SUL, and 46UL
Naval Air Station Cecil Field
Jacksonville, Florida

Parameter	Monitoring Well CEF-46-									Groundwater Cleanup Target Levels[1]
	9I	10I	11I	12I	13I	14D	15I	16I	17D	
Volatile Organic Compounds (µg/ℓ)										
Benzene	ND	ND	ND	1.3	99	ND	ND	ND	ND	1
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	30
Toluene	ND	ND	ND	ND	ND	ND	ND	1.8	ND	40
Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	20
Semivolatile Organic Compounds (µg/ℓ)										
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	20
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	210
1-Methylnaphthalene	ND	ND	ND	1.4	ND	ND	ND	ND	ND	NA
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Polynuclear Aromatic Hydrocarbons (µg/ℓ)										
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,100
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5
Benzo(d)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	210
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	20
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	210
Lead[2] (µg/ℓ)										
Lead	ND	ND	ND	ND	ND	ND	ND	5.3	ND	15
Total Recoverable Petroleum Hydrocarbons (TRPH) (mg/ℓ)										
TRPH	ND	ND	ND	1.1	1.3	ND	ND	ND	ND	5

See notes at end of table.

Table 5-2 (Continued)
Summary of Groundwater Analytical Results
June 1998

Site Assessment Report
Building 46, Tanks 46R, 46D, 46SUL, and 46UL1
Naval Air Station Cecil Field
Jacksonville, Florida

Parameter	Monitoring Well CEF-46-								Groundwater Cleanup Target Levels[1]
	18I	18ID	19I June 1998	19I October 1998	20I	21I	22I	23D	
Volatile Organic Compounds (µg/ℓ)									
Benzene	2	1.9	21	5	ND	10	ND	ND	1
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	2	30
Toluene	ND	ND	1.2	ND	ND	20	ND	11	40
Xylenes	27	25	ND	ND	ND	3.7	ND	4.2	20
Semivolatile Organic Compounds (µg/ℓ)									
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	20
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	210
1-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	NA
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	NA
Polynuclear Aromatic Hydrocarbons (µg/ℓ)									
Anthracene	ND	ND	ND	ND	ND	ND	ND	0.2	2,100
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	0.39	0.2
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	0.24	0.2
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	0.1	0.5
Benzo(d)pyrene	ND	ND	ND	ND	ND	ND	ND	0.32	0.2
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	ND	0.51	210
Chrysene	ND	ND	ND	ND	ND	ND	ND	0.38	5
Naphthalene	ND	ND	ND	–	ND	ND	ND	ND	20
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	0.14	0.2
Pyrene	ND	ND	ND	ND	ND	ND	ND	1.2	210
Lead[2] (µg/ℓ)									
Lead	ND	ND	ND	–	ND	ND	ND	ND	15
Total Recoverable Petroleum Hydrocarbons (TRPH) (mg/ℓ)									
TRPH	ND	ND	0.66	–	ND	0.55	ND	ND	5

See notes at end of table.

Table 5-2 (Continued)
Summary of Groundwater Analytical Results
June 1998

Site Assessment Report
Building 46, Tanks 46R, 46D, 46SUL, and 46UL1
Naval Air Station Cecil Field
Jacksonville, Florida

[1] Based on Chapter 62-770, Florida Administrative Code.
[2] Lead concentrations in unfiltered and filtered samples (Unfiltered/Filtered) are reported for groundwater samples which were collected with turbidity readings greater than 10 nephelometric turbidity units.

Notes: Bold-faced values exceed applicable regulatory criteria.

S = monitoring well screened in the shallow surficial aquifer from 5 to 15 feet below land surface (bls).
I = monitoring well screened from 25 to 30 feet bls or 40 to 45 feet bls.
D = monitoring well screened in the deep surficial aquifer from 80 to 85 feet bls.
3SD = duplicate sample of monitoring well CEF-46-3S.
18ID = duplicate sample of monitoring well CEF-46-18I.

µg/ℓ = micrograms per liter.
ND = not detected.
mg/ℓ = milligrams per liter.
-- = not sampled.

Table 5-1
Summary of Soil Analytical Results
August 1998

Site Assessment Report
Building 46, Tanks 46R, 46D, 46SUL, and 46UL
Naval Air Station Cecil Field
Jacksonville, Florida

Compound	Soil Boring Identification and Sampling Depth			Chapter 62-770, FAC, FDEP Soil Cleanup Target Levels[1]
	SB-18 (4 ft bls, OVA = 1,300 ppm)	SB-34 (3 ft bls, OVA = >5,000 ppm)	SB-36 (5 ft bls, OVA = 2,500 ppm)	
Polynuclear Aromatic Hydrocarbons (mg/kg)				
Anthracene	ND	0.022	ND	19,000/2,000
Naphthalene	ND	**1.3**	ND	1,000/1
Phenanthrene	ND	0.071	ND	1,900/120
Fluoranthene	0.034	ND	ND	2,800/550
Fluorene	0.005	ND	ND	2,100/87
Benzo(a)anthracene	0.019	0.010	0.005	1.4/2.9
Chrysene	0.029	0.008	0.007	140/80
Dibenz(a,h)anthracene	**0.240**	ND	ND	0.1/14
Benzo(b)fluoranthene	0.120	0.007	0.033	1.4/9.8
Benzo(k)fluoranthene	0.032	0.008	0.014	15/25
Benzo(a)pyrene	**0.140**	0.010	0.013	0.1/7.8
Benzo(g,h,i)perylene	0.190	ND	0.031	2,300/13,000
1-Methylnaphthalene	ND	1.1	ND	NA
2-Methylnaphthalene	ND	2.4	ND	NA
Indeno(1,2,3-cd)pyrene	0.180	ND	0.010	1.5/28
Pyrene	0.380	0.022	ND	2,200/570
Volatile Organic Compounds (mg/kg)				
Benzene	ND	**0.420**	ND	1.1/0.007
Toluene	0.016	**94**	ND	300/0.4
Ethylbenzene	ND	**52**	ND	240/0.4
Total xylenes	ND	**280**	ND	290/0.3
Total Recoverable Petroleum Hydrocarbons (TRPH) (mg/kg)				
TRPH	150	**840**	200	350/340

[1] Direct Exposure, Table I/Leachability, Table V.

Notes: Bold indicates that values exceed Chapter 62-770, FAC, direct exposure and/or leachability soil cleanup target levels.

ft bls = feet below land surface.
OVA = organic vapor analyzer.
ppm = parts per million.
> = greater than.
mg/kg = milligrams per kilogram.
FAC = Florida Administrative Code.
FDEP = Florida Department of Environmental Protection.
ND = not detected.
NA = not applicable.

REPUBLIC Waste Services Division

Manifest Number: 8766

NON-HAZARDOUS WASTE MANIFEST

GENERATOR

Generator Name: U.S. NAVY SDIV NAVFACENGCOM US EPA ID#: FL5170022474

Billing Address: CCI, 115 PERIMETER CENTER PLACE, N.E., SUITE 700, Atlanta, GA 30346

Site Address: BUILDING 46, NAS CECIL FIELD, JACKSONVILLE, FL 32221

County of Origin: DUVAL Phone: 904/777-4812

Description of Waste	Total Quantity	Profile Number	Unit of Measure	Container Type
PETROLEUM-CONTAMINATED SOIL/		20122	Ton	ROLL-OFF
DRILL CUTTINGS				
			18.07	

Special Handling Instructions

I hereby certify that the above described materials are non-hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

X DAVID KRUZICKI — Generator Authorized Agent Name

Signature — 1/10/01 — Date Shipped

TRANSPORTER

Transporter Name: Southland Waste Systems DOT#:

Address: 8619 Western Way Truck Number: 327

Name of Authorized Agent — Signature — Date Delivered

DISPOSAL FACILITY

Site Name: Broadhurst Environmental, Inc. Phone Number: 912-530-7050

Address 4800 Broadhurst Rd. W., Jesup, Georgia 31545

I hereby acknowledge receipt of the above described materials.

Broadhurst — Name of Authorized Agent

Carlene Lambeth 1-11-01 — Signature — Date Received

White - Original Yellow - Transporter Pink - Disposal Facility Gold - Customer

MATERIAL PROFILE FORM

IWS, I

TCH 9320 MPA# J020888

Mailing Address
P. O. Box 43369
Jacksonville, FL 32203

Sample Shipping Address
1705 Danese Street
Jacksonville, FL 32206

(800)
(904)
Lab Fax (904)
www.iws-waste

Account Manager: APPROVED TCP 8/6/99

Date:

CUSTOMER INFORMATION

1. Customer Name: Jacksonville Pollution Control
2. Customer Address: 3117 Talleyrand Avenue

City: Jacksonville State: FL Zip: 32206

Phone: 355-4164 Fax: 355-4365

Technical Contact:

3. Billing Address (if other than above):

City: State: Zip:

Phone: Fax:

GENERATOR INFORMATION

1. Generator Name: Various Generators

Location: SIC Code:

2. Name of Material or Waste: Non hazardous oily waste water (Blanket Profile)
3. Estimated Volume: gal Frequency:

5. Process Generating Waste or Material (Give a detailed description of the process that generates the was material. Include all constituents, all steps in the process, approximate age, and suspected or known contaminants

Various: oil/water separator liquids; oil/water from industrial plant processes: bilge water and oil mixtures; monitor water; oil spill response actions; contaminated site cleanup containing no hazardous constituents. DOES NOT COVE contaminated waste; chemical waste; cleaning solvents; pesticide or herbicide waste; separator sludges or grit. Wa must be non hazardous per 40 CFR 261.

QUESTIONNAIRE
Check one. If more than one, please explain: _____

_____ **Used Oil**

Constituent	On-spec level	Actual Level (mg/l)
Arsenic	5 mg/l maximum	_____
Cadmium	2 mg/l maximum	_____
Chromium	10 mg/l maximum	_____
Lead	100 mg/l maximum	_____
Flash Point	100° F minimum	_____
Total Halogens	1,000 mg/l maximum	_____
PCB Level		_____

Is the used oil paraffin based?_____ If yes, attach a MSDS on the product.
Has the used oil been mixed with a hazardous waste? ___Yes ___No If yes, fill out the waste section below

_____ **Petroleum Contact Water (PCW)**

Is the product leaded?_____ Lead level _____mg/l. % Sludge_____
Has the material been mixed with a hazardous waste? ___Yes ___No Waste codes _____
Note: It is the generator's responsibility to determine if PCW management is acceptable in their state. IWS facilities are properly permitted for PCW management.

_____ **Virgin Product**

Name of material _____
Please attach the MSDS for this product. Has the product been mixed with a hazardous waste? _____
Waste Codes? _____

__X__ **Waste**

Is the waste hazardous by:	Ignitability? (regulated under 40 CFR Part 261.21)	___Yes ✓N
	Corrosivity? (regulated under 40 CFR Part 261.22)	___Yes ✓N
	Reactivity? (regulated under 40 CFR Part 261.23)	___Yes ✓N
Does the waste contain:	Herbicides or pesticides?	___Yes ✓N
	Dioxins?	___Yes ✓N
	Radioactive substances?	___Yes ✓N
	Domestic wastes?	___Yes ✓N
	Biohazardous materials?	___Yes ✓N

Is this a hazardous waste (F, K, U, or P listed) as defined under 40 CFR Subpart D? ___Yes ✓N
If yes to the above, identify listing _____
Is the waste derived from outside an underground storage tank (UST)? ___Yes ✓N
If yes to the above, list materials stored _____
If waste is derived from a fuel, is it leaded? _____

CONSTITUENTS (Fill out the sections below if waste was checked above)

1. Does the waste contain any constituents listed in the table below? If yes, check the contaminants that apply and th level present in the waste. ___Yes ___No VARIES

How was the level determined ? ✓ Laboratory Analysis ✓ Generator Knowledge

Laboratory analysis is ✓ TCLP ✓ Total ✓ Generator Knowledge

EPA #	Name	Regulatory Level (mg/l)	Actual Present (mg
			LESS THAN TCLP
D004	ARSENIC	5.0	
D005	BARIUM	100.0	
D018	BENZENE	0.5	
D006	CADMIUM	1.0	
D019	CARBON TETRACHLORIDE	0.5	
D020	CHLORDANE	0.03	
D021	CHLOROBENZENE	100.0	
D022	CHLOROFORM	6.0	
D007	CHROMIUM	5.0	
D024	CRESOL (M)	200.0	
D023	CRESOL (O)	200.0	
D025	CRESOL (P)	200.0	
D026	CRESOL	200.0	
D016	2,4-D	10.0	
D027	1,4-DICHLOROBENZENE	7.5	
D028	1,2-DICHLOROETHANE	0.5	
D029	1,1-DICHLOROETHYLENE	0.7	
D030	2,4-DINITROTOLUENE	0.13	
D012	ENDRIN	0.02	
D031	HEPTACHLOR	0.008	
D032	HEXACHLOROBENZENE	0.13	
D033	HEXACHLOROBUTADIENE	0.5	
D034	HEXACHLOROETHANE	3.0	
D008	LEAD	5.0	
D013	LINDANE	0.4	
D009	MERCURY	0.2	
D014	METHOXYCHLOR	10.0	
D035	METHYL ETHYL KETONE	200.0	
D036	NITROBENZENE	2.0	
D037	PENTACHLOROPHENOL	100.0	
D038	PYRIDINE	5.0	
D010	SELENIUM	1.0	
D011	SILVER	5.0	
D039	TETRACHLOROETHYLENE	0.7	
D015	TOXAPHENE	0.5	
D040	TRICHLOROETHYLENE	0.5	
D041	2,4,5-TRICHLOROPHENOL	400.0	
D042	2,4,6-TRICHLOROPHENOL	2.0	
D017	2,4,5-TP (SILVEX)	1.0	
D043	VINYL CHLORIDE	0.2	
OTHER			
	Copper	n/a	
	Nickel	n/a	
	Zinc	n/a	

2. Does the waste contain any of the following? (provide concentration if known):

PCBs ___ less than 2 mg/l ___ greater than 2 mg/l NO

Cyanides ___ less than 250 mg/l ___ greater than 250 mg/l NO

___ greater than 500 mg/l NO

PHYSICAL CHARACTERISTICS

1. Color Varies
2. Does the waste have a strong incidental odor? ___Yes ___No
   If yes, please describe ___
3. Physical State @ 70F: ___Solid ___Liquid ___Semi-solid ___Powder ___Other ___
4. Layers: ___Multi-layered ___Bi-layered ___Single phased
5. pH 2.0 – 12.5
6. Flash Point Varies Than 140°
7. Total Suspended Solids ___%
8. Total organic halogens ✓ less than 1000 mg/l ___greater than 1000 mg/l Actual ___mg/

IWS LABORATORY REVIEW

___Approved ___Disapproved ___Additional Information Required

SAMPLE SOURCE

(Drum, tank, lagoon, etc.) ___ Is this form accompanied by a sample? ___

REPRESENTATIVE SAMPLE CERTIFICATION

1. Print sampler's name: ___ Sample date: ___
2. Sampler's title: ___
3. Sampler's employer (if other than generator): ___

   The sampler's signature certifies that any sample submitted is representative of the material described above pursuant to 40 CFR 261.20 (c) or equivalent rules.

4. Sampler's signature ___

GENERATOR CERTIFICATION

By signing this profile, you certify that:

1. You are the generator or the duly authorized representative of the generator.
2. This waste is not a hazardous waste as defined by USEPA Federal regulation, unless noted above.
3. This waste does not contain regulated materials or regulated concentrations of PCBs (polychlorinated biphenyls).
4. This sheet contains true and accurate descriptions of the material and all relevant information in your possession regarding known or suspected hazards has been disclosed.
5. The analytical data presented herein or attached hereto were derived from testing a representative sample taken in accordance with 40 CFR 261.20 (c) or equivalent rules.
6. If any changes occur in the character of the material, you will notify the contractor prior to the contractor removing the material.
7. If the material is PCW, there are no hazardous constituents above those found in the source of the PCW.

Signature: [illegible] Date: 8-1-99

Print Name: Marcus L. Bowling

Title: Supervisor

Industrial Water Services

Industrial Water Services
P. O. Box 43369
Jacksonville, Florida 32203

Industrial Water Services
1980 Avenue "A"
Mobile, Alabama 36615

Facility:
1640 Talleyrand Avenue
Jacksonville, Florida 32206
(904) 354-0372
FAX: (904) 353-4033
EPA ID#: FLD 981 928 484

Corporate Office / Customer Service
1-800-447-3592
www.iws-wastewater.com

Facility:
1980 Avenue "A"
Mobile, Alabama 36615
(334) 694-7500
FAX: (334) 694-7508
EPA ID#: AL0 000 859 421

To: Marcus Bowery
From: Tom Reeder
Date: 8/6/99

This letter is in response to your submission of a material profile form to IWS for approval and acceptance. IWS would like to inform you that your material profile form has been approved for acceptance at our facility located at:

1640 Talleyrand Avenue
Jacksonville, Florida
EPA ID#: FLD 981 928 484

IWS requests that when shipping this material to our facility, you reference the MATERIAL PROFILE APPROVAL # on your manifest. The MPA # should be written in the additional information block of the manifest.

The MPA # assigned to your material stream is: **J020888**

The Generator is: **Jacksonville Pollution Control, Various Generators**

The material is: **Non Hazardous Wastewater (Blanket Profile)**

NOTE: This is not the final approval. This is a physical approval for your records, and to advise you of the correct material profile form and approval number. Final authorization for shipment will be made through your area account manager. If you have any questions concerning this approval number, please call Dale O'Conner or Tom Reeder at (904) 354-0372. IWS appreciates the opportunity to serve you.

Thank You

Tom Reeder

P-47-01-2

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. FL.5.1.7.0.0.2.2.4.7.4
Manifest Doc. No. 002-002
2. Page 1 of

GENERATOR

3. Generator's Name and Mailing Address
CSO/US NAVY SDIV NAVFACRNGCOM
6219 AUTHORITY AVE - CECIL COMMERCE CENTER
JACKSONVILLE FL 32221
4. Generator's Phone (904) 778-5620

5. Transporter 1 Company Name
JAX POLLUTION CONTROL, INC.
6. US EPA ID Number
F L D 9 8 4 2 5 7 0 8 9
A. Transporter's Phone
904-355-4164

7. Transporter 2 Company Name
8. US EPA ID Number
B. Transporter's Phone

9. Designated Facility Name and Site Address
INDUSTRIAL WATER SERVICE, INC.
1640 Talleyrand Avenue
Jax, FL 32206
10. US EPA ID Number
F L D 9 8 1 9 2 8 4 8 4
C. Facility's Phone
904-354-0372

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. NON HAZ NON REG WASTE WATER (Bldg 9, Bldg 46)			1500	GAL
b. NON HAZ NON REG WASTE WATER (DAY TANK 1)			460 gal	GAL
c. NON HAZ NON REG WASTE WATER (103rd Street)			470	GAL
d.				

D. Additional Descriptions for Materials Listed Above
E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Printed/Typed Name: DAVID J. KRUZICKI
Signature
Month 01 Day 17 Year 01

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: CAREY DRECHER
Signature
Month 01 Day 18 Year 01

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: JON LE MOSS
Signature
Month 01 Day 18 Year 01

ORIGINAL – RETURN TO GENERATOR

INDUSTRIAL WATER SERVICES

Industrial Water Services
1980 Avenue "A"
Mobile, Alabama 36615

Facility:
1980 Avenue "A"
Mobile, Alabama 36615
(334) 694-7500
FAX: (334) 694-7508

Corporate Office:
1-800-447-3592
FAX (904) 350-1313

Customer Service:
1-800-4-IWS-HAUL
800-449-7428

Industrial Water Services, Inc.
P.O. Box 43369
Jacksonville, Florida 32203

Facility:
1705 Danese Street
Jacksonville, Florida 32206
(904) 354-0372
FAX: (904) 354-7612

CERTIFICATE OF COMPLIANCE AND DISPOSAL

This certifies that on the 18th of January, 2001; 2430 gallons of non-hazardous waste water, from U.S. Navy, Cecil Field, FL; as described on non-hazardous manifest number P-47-01-2, was disposed of and/or recycled in compliance with all applicable state, federal and local regulations under Industrial User Permit Number ISN 019.

Facility Name: Industrial Water Services, Inc.

Facility Address: 1640 Talleyrand Avenue
Jacksonville, Florida 32206

Facility EPA ID #: FLD 981 928 484

Certified By: Leslie Detlefsen

Signature Leslie Detlefsen

Date: January 22, 2001

Broadhurst
Environmental, Inc.

NOVEMBER 6, 2001

CERTIFICATE OF DISPOSAL

This letter is to certify that all wastes received from CCI/US NAVY on the following dates were landfilled in accordance with all state and federal regulations.

SITE Name: BLDG.46 NAS CECIL FIELD

MANIFEST NUMBER	TONAGE	DATE
8766	18.07	1-11-01

Waste material= Contaminated soil//Drill Cuttings

Profile number: 20122

Disposal method was D-81(Subtitle D Landfill)

BROADHURST ENVIRONMENTAL, INC.

11/6/01

John W. Simmions Date

P. O. Box 278 • Screven, Georgia 31560 • Phone (912) 530-7050 • Fax (912) 530-7070