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SUPPLEMENTAL SITE INSPECTION REPORT FOR POINCIANA HOUSING NAS KEY WEST  
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6/1/1999  
TETRA TECH NUS

# **SUPPLEMENTAL SITE INSPECTION REPORT**

**for**

## **POINCIANA HOUSING**

**Naval Air Station  
Key West, Florida**



**Southern Division  
Naval Facilities Engineering Command**

**Contract Number N62467-94-D-0888**

**Contract Task Order 0032**

June 1999

*Revision 1*

**SUPPLEMENTAL SITE INSPECTION REPORT**

for

**POINCIANA HOUSING**

**NAVAL AIR STATION  
KEY WEST, FLORIDA**

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

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Naval Facilities Engineering Command  
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**CONTRACT NUMBER N62467-94-D-0888  
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June 1999

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## ACRONYMS

bls	below land surface
B&R Environmental	Brown and Root Environmental
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COA	certificate of analysis
COC	chain of custody
DOD	U.S. Department of Defense
DQO	Data Quality Objective
EBS	Environmental Baseline Study
EPA	U.S. Environmental Protection Agency
FNAI	Florida Natural Areas Inventory
FDEP	Florida Department of Environmental Protection
IDW	Investigation-Derived Waste
mg/kg	milligrams per kilogram
MW	monitoring well
NAS	Naval Air Station
RPD	relative percent difference
QC	quality control
SARA	Superfund Amendments and Reauthorization Act
SI	Site Inspection
SouthDiv	Naval Facilities Engineering Command, Southern Division
SSI	Supplemental Site Inspection
TiNUS	Tetra Tech NUS, Inc.
µg/kg	micrograms per kilogram
µg/L	micrograms per liter

## 1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS) has performed Supplemental Site Inspection (SSI) activities of Base Realignment and Closure (BRAC) properties at Naval Air Station (NAS) Key West, Florida on behalf of the U. S. Naval Facilities Engineering Command, Southern Division (SouthDiv). This SSI report pertains to the BRAC property designated as Parcel G or Poinciana Housing. This document was prepared under the Comprehensive Long-Term Environmental Action – Navy (CLEAN) contract number N62467-94-D-0888, Contract Task Order 032. TtNUS conducted SSI activities at Poinciana Housing in the City of Key West to supplement the Site Inspection (SI) conducted during 1998. The execution of this SSI was performed in accordance to the guidelines in place under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1988 (SARA). The objectives of this SSI are to gather information regarding potential arsenic contamination, to evaluate the need for remedial actions, and to support the transfer of this property to the City of Key West.

### 1.1 PURPOSE AND SCOPE

Poinciana Housing was included as a portion of Navy property (Parcel G) designated for realignment under the BRAC Act of 1992. This SSI was conducted to support a reclassification of Poinciana Housing, which was designated as "Grey" in the Predraft Environmental Baseline Study (EBS) (USN-NFEC, 1996). "Grey" Parcel categorization means the area has not been investigated or requires additional evaluation. A Parcel cannot be considered for deed transfer until investigations and any appropriate remedial action evaluations have been completed. The Parcel can then be reclassified into a category eligible for deed transfer. The goal of this report is to evaluate the data gathered during the SSI field efforts and determine the need for remedial activities prior to reclassification.

### 1.2 REPORT ORGANIZATION

This SSI report consists of three major sections and three appendices. Section 1 provides an introduction, the purpose and scope of the report, a Parcel location and description, an overview of Key West and Poinciana Housing environmental settings, and an explanation of the Data Quality Objectives (DQOs). Section 2 presents the results and conclusions of the subsurface soil and groundwater sampling conducted to identify if the source of arsenic groundwater contamination is on or off the housing property. Section 3 presents the results and conclusions of the surface soil sampling conducted to determine human health risk and delineate the extent of any surface soil contamination. Appendix A presents the response to comments on the SSI report submitted by the Florida Department of Environmental

Protection (FDEP) and the United States Environmental Protection Agency (EPA). Appendix B provides field documentation including a summary of all amendments to and deviations from the Media Sampling Technical Memorandum to Support the Supplemental Site Inspection at Poinciana Housing (TtNUS, 1999a), which scoped the groundwater and subsurface soil sampling to identify if the source is on or off site and the Surface Soil Sampling Technical Memorandum (TtNUS, 1999b), which scoped surface soil sampling activities. Also included in Appendix B are copies of all field data sheets including sample collection forms, well development logs, well completion logs, and survey data. Appendix C consists of a 3 ½-inch diskette, which contains the complete Poinciana Housing SSI data set used in the decision making process.

### 1.3 PARCEL LOCATION

Several installations in various parts of the lower Florida Keys comprise NAS Key West. The U.S. Navy manages 5,660 acres of land divided into 20 separate tracts in the lower Florida Keys, concentrated around Key West and Boca Chica Key in southern Monroe County. Key West, one of the two most western major islands of the Florida Keys, is approximately 150 miles southwest of Miami and 90 miles north of Havana, Cuba. Key West connects to the mainland by the Overseas Highway, commonly known as U.S. Highway No. 1.

The mission of NAS Key West dramatically changed in 1974, resulting in the relocation of several units. At present, NAS Key West is proceeding with realignment of aviation operations, a research laboratory, communications intelligence, counternarcotics operations, weather service, and several other activities. In addition to the Naval activities and units, other U.S. Department of Defense (DOD) and Federal agencies at NAS Key West include the U.S. Air Force, U.S. Army, and U.S. Coast Guard.

Poinciana Housing is situated on 33 acres on the east end of Key West near the Naval Regional Medical Clinic (Figure 1-1). Duck Avenue, 19<sup>th</sup> Street, and Donald Avenue bound the property on three sides. Single-family residences bound the fourth side. This housing park consists of 212 townhouse-type units constructed in 1966. Since 1942, the property has been used as residential housing. No industrial activities have taken place at the property since its acquisition by the Navy in 1947. The Parcel is located in a residential neighborhood/commercial area. Recreational areas are nearby, including boating, a sports complex, and shopping malls. The *SI Report for Poinciana Housing BRAC Parcel* (B&R Environmental, 1998a) includes additional site background information and conclusions of the previous investigation.

## 1.4 KEY WEST ENVIRONMENTAL SETTINGS

A detailed description of the Key West environmental setting is contained in the *Site Inspection Report for Poinciana Housing BRAC Parcel* (B&R Environmental, 1998a)

### 1.4.1 Poinciana Housing Area Ecology

Key West includes areas that have been developed by the Navy and retain little natural resource value; however, undeveloped areas can support high-quality natural communities and provide important habitats.

Although five non-marine natural community types were identified by the Florida Natural Areas Inventory (FNAI) within the NAS Key West study area (FNAI, 1994), Poinciana Housing was described as an area with no natural plant communities. However, it is believed that the pond at the perimeter of the Poinciana Housing is representative of the mangrove swamp community as described in the FNAI. Four plant species dominate mangrove swamp areas: red mangrove (*Rhizophora mangle*), black mangrove (*Avidennia germinans*), white mangrove (*Laguncularia racemosa*), and buttonwood (*Conocarpus erecta*). The relative abundance of each species varies greatly from area to area as do the density, average height, degree of canopy closure, and diversity of associated herbaceous species. Mixed mosaics of mangrove species make up the majority of mangrove swamps at Key West, which vary continuously over a given area with regard to dominance.

The pond at Poinciana Housing may support some of the same terrestrial and aquatic vertebrate species associated with mangrove swamp communities evaluated during the FNAI at NAS Key West. However, the majority of Poinciana Housing is essentially a residential area with no natural plant communities. Only ornamental plantings and a few remnant species of native vegetation are present. Several exceptionally large buttonwood trees are present near the playground. The lack of natural vegetation and the presence of humans may limit the occurrence of many of the species that can be found at Key West as described in the *BRAC SI Workplan* (B&R Environmental, 1998b). The threatened and endangered species recorded at NAS Key West (FNAI, 1994) are also included in the *BRAC SI Workplan* (Tables 2-1 and 2-2) but also are unlikely to occur at Poinciana Housing. Wildlife associated with developed areas at Key West, such as Poinciana Housing, is primarily limited to birds associated with urbanized areas. Therefore, ecological concerns at Poinciana Housing are minimal and the need for further action, if any, will not be based on ecological risk assessment considerations.

## 1.5 FIELD PROCEDURES

All methods and procedures employed in the course of the field investigation are discussed in the *BRAC SI Workplan* (B&R Environmental, 1998b) and the associated technical memorandums (TtNUS, 1999a and 1999b). Any change in methodology (usually due to unexpected field conditions) is addressed in Appendix B. Issues and procedures that are addressed by the SI Workplan and technical memoranda include the following:

- Project Management
- Health and Safety
- Equipment
- Decontamination
- Surveying
- Monitoring well installation
- Sample collection, handling, and analysis
- Investigation derived waste (IDW)
- Documentation
- Data management
- Quality assurance

## 1.6 DATA MANAGEMENT

A biased approach was used by the NAS Key West Partnering Team to determine the type, quantity, and quality of data needed to support the development of the *Media Sampling Technical Memorandum* and the *Soil Sampling Technical Memorandum to Support the Site Inspection at Poinciana Housing* (TtNUS, 1999a and 1999b). The NAS Key West Partnering Team is made up of the key decision-makers for environmental restoration and remediation at NAS Key West. The members include representatives from the FDEP, EPA, SouthDiv, NAS Key West, and the U.S. Navy's remedial and investigative contractors. Several DQOs were considered during the development of the Technical Memoranda. These important elements include the following:

- Identification of the media (e.g., soil and groundwater) and parameters of interest in each subzone
- Selection of analytical methods

- Selection of action levels
- Constraints on data collection
- Determining sample location for each medium

## 1.7 DATA QUALITY ASSESSMENT

Maintaining data quality was a key issue at each stage of the data-handling process. Accordingly, procedures were used in each step of the process to ensure the integrity of the sample data generated during the SSI field investigation activities. Each stage of the data-handling process, including quality control, data generation at the laboratory, data review, and database assembly is discussed below.

### 1.7.1 Laboratory Quality Control

Laboratory quality control (QC) procedures are designed to ensure the consistency and continuity of the data. Standard QC analyses were performed throughout laboratory handling of the SSI samples. Laboratory instrument calibrations were performed and verified based on the requirements of the individual analytical methods. In order to ensure that data quality standards were met or surpassed, the analytical contractor (Accutest Laboratories Inc.) personnel reviewed all QC procedures and analyses prior to the completion of data packages. The *BRAC SI Workplan* (B&R Environmental, 1998b) provides a more detailed discussion of laboratory quality assurance requirements and procedures.

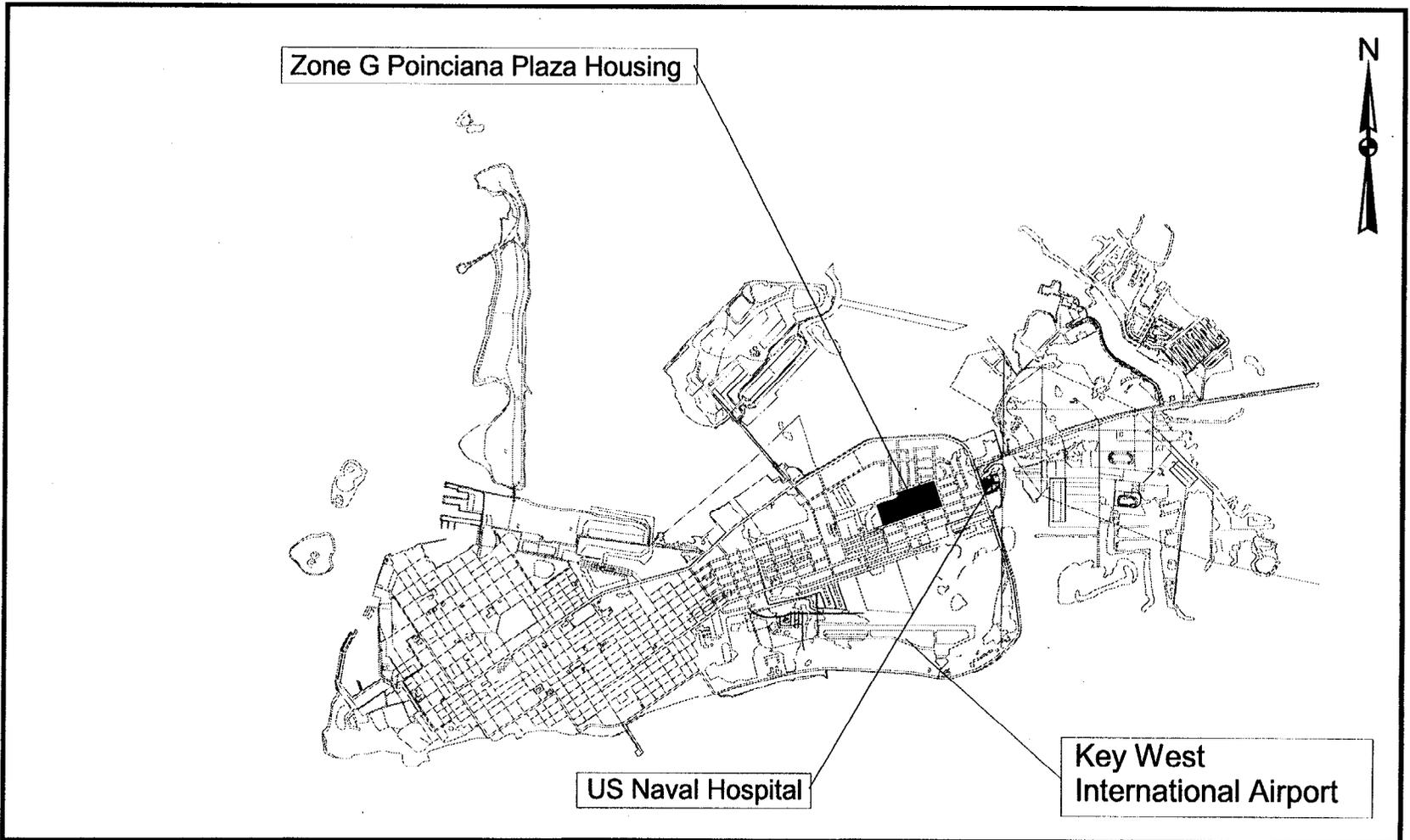
### 1.7.2 Data Review

All data packages submitted by the laboratory underwent a formal data review/validation by TtNUS personnel that included the following elements:

- Verification of the electronic results against the chain of custody (COC) and the result reported on the certificate of analysis (COA)
- Review of holding times
- Review of all blank samples submitted as a routine part of the sample collection process (trip blanks, field blanks, and rinsate blanks) in order to eliminate false positives
- Review of laboratory calibration logs for gross non-compliance with QC requirements

### 1.7.3 Database/Spreadsheet Assembly

Once the review process of the SSI data packages was completed, the electronic data were assembled in a database/spreadsheet in order to facilitate the interpretation and analysis of results. A series of electronic checks were performed in order to ensure the integrity of the data set. This included confirming the presence of each sample in the database/spreadsheet, demonstrating that the appropriate analytical fractions were present for each sample, verifying consistent sample and parameter nomenclature in the electronic data set, checking units for consistency, and reviewing key fields for blank or other inappropriate entries. The QC process also identified duplicate samples, generated an average result for each duplicate sample location, and verified that only one set of results for each location was accepted into the final data set.



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SUPPLEMENTAL SITE INSPECTION PARCEL G, POINCIANA HOUSING

FIGURE 1-1. LOCATION MAP

BRAC PROPERTIES & PARCELS

NAVAL AIR STATION - NAS KEY WEST

SOUTHERN DIVISION

KEY WEST, FLORIDA

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## 2.0 GROUNDWATER AND SUB-SURFACE SOIL INVESTIGATION

### 2.1 SAMPLING OBJECTIVES

The analytical results from 25 environmental samples collected at Poinciana Housing were evaluated to determine the extent of and possibly the source of the arsenic contamination at this site. Sample results provide information used to determine the source of arsenic contamination relative to the housing property.

### 2.2 SAMPLE LOCATIONS AND COLLECTION METHODS

TtNUS used a biased sampling approach to locate the environmental sample locations at Poinciana Housing. Six borings were placed in an area between the western and southern property lines and monitoring well GRYZNG-MW-01 and around the monitoring well. To identify the source of the localized arsenic groundwater contamination, groundwater monitoring wells were installed at four locations to provide adequate spatial coverage upgradient (west and south) of GRYZNG-MW-01. The groundwater monitoring wells were placed to determine if the source is located on or off the Poinciana Housing property. Figure 2-1 depicts the six soil boring and five monitoring well locations at Poinciana Housing.

Samples were collected in accordance with Section 4.4.3 of the *Media Sampling Technical Memorandum to Support the Site Inspection at Poinciana Housing* (TtNUS, 1999a).

### 2.3 SAMPLE ANALYSIS

#### 2.3.1 Soil Samples

Soil samples were collected from depths of 3 feet and 5 feet below land surface (bls) at 10 locations (six soil borings and four monitoring well locations) to characterize soil conditions and possibly identify the location of the source of arsenic contamination. These 20 soil samples were analyzed for arsenic at an off-site fixed-base laboratory (Accutest Laboratories). Three duplicate soil samples were collected and analyzed at the same laboratory. Based on the laboratory results, two soil samples contained arsenic at concentrations that meet or exceed the selected action level for arsenic of 2.7 mg/kg. Sample ZNG-SS-01, taken 3 feet bls at the location of monitoring well GRYZNG-MW-02, contained arsenic at 7 mg/kg; sample ZNG-SS-20, taken at 5 feet bls at the location of SB-05, had an arsenic concentration of 4 mg/kg. The analytical results for the soil samples are presented in Table 2-1. Figures 2-2 and 2-3 present the

3 feet and 5 feet bls soil sample locations, respectively, and those sample results that exceed the selected action level for arsenic.

### **2.3.2 Groundwater Samples**

Five groundwater samples were collected from the four newly installed monitoring wells and existing well GRYZNG-MW-01 and analyzed at the same fixed-base laboratory for arsenic. Two duplicate samples were sent to a second fixed-base laboratory (General Engineering Laboratories) for arsenic analysis as a QC measure. Only a single groundwater sample from well GRYZNG-MW-01 contained arsenic in excess of the selected action level of 50 µg/L (203 µg/L). Arsenic was not detected in monitoring wells GRYZNG-MW-03, 04, and 05 located up-gradient and across-gradient near the property boundaries. This is a good indication that the source of the arsenic in groundwater is located onsite since there is no arsenic in offsite (upgradient) groundwater. Also, arsenic was not detected in well GRYZNG-MW-02, the deep well installed near well GRYZNG-MW-01. With the top of the screen interval of well GRYZNG-MW-02 set at 20 feet bls, it is likely that the source of arsenic contamination is at or near the ground surface. The groundwater analytical results are presented in Table 2-2. Table 2-3 presents a comparison of the groundwater analytical results from Accutest Laboratories and General Engineering Laboratories. Figure 2-4 presents the location of the arsenic exceedance in groundwater as well as all monitoring well locations. Figure 2-5 presents the estimated area of subsurface soil contamination between Buildings P1618 and P1619 at Poinciana Housing.

## **2.4 CONCLUSIONS AND RECOMMENDATIONS**

Analytical results from the SSI indicate that an onsite source in the soil is responsible for the elevated level of arsenic in groundwater at Poinciana Housing. The bases for this conclusion are that the highest concentration of arsenic in groundwater has been detected in monitoring well GRYZNG-MW-01 located in the central portion of the site while arsenic was not detected in upgradient monitoring wells near the property boundaries. Also, the lack of arsenic in deep monitoring well GRYZNG-MW-02 (located near well GRYZNG-MW-01) indicates that the source is shallow (0 to 12 feet). Arsenic levels detected in soils in the area of GRYZNG-MW-01 have the potential to leach to the groundwater at levels in excess of the 50 µg/L action level. The NAS Key West Partnering Team decided to identify if any human health risks are posed by the arsenic detected in soil. The sampling approach that was used to collect the data required to make this determination is documented in the *Surface Soil Sampling Technical Memorandum* (TiNUS 1999b). The results of this investigation are included in Section 3.

**TABLE 2-1  
SOIL ANALYTICAL RESULTS**

Sample	Depth Collected	Parameter	Result	Units	Qual
ZNG-SS-01	3'	Arsenic	7	mg/kg	
ZNG-SS-02	5'	Arsenic	2.5	mg/kg	U
ZNG-SS-03	3'	Arsenic	0.56	mg/kg	U
ZNG-SS-04 AVG	5'	Arsenic	1.15*	mg/kg	U
ZNG-SS-05	3'	Arsenic	0.38	mg/kg	U
ZNG-SS-06	5'	Arsenic	0.53	mg/kg	U
ZNG-SS-07	3'	Arsenic	0.65	mg/kg	U
ZNG-SS-08	5'	Arsenic	0.32	mg/kg	U
ZNG-SS-09	3'	Arsenic	0.49	mg/kg	U
ZNG-SS-10	5'	Arsenic	0.32	mg/kg	U
ZNG-SS-11	3'	Arsenic	0.47	mg/kg	U
ZNG-SS-12	5'	Arsenic	0.48	mg/kg	U
ZNG-SS-13	3'	Arsenic	1.5	mg/kg	U
ZNG-SS-14 AVG	5'	Arsenic	1.1*	mg/kg	U
ZNG-SS-15	3'	Arsenic	0.31	mg/kg	U
ZNG-SS-16	5'	Arsenic	2.7	mg/kg	U
ZNG-SS-17	3'	Arsenic	2.3	mg/kg	U
ZNG-SS-18	5'	Arsenic	0.92	mg/kg	U
ZNG-SS-19 AVG	3'	Arsenic	1.15*	mg/kg	U
ZNG-SS-20	5'	Arsenic	4	mg/kg	

Shading indicates sample results that exceed the selected action level of 2.7 mg/kg.

\*Average result for duplicate samples

B - indicates laboratory blank contamination.

U - indicates that the analyte was not detected at a concentration greater than the detection limit.

**TABLE 2-2  
GROUNDWATER ANALYTICAL RESULTS**

Sample	Parameter	Result	Qual	Units	Laboratory
ZNG-MW-01	Arsenic	203		µg/L	Accutest
ZNG-MW-02	Arsenic	9.5	U	µg/L	Accutest
ZNG-MW-03	Arsenic	9.8	U	µg/L	Accutest
ZNG-MW-04	Arsenic	3.7	U	µg/L	Accutest
ZNG-MW-05	Arsenic	4.8	U	µg/L	Accutest
ZNG-MW-02	Arsenic	4.5	U	µg/L	General Engineering Laboratories
ZNG-MW-05	Arsenic	6.03		µg/L	General Engineering Laboratories

Shading indicates sample results that exceed the selected action level of 50 µg/L.

B - indicates laboratory blank contamination.

U - indicates that the analyte was not detected at a concentration greater than the detection limit.

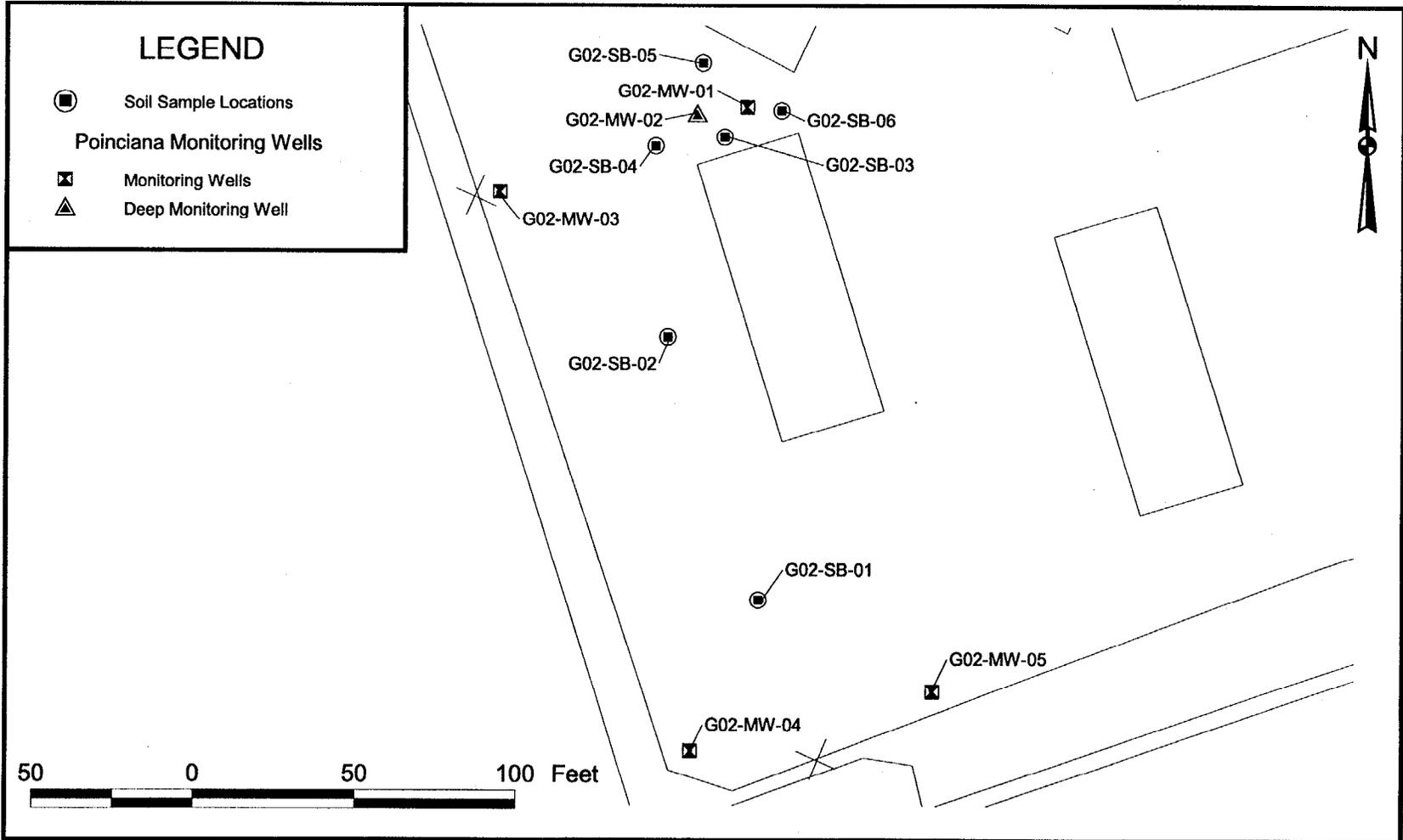
**TABLE 2-3  
COMPARISON OF GROUNDWATER ANALYTICAL RESULTS  
FROM ACCUTEST AND GEL LABORATORIES**

<b>Sample</b>	<b>Accutest Results</b>	<b>Qual</b>	<b>Units</b>	<b>GEL Results</b>	<b>Qual</b>	<b>Units</b>	<b>Relative Percent Difference</b>
ZNG-MW-02	9.5	U	µg/L	4.5	U	µg/L	71.23*
ZNG-MW-05	4.8	U	µg/L	6.03		µg/L	22.71

U - indicates that the analyte was not detected at a concentration greater than the detection limit.

GEL - General Engineering Laboratories

\* - Although the relative percent difference is somewhat high, both results were non-detects.



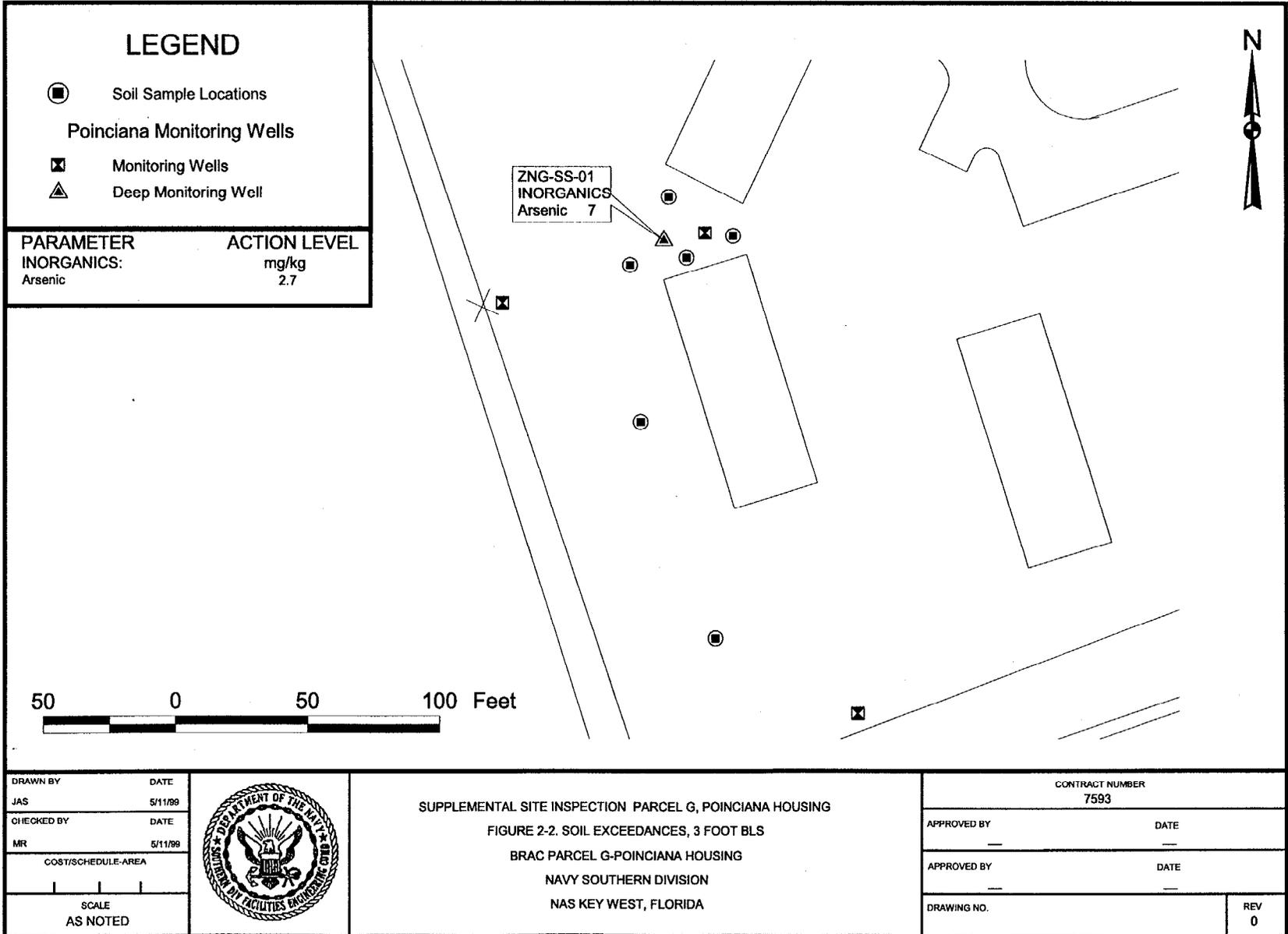
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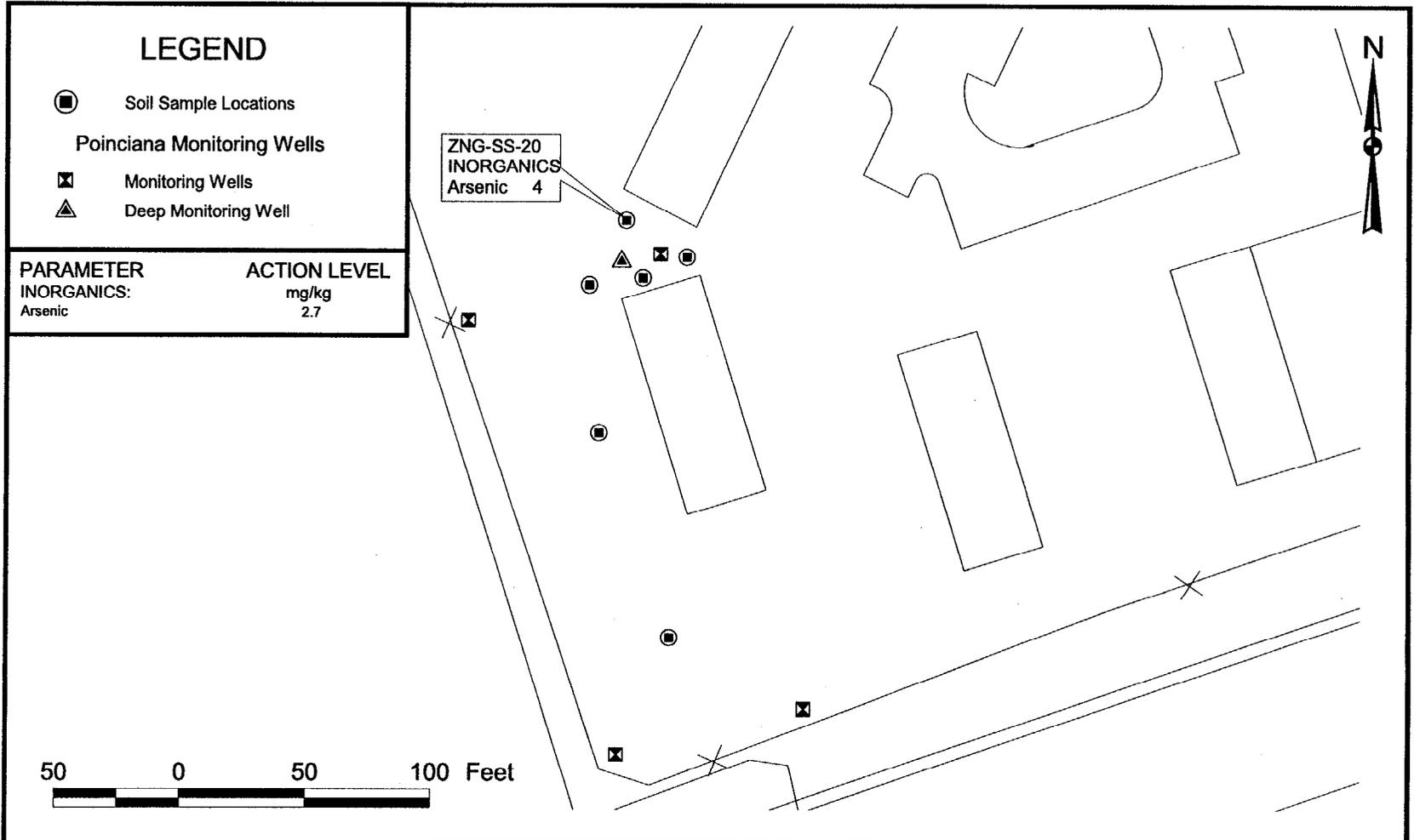
SUPPLEMENTAL SITE INSPECTION PARCEL G, POINCIANA HOUSING  
 FIGURE 2-1. MONITORING WELLS/SOIL SAMPLE LOCATIONS  
 BRAC PARCEL G-POINCIANA HOUSING  
 NAVY SOUTHERN DIVISION  
 NAS KEY WEST, FLORIDA

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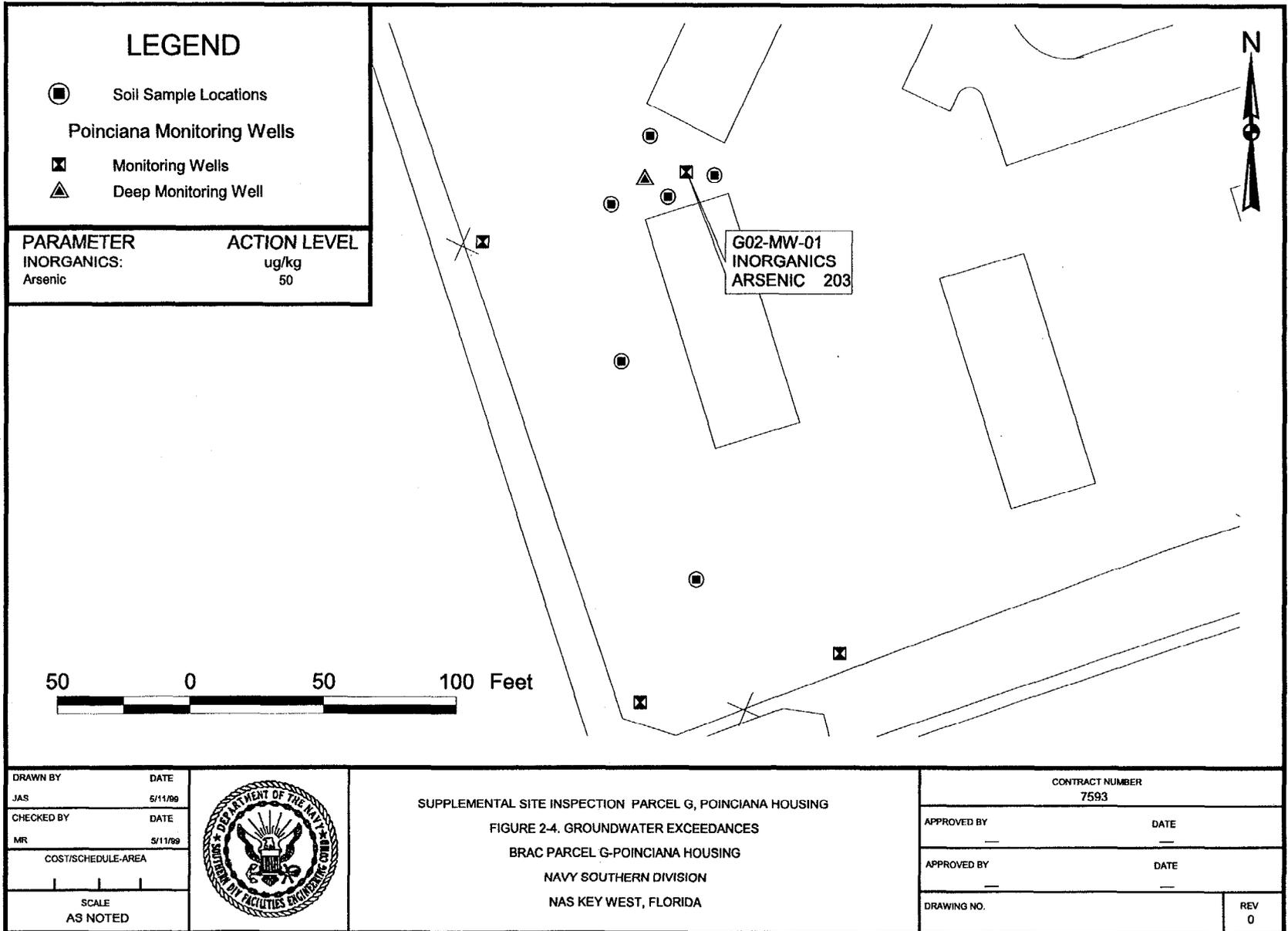


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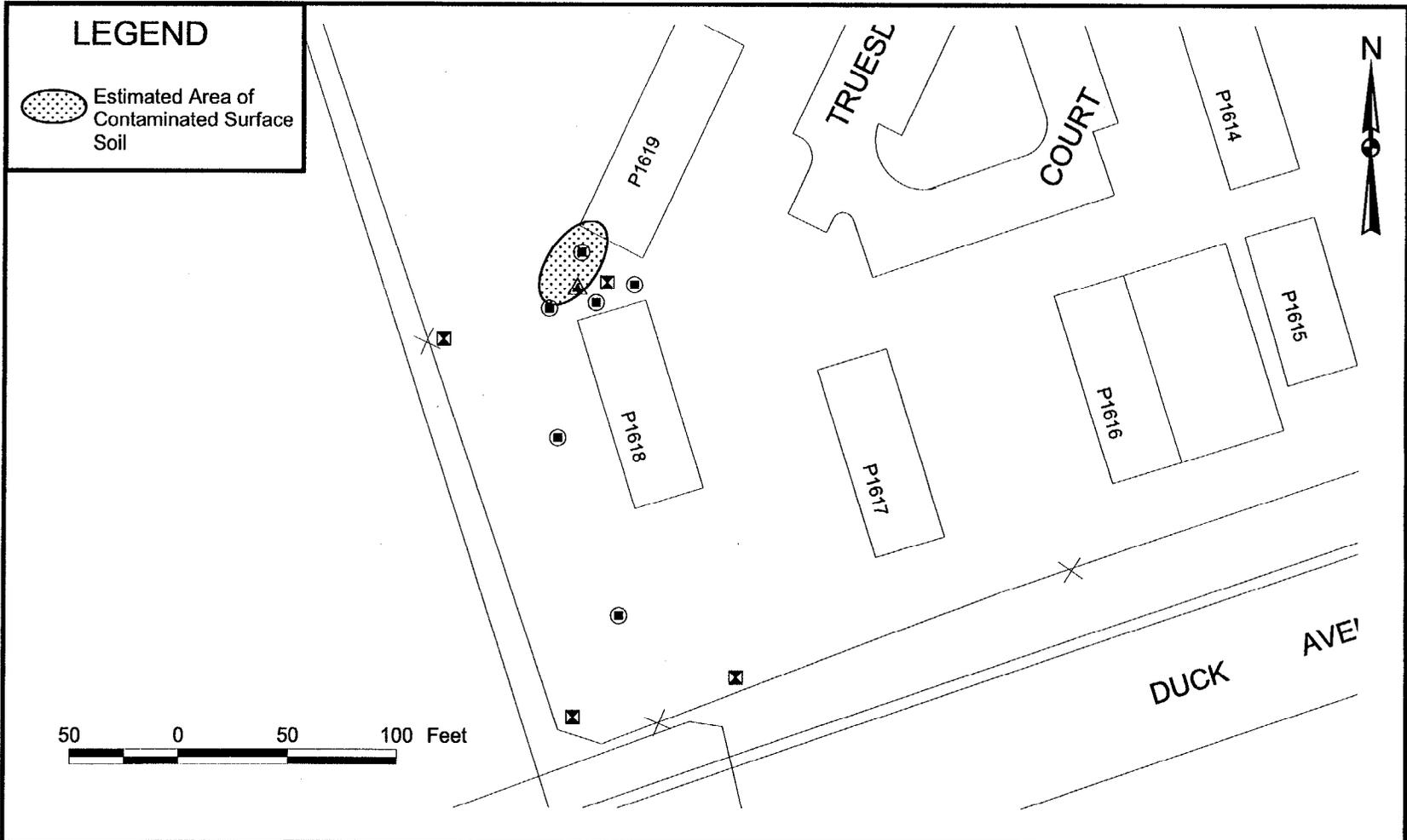


DRAWN BY JAS		DATE 5/11/99			SUPPLEMENTAL SITE INSPECTION PARCEL G, POINCIANA HOUSING FIGURE 2-3. SOIL EXCEEDANCES, 5 FOOT BLS BRAC PARCEL G-POINCIANA HOUSING NAVY SOUTHERN DIVISION NAS KEY WEST, FLORIDA				CONTRACT NUMBER 7593			
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SUPPLEMENTAL SITE INSPECTION PARCEL G, POINCIANA HOUSING  
 FIGURE 2-5. APPROXIMATE SOURCE LOCATION  
 BRAC PARCEL G-POINCIANA HOUSING  
 NAVY SOUTHERN DIVISION  
 NAS KEY WEST, FLORIDA

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## 3.0 SURFACE SOIL INVESTIGATION

### 3.1 SAMPLING OBJECTIVES

The analytical results from eight surface soil samples were analyzed to determine a 95% Upper Confidence level for arsenic in surface soil in a ¼ acre (10,890 sq. ft.) area with monitoring well GRYZNG-MW-01 as its center point. The 95% Confidence Level was compared to the selected soil action level of 2.7 mg/kg to determine if remedial actions are necessary.

### 3.2 SAMPLE LOCATIONS AND COLLECTION METHODS

TtNUS used a biased sampling approach to locate the surface soil sample locations at Poinciana Housing. Eight surface soil sample locations were selected to cover the ¼ acre (10,890 sq. ft.) area with monitoring well GRYZNG-MW-01 as the center (Figure 3-1). This approach was selected to characterize the extent of arsenic contamination and determine the possible impact to human health and groundwater arsenic levels.

Samples were collected in accordance with Section 4.4 of the *Surface Soil Sampling Technical Memorandum to Support the Supplemental Site Inspection at Poinciana Housing* (TtNUS, 1999b).

### 3.3 SAMPLE ANALYSIS

Eight surface soil samples were collected from 0 to 0.5 feet bls and shipped to an offsite laboratory (Accutest Laboratories) where they were analyzed for arsenic to characterize surface soil conditions and define the extent of any surface soil contamination. One duplicate surface soil sample was collected and analyzed for arsenic at the same laboratory.

Although arsenic was detected in seven of the eight samples, the levels detected were below the 2.7 mg/kg action level. Table 3-1 presents surface soil sample results for Poinciana Housing. The highest detection was found in sample GRYZNG-SS-19 at 0.84 mg/kg. A 95% Upper Confidence level of 0.98 mg/kg was calculated based on the sample results. This value does not exceed the selected action level of 2.7 mg/kg.

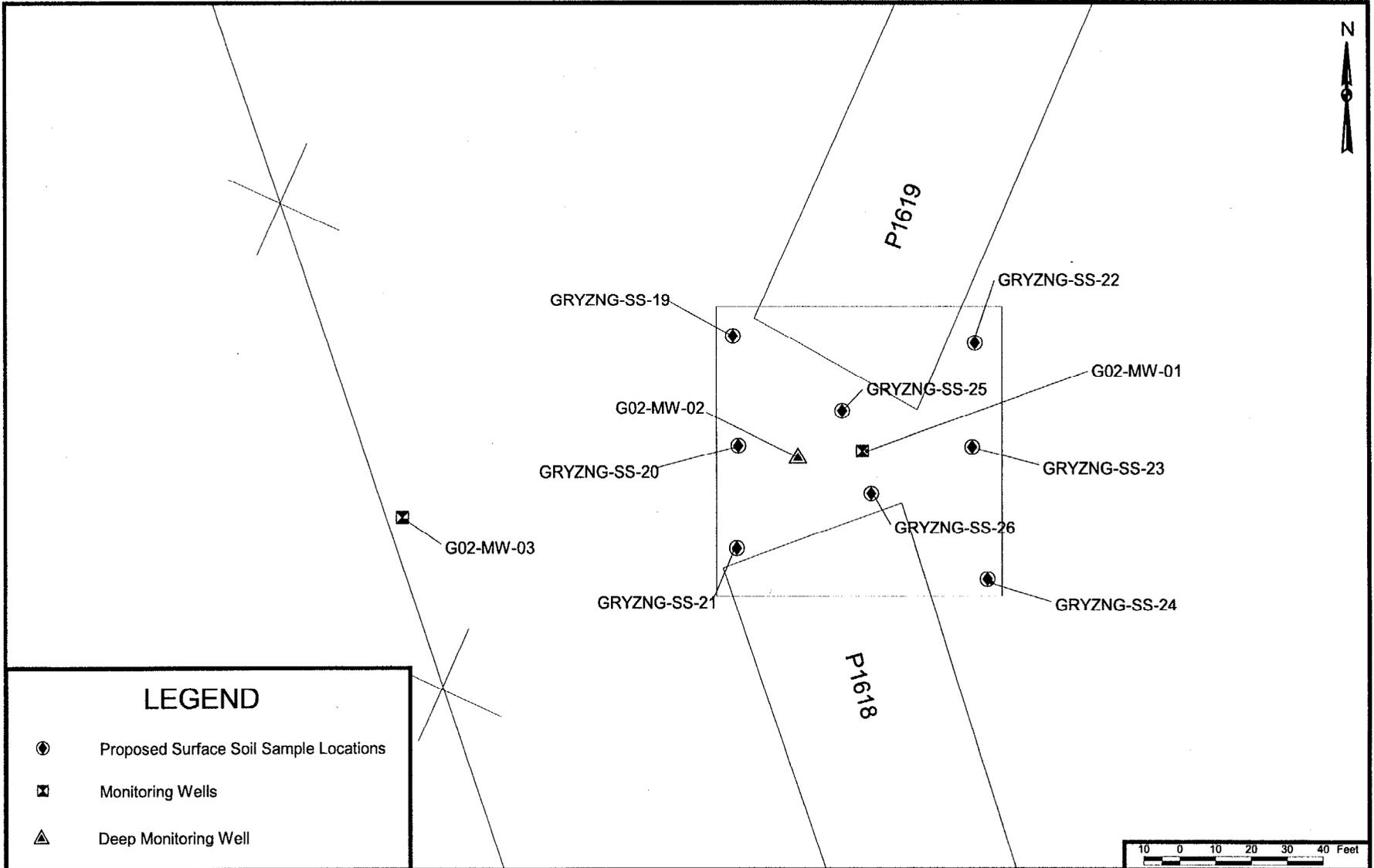
### 3.4 CONCLUSION AND RECOMMENDATION

The arsenic concentration detected in surface soils at Poinciana Housing are lower than those typically seen in background levels during the development of the Background Report (B&R Environmental, 1997). Based on the 95% Upper Confidence level of 0.98 mg/kg of arsenic in surface soil and no detection at levels in excess of the action level, no surface soil remedial action is recommended. However as stated in the *Surface Soil Sampling Technical Memorandum* (TtNUS, 1999b), groundwater land use controls are required based on groundwater contamination detected in well GRYZNG-MW-01.

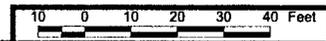
**TABLE 3-1  
SURFACE SOIL ANALYTICAL RESULTS**

<b>Sample</b>	<b>Parameter</b>	<b>Result</b>	<b>Qual.</b>	<b>Units</b>
GRYZNG-SS-19	Arsenic	0.84		mg/kg
GRYZNG-SS-20	Arsenic	0.54		mg/kg
GRYZNG-SS-21AVG	Arsenic	0.73		mg/kg
GRYZNG-SS-22	Arsenic	0.49		mg/kg
GRYZNG-SS-23	Arsenic	0.50		mg/kg
GRYZNG-SS-24	Arsenic	0.64		mg/kg
GRYZNG-SS-25	Arsenic	0.44	U	mg/kg
GRYZNG-SS-26	Arsenic	0.64		mg/kg

U – indicates that the analyte was not detected at a concentration greater than the detection limit.



LEGEND						
	Proposed Surface Soil Sample Locations					
	Monitoring Wells					
	Deep Monitoring Well					



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY	DATE
JAS	6-25-99
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE	
AS NOTED	



**FIGURE 3-1**  
**SURFACE SOIL**  
**SAMPLE LOCATIONS**  
**POINCIANA HOUSING**  
**NAS KEY WEST**

CONTRACT NO.	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO.	REV
	0

## REFERENCES

B&R Environmental (Brown and Root Environmental), 1997, Supplemental RCRA Facility Investigation and Remedial Investigation Report Naval Air Station, Key West, Florida, July.

B&R Environmental (Brown and Root Environmental), 1998a, Site Inspection Report for Poinciana Housing BRAC Parcel, Naval Air Station, Key West, Florida, June.

B&R Environmental (Brown and Root Environmental), 1998b, Site Inspection Workplan for Ten BRAC Properties, Naval Air Station, Key West, Florida, January.

EPA (U.S. Environmental Protection Agency), 1994, Guide for the Data Quality Objectives Process, EPA QA/G-4, Quality Assurance Management Staff, Washington, D.C., September.

FNAI (Florida Natural Areas Inventory/The Nature Conservancy), 1994, Ecological Survey of U.S. Navy Property in the Lower Florida Keys, Monroe County, Florida, Florida Natural Areas Inventory, Tallahassee, Florida

TiNUS (Tetra Tech NUS Inc.), 1999a, Media Sampling Technical Memorandum to Support the Site Inspection at Poinciana Housing, Naval Air Station, Key West, Florida, Rev. 1, April.

TiNUS (Tetra Tech NUS Inc.), 1999b, Surface Soil Sampling Technical Memorandum to Support the Supplemental Site Inspection at Poinciana Housing, Naval Air Station, Key West, Florida, June.

USN-NFEC (U.S. Navy – Naval Facilities Engineering Command), 1996 Predraft EBS Poinciana Housing, October.

**APPENDIX A**

**RESPONSE TO COMMENTS**

**APPENDIX A. RESPONSE TO COMMENTS**

Note: Response to comments on Rev. 1 will be included in Rev. 2.

**APPENDIX B**

**FIELD DOCUMENTS**

# Brown & Root Environmental

900 Trail Ridge Road

Aiken, SC 29803

(803) 649-7963

Fax: (803) 642-8454

## GROUNDWATER SCREENING SAMPLE LOG SHEET

Sample Name: ZNG-MW-01

Project: NAS Key West BRAC SI

Project Number: 7593

Zone: Reinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_

Laboratory: Accutest

Total Depth (ft):	<u>11.90'</u>
Stickup Height (ft):	<u>FLUSH</u>
Casing Diameter (ID-inches):	<u>2"</u>
Static Water Level (ft below top of casing):	<u>3.21'</u>
One Casing Volume (gal):	<u>1.5</u>
Start Purge (hrs.):	<u>08:25</u>
End Purge (hrs.):	<u>09:17</u>
Total Purge Time (min.):	<u>52</u>
Total Amount Purged (gal):	<u>4.5</u>
Purge Method:	<u>Peristaltic Pump</u>
Sample Method:	<u>Peristaltic Pump</u>
Depth Sampled:	<u>3.5'</u>
Sample Date:	<u>4/27/99</u>
Sample Time:	<u>09:18</u>

Type of Screening Sample:		Type of Sample:	
<input type="checkbox"/> DPT Borehole	<input type="checkbox"/> Existing Monitoring Well	<input type="checkbox"/> Low Concentration	<input type="checkbox"/> High Concentration
<input checked="" type="checkbox"/> HSA Temporary Well		<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Composite
Duplicate ID:		<input type="checkbox"/> Grab-Composite	

MS/MSD: YES  NO

Observations/Notes: (Any change in sample location from that designated in the Workplan should be explained and described here)

3 casing vol = 4.5 gal

**ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: Arsenic

TCL SVOCs: YES  NO  Bottle Lot Number: TDS

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TAL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Time	Total Volume Removed (gals)	Temperature (Deg C)	pH	Conductivity (mS/cm)	DO mg/L	Turbidity (NTU)	Color
08:31	0.2	26.3	6.5	1.18	1.53	319	cloudy
08:37	1.0	26.3	6.81	1.24	1.44	298	
08:45	1.5	26.3	6.85	1.17	1.23	124	
08:51	2.5	26.3	6.93	1.16	1.44	14	
08:58	3.0	26.3	6.93	1.12	1.21	0	
09:04	3.5	26.3	6.91	1.12	1.20	0	
09:12	4.0	26.3	6.95	1.12	1.10	0	
09:17	4.5	26.3	6.97	1.12	1.19	0	

gal  
90  
6.05  
0.05  
0.05  
0.05  
0.05  
0.05  
0.05  
0.05

Sampled By: FJM

Signature(s): Erin J. Hamilton

# Brown & Root Environmental

900 Trail Ridge Road

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Fax: (803) 642-8454

## GROUNDWATER SCREENING SAMPLE LOG SHEET

Sample Name: ZN6-MN-02

Project: NAS Key West BRAC SI

Project Number: 7593

Zone: \_\_\_\_\_

Subzone: \_\_\_\_\_

Airbit No: \_\_\_\_\_

Laboratory: GEL

*TD = 21.87'*

Total Depth (ft):	<u>21.87</u>
Stickup Height (ft):	<u>FLUSH</u>
Casing Diameter (ID-Inches):	
Static Water Level (ft below top of casing):	<u>3.10</u>
One Casing Volume (gal):	<u>2.2</u>
Start Purge (hrs.):	<u>12:50</u>
End Purge (hrs.):	<u>13:52</u>
Total Purge Time (min.):	<del>62</del> <u>62</u>
Total Amount Purged (gal):	<u>7.25</u>
Purge Method:	<u>PERISTALTIC PUMP / LOW FLOW</u>
Sample Method:	<u>PERISTALTIC PUMP / LOW FLOW</u>
Depth Sampled:	<u>3.2'</u>
Sample Date:	<u>4/21/99</u>
Sample Time:	<u>13:53</u>

<b>Type of Screening Sample:</b>		<b>Type of Sample:</b>	
<input type="checkbox"/> DPT Borehole	<input type="checkbox"/> Existing Monitoring Well	<input type="checkbox"/> Low Concentration	<input type="checkbox"/> High Concentration
<input type="checkbox"/> HSA Temporary Well		<input type="checkbox"/> Grab	<input type="checkbox"/> Composite
<b>Duplicate ID:</b>		<input type="checkbox"/> Grab-Composite	
<u>ZN6-MN-D1</u>			
<b>MSMSD:</b>		YES <input type="checkbox"/> NO <input type="checkbox"/>	

Observations/Notes: (Any change in sample location from that designated in the Workplan should be explained and described here)

*Development vol = 21 gal  
4/26/99 1230-1400  
3 casing vol = 6.6 gal  
STEP  
pk adjusted with  
to EHS unit ch.*

**ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: Arsenic, TDS

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TAL Metals + Tn (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Time	Total Volume Removed (gals)	Temperature (Deg C)	pH	Conductivity (mS/cm)	DO	Turbidity (NTU)	Color
13:02	1.9	28.7	7.09	17.9	1.90	3A	1.06
13:10	2.75	28.3	7.17	20.0	1.22	643	1.20
13:20	3.75	28.7	7.13	22.0	BB	875	1.33
13:21	4.75	28.6	7.12	21.7	1.11	367	1.31
13:39	5.75	28.6	7.17	21.3	1.03	44	1.29
13:46	6.25	28.7	7.12	21.2	1.60	10	1.28
13:50	7.00	28.7	7.07	21.1	.99	10	1.27
13:53	7.25	28.3	7.06	21.1	0.86	10	1.27

Sampled By: EJH MR Signature(s): \_\_\_\_\_

# Brown & Root Environmental

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## GROUNDWATER SCREENING SAMPLE LOG SHEET

Sample Name: ZN6-MW-03

Project: NAS Key West BRAC SI

Project Number: 7593

Zone: Poinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_

Laboratory: Accurest

Total Depth (ft):	12.55
Stickup Height (ft):	FLUSH
Casing Diameter (ID-Inches):	2"
Static Water Level (ft below top of casing):	29.4
One Casing Volume (gal):	1.6
Start Purge (hrs.):	14:04
End Purge (hrs.):	15:15
Total Purge Time (min.):	71
Total Amount Purged (gal):	5.5
Purge Method:	PERISTALTIC PUMP / LOW FLOW
Sample Method:	PERISTALTIC PUMP / LOW FLOW
Depth Sampled:	3.2'
Sample Date:	04/27/99
Sample Time:	15:15

Type of Screening Sample:		Type of Sample:	
<input type="checkbox"/> DPT Borehole	<input type="checkbox"/> Existing Monitoring Well	<input type="checkbox"/> Low Concentration	<input type="checkbox"/> High Concentration
<input checked="" type="checkbox"/> HSA Temporary Well		<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Composite
Duplicate ID: _____		<input type="checkbox"/> Grab-Composite	

MS/MSD: YES  NO

Observations/Notes: (Any change in sample location from that designated in the Workplan should be explained and described here)

DEVELOPMENT VOL = 11 gal  
 4/26/99 02:15 - 15:05  
 3 casing vol = 4.8 gal

ANALYSES:

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: Arsenic, TDS

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TAL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Time	Total Volume Removed (gals)	Temperature (Deg C)	pH	Conductivity (mS/cm)	DO	Turbidity (NTU)	Color
14:06	0.1	28.1	7.12	20.6	0.85	990	cloudy
14:13	1.0	27.7	7.09	20.9	0.94	OFF SCALE	
14:27	2.0	28.0	7.06	21.0	1.09	OFF SCALE	
14:37	3.0	27.7	7.04	20.7	0.83	867	
14:49	3.25	27.5	7.10	20.7	0.90	464	
14:59	4.0	27.5	7.06	20.7	0.91	252	
15:06	5.0	27.5	7.05	20.7	0.76	114	
15:10	5.25	27.2	7.25	20.7	1.38	73	
15:15	5.50	27.4	7.08	20.5	0.86	21	

Sal %

1.24  
 1.26  
 1.26  
 1.25  
 1.25'  
 1.24  
 1.25  
 1.24  
 1.23

Sampled By: EJH MR Signature(s): EJH

# Brown & Root Environmental

900 Trail Ridge Road

Alken, SC 29803

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Fax: (803) 642-8454

## GROUNDWATER SCREENING SAMPLE LOG SHEET

Sample Name: ZNC MW-04

Project: NAS Key West BRAC SI

Project Number: 7593

Zone: Poinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_

Laboratory: GEL

Total Depth (ft):	<u>12.51</u>
Stickup Height (ft):	
Casing Diameter (ID-Inches):	
Static Water Level (ft below top of casing):	<u>4.43'</u>
One Casing Volume (gal):	<u>1.4</u>
Start Purge (hrs.):	<u>15:30</u>
End Purge (hrs.):	<u>16:36</u>
Total Purge Time (min.):	<u>66</u>
Total Amount Purged (gal):	<u>4.5</u>
Purge Method:	<u>Peristaltic Pump / Low Flow</u>
Sample Method:	<u>Peristaltic Pump / Low Flow</u>
Depth Sampled:	<u>5.0'</u>
Sample Date:	<u>4/27/99</u>
Sample Time:	<u>16:40</u>

Type of Screening Sample:		Type of Sample:	
<input type="checkbox"/> DPT Borehole	<input type="checkbox"/> Existing Monitoring Well	<input type="checkbox"/> Low Concentration	<input type="checkbox"/> High Concentration
<input checked="" type="checkbox"/> Existing Monitoring Well	<input type="checkbox"/> HSA Temporary Well	<input checked="" type="checkbox"/> Grab	<input type="checkbox"/> Composite
Duplicate ID:		<input type="checkbox"/> Grab-Composite	

MS/MSD: YES  NO

Observations/Notes: (Any change in sample location from that designated in the Workplan should be explained and described here.)

Dev. Vol = 16 gal  
4/26/99 15:10 - 16:15  
3 casing vol = 4.2 gal

**ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TAL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Time	Total Volume Removed (gals)	Temperature (Deg C)	pH	Conductivity (mS/cm)	DO	Turbidity (NTU)	Color
<u>15:32</u>	<u>0.1</u>	<u>28.4</u>	<u>7.42</u>	<u>16.5</u>	<u>2.84</u>	<u>OFF SCALE</u>	
<u>15:47</u>	<u>1.5</u>	<u>28.9</u>	<u>7.18</u>	<u>27.9</u>	<u>0.97</u>	<u>OFF SCALE</u>	
<u>16:05</u>	<u>2.25</u>	<u>29.0</u>	<u>7.33</u>	<u>27.9</u>	<u>1.68</u>	<u>347</u>	
<u>16:18</u>	<u>4.0</u>	<u>28.3</u>	<u>7.33</u>	<u>27.8</u>	<u>1.40</u>	<u>100</u>	
<u>16:28</u>	<u>4.25</u>	<u>28.0</u>	<u>7.16</u>	<u>27.7</u>	<u>1.14</u>	<u>10</u>	
<u>16:36</u>	<u>4.50</u>	<u>28.1</u>	<u>7.21</u>	<u>27.6</u>	<u>1.43</u>	<u>10</u>	

Sal %  
0.94  
1.73  
1.73  
1.73  
1.71  
1.71

Sampled By: ESH / MR

Signature(s): Eng. Harrison Mark King

# Brown & Root Environmental

900 Trail Ridge Road

Alken, SC 29803

(803) 649-7963

Fax: (803) 642-8454

## GROUNDWATER SCREENING SAMPLE LOG SHEET

Sample Name: Z26-MW-05 Project: NAS Key West BRAC SI Project Number: 7593  
 Zone: Reinciana Subzone: \_\_\_\_\_  
 Airbill No: \_\_\_\_\_ Laboratory: SEL Accutest

Total Depth (ft):	<u>11.75</u>
Stickup Height (ft):	<u>FWSH</u>
Casing Diameter (ID-Inches):	<u>24</u>
Static Water Level (ft below top of casing):	<u>3.93</u>
One Casing Volume (gal):	<u>1.30</u>
Start Purge (hrs.):	<u>16:52</u>
End Purge (hrs.):	<u>18:05</u>
Total Purge Time (min.):	<u>67</u>
Total Amount Purged (gal):	<u>7.5</u>
Purge Method:	<u>Peristaltic Pump / Low Flow</u>
Sample Method:	<u>Peristaltic Pump / Low Flow</u>
Depth Sampled:	
Sample Date:	<u>11/21/99</u>
Sample Time:	<u>18:05</u>

<b>Type of Screening Sample:</b> <input type="checkbox"/> DPT Borehole <input checked="" type="checkbox"/> Existing Monitoring Well <input type="checkbox"/> HSA Temporary Well		<b>Type of Sample:</b> <input type="checkbox"/> Low Concentration <input type="checkbox"/> High Concentration <input checked="" type="checkbox"/> Grab <input type="checkbox"/> Composite <input type="checkbox"/> Grab-Composite
<b>Duplicate ID:</b> <u>Z26-MW-D2</u>		
<b>MS/MSD:</b> YES <input type="checkbox"/> NO <input type="checkbox"/>		

Observations/Notes: (Any change in sample location from that designated in the Workplan should be explained and described here)

DEV. VOL. = 25 gal  
 9/26/99 16:50 - 18:30

$$\begin{matrix} 11.75 \\ 3.93 \\ \hline 7.62 \end{matrix}$$

$$\begin{matrix} 7.62 \\ 0.7 \\ \hline 5.334 \\ 7.62 \\ \hline 12.954 \end{matrix}$$
 1.3 gal

**ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TAL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Arsenic, TDS

Time	Total Volume Removed (gals)	Temperature (Deg C)	pH	Conductivity (mS/cm)	DO	Turbidity (NTU)	Color	Salinity %
16:56	0.1	28.0	7.76	1.07	1.79	Over scale	cloudy	0.04
17:00	1.0	27.4	7.66	.735	1.15	999	cloudy	0.05
17:10	2.0	27.6	7.49	.678	1.20	999	cloudy	0.02
17:22	3.25	27.0	7.47	.688	2.15	999	" "	0.03
17:28	3.50	27.5	7.17	.675	2.37	999	" "	0.03
17:55	6.50	26.8	7.57	.716	2.60	999		0.03
18:05	7.00	27.1	7.54	.708	2.60	633	slightly cloudy	0.03

Sampled By: \_\_\_\_\_ Signature(s): \_\_\_\_\_

Well was very cloudy @ start purge so for the 1st gallon, I purged very fast (1000 ml/min) then slowed to 250 ml/min.

# Tetra Tech NUS Inc.

900 Trail Ridge Road

Aiken, SC 29803

(803) 649-7963

Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name 2NG-M-01 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: Poinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>12/6/99</u>
Sample Time:	<u>0950</u>
Sample Depth (ft)	<u>0-31</u>
FID Reading:	
Sample Color:	<u>LIGHT TO MED BROWN</u>
Sample Description:	<u>SANDY W/SMALL TO MED ROCKS</u>

Sample Method:
<input type="checkbox"/> DPT
<input type="checkbox"/> Hand Auger
<input type="checkbox"/> HSA

Type of Sample
<input type="checkbox"/> Low Concentration
<input type="checkbox"/> High Concentration
<input type="checkbox"/> Grab
<input type="checkbox"/> Composite
<input type="checkbox"/> Grab-Composite

Duplicate ID:
---------------

MS/MSD	YES <input type="checkbox"/>	NO <input type="checkbox"/>
--------	------------------------------	-----------------------------

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

@ MW-02

### ANALYSES:

TCL VOCs (HCL Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: <u>Arsenic</u>
TCL SVOCs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PESTs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PCBs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
AL Metals + Tin (HNO3 Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____

Sampled By EOH

Signature(s): Eng J. Hamrin

**Tetra Tech NUS Inc.**

900 Trail Ridge Road

Aiken, SC 29803

(803) 649-7963

Fax: (803) 642-8454

**SURFACE SOIL SAMPLE LOG SHEET**

Sample Name 218-GH-02 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: Roanoke

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>9/26/99</u>
Sample Time:	<u>0955</u>
Sample Depth (ft)	<u>3-6'</u>
FID Reading:	
Sample Color:	<u>LIGHT BROWN W/DARK PATCHES</u>
Sample Description:	<u>COARSE LIMESTONE, SANDY - SAT @ 5'</u>

Sample Method:

DPT

Hand Auger

HSA

Type of Sample

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID: \_\_\_\_\_

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

@ MW-02

**ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: Arsenic

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By EJH Signature(s): Ej J. Hammi

**Tetra Tech NUS Inc.**

900 Trail Ridge Road

Aiken, SC 29803

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Fax: (803) 642-8454

**SURFACE SOIL SAMPLE LOG SHEET**

Sample Name ZNG-SS-03 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: Poinciana

Subzone: G

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>4-26-99</u>
Sample Time:	<u>12:20</u>
Sample Depth (ft)	<u>3'</u>
FID Reading:	
Sample Color:	<u>GREY</u>
Sample Description:	<u>SANDY LYGOSTONE / SMALL ROCKS</u>

Sample Method:

DPT

Hand Auger

HSA

Type of Sample

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID:

[scribble]

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

@ MW-03

**ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: Arsenic

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By ESH

Signature(s): [Signature]

# Tetra Tech NUS Inc.

900 Trail Ridge Road

Aiken, SC 29803

(803) 649-7963

Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name: ZNG-SS-04 ~~CATZNG-0~~ Project: NAS Key West IRA Confirmation Project Number: 7593  
Zone: ~~XXXXXXXXXX~~ Poinciana Subzone: \_\_\_\_\_  
Airbill No: \_\_\_\_\_ Laboratory: Accutest

Sample Date	<u>4-26-99</u>
Sample Time:	<u>1237</u>
Sample Depth (ft)	<u>5-6'</u>
FID Reading:	
Sample Color:	<u>GREY W/ DARK BROWN PATCHES</u>
Sample Description:	<u>SAT. / SANDY W/ SMALL ROCKS MOD-GRADE</u>

Sample Method:

DPT  
 Hand Auger  
 HSA

Type of Sample

Low Concentration  
 High Concentratio  
 Grab  
 Composite  
 Grab-Composite

Duplicate ID:

ZNG-SS-D1

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

@ MW-03

**ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: arsenic

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By EJH Signature(s): EJH

# Tetra Tech NUS Inc.

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## SURFACE SOIL SAMPLE LOG SHEET

Sample Name ZNG-05 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: Louisiana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>4/20/99</u>
Sample Time:	<u>13:55</u>
Sample Depth (ft)	<u>2-31</u>
FID Reading:	
Sample Color:	
Sample Description:	

Sample Method:

DPT

Hand Auger

HSA

Type of Sample

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID: \_\_\_\_\_

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

AS ~~EST~~ MW-04

AS  ANALYSES:

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By EST Signature(s): Eng J. Harrison

# Tetra Tech NUS Inc.

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## SURFACE SOIL SAMPLE LOG SHEET

Sample Name ZNG-06 Project: NAS Key West IRA Confirmation Project Number: 7593

Zone: \_\_\_\_\_ Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>4-26-99</u>
Sample Time:	<u>14:00</u>
Sample Depth (ft)	<u>5-6'</u>
FID Reading:	
Sample Color:	<u>GREY</u>
Sample Description:	<u>SAT. / MED GRADE SAND, SHALE ROCKS</u>

Sample Method:
<input type="checkbox"/> DPT
<input checked="" type="checkbox"/> Hand Auger
<input type="checkbox"/> HSA

Type of Sample
<input type="checkbox"/> Low Concentration
<input type="checkbox"/> High Concentratio
<input checked="" type="checkbox"/> Grab
<input type="checkbox"/> Composite
<input type="checkbox"/> Grab-Composite

Duplicate ID:
---------------

MS/MSD	YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>
--------	-----	--------------------------	----	-------------------------------------

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

@ MW-04

<u>AS</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ANALYSES:	
TCL VOCs (HCL Preservative):	YES	<input type="checkbox"/> NO	<input checked="" type="checkbox"/>	Bottle Lot Number: _____
TCL SVOCs:	YES	<input type="checkbox"/> NO	<input checked="" type="checkbox"/>	Bottle Lot Number: _____
TCL PESTs:	YES	<input type="checkbox"/> NO	<input checked="" type="checkbox"/>	Bottle Lot Number: _____
TCL PCBs:	YES	<input type="checkbox"/> NO	<input checked="" type="checkbox"/>	Bottle Lot Number: _____
AL Metals + Tin (HNO3 Preservative):	YES	<input type="checkbox"/> NO	<input checked="" type="checkbox"/>	Bottle Lot Number: _____

Sampled By RSH Signature(s): Eng J. Harris

# Tetra Tech NUS Inc.

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Aiken, SC 29803

(803) 649-7963

Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name ZN6-44-07 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: Poinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>4/20/99</u>
Sample Time:	<u>13:10</u>
Sample Depth (ft)	<u>3'</u>
FID Reading:	
Sample Color:	<u>LIGHT BROWN</u>
Sample Description:	<u>MID GRADE SAND</u>

Sample Method:

DPT

Hand Auger

HSA

Type of Sample

Low Concentration

High Concentratio

Grab

Composite

Grab-Composite

Duplicate ID: \_\_\_\_\_

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

@ MW-05

ANALYSES:

TCL VOCs (HCL Preservative):	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number:	<u>Arsenic</u>
TCL SVOCs:	YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number:	_____
TCL PESTs:	YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number:	_____
TCL PCBs:	YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number:	_____
AL Metals + Tin (HNO3 Preservative):	YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number:	_____

Sampled By ESTH MR Signature(s): [Signature]

# Tetra Tech NUS Inc.

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## SURFACE SOIL SAMPLE LOG SHEET

Sample Name ZAS-SS-08 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: Poliana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>0126199</u>
Sample Time:	<u>15:20</u>
Sample Depth (ft)	<u>6'</u>
FID Reading:	
Sample Color:	<u>LIGHT BROWN</u>
Sample Description:	<u>MID GRADE SAND</u>

Sample Method:

DPT

Hand Auger

HSA

Type of Sample

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID:

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

@ NW-05

### ANALYSES:

TCL VOCs (HCL Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: <u>arsenic</u>
TCL SVOCs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PESTs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PCBs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
AL Metals + Tin (HNO3 Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____

Sampled By ESTH

ME

Signature(s):

Eugene Harris

**Tetra Tech NUS Inc.**

900 Trail Ridge Road

Aiken, SC 29803

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Fax: (803) 642-8454

**SURFACE SOIL SAMPLE LOG SHEET**

Sample Name 2NB-55-09 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: Poinciana Housing

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>08/20/99</u>
Sample Time:	<u>16:50</u>
Sample Depth (ft)	<u>1-3'</u>
FID Reading:	
Sample Color:	
Sample Description:	

**Sample Method:**

DPT

Hand Auger

HSA

**Type of Sample**

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

**Duplicate ID:**

\_\_\_\_\_

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

\_\_\_\_\_

Observations/Notes:

~~\_\_\_\_\_~~

§ SB-02

**ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: Arsenic

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By ESTH & MK

Signature(s): Enjg Hannon Murphy

# Tetra Tech NUS Inc.

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Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name 2N6-95-70 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: Poinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>4/20/99</u>
Sample Time:	<u>16:55</u>
Sample Depth (ft)	<u>6"</u>
FID Reading:	
Sample Color:	
Sample Description:	

Sample Method:

DPT

Hand Auger

HSA

Type of Sample

Low Concentration

High Concentratio

Grab

Composite

Grab-Composite

Duplicate ID: \_\_\_\_\_

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

~~MS/MSD~~

SB-02

### ANALYSES:

TCL VOCs (HCL Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: <u>Arsenic</u>
TCL SVOCs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PESTs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PCBs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
AL Metals + Tin (HNO3 Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____

Sampled By ESTH MK

Signature(s): Eng. Kevin Murphy

# Tetra Tech NUS Inc.

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Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name ZNE-45-11 Project: NAS Key West IRA Confirmation Project Number: 7593

Zone: Poinciana Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>4/24/99</u>
Sample Time:	<u>17:00</u>
Sample Depth (ft)	<u>3'</u>
FID Reading:	
Sample Color:	
Sample Description:	

Sample Method:

DPT

Hand Auger

HSA

Type of Sample

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID: \_\_\_\_\_

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

SB-01

**ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By MR Signature(s): [Signature]

# Brown & Root Environmental

900 Trail Ridge Road

Aiken, SC 29803

(803) 648-7963

Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name: 206-45-12 Project: NAS Key West BRAC SI

Project Number: 7593

Zone: Poinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory: GEL

Sample Date: <u>4/26/99</u>
Sample Time: <u>17:05</u>
Sample Depth (ft): <u>6'</u>
FID Reading:
Sample Color:
Sample Description:

Sample Method:

DPT

Hand Auger

HSA

Type of Sample:

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID:

~

MS/MSD: YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

SB-01

**ANALYSES:**

TCL VOCs (HCL Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL SVOCs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PESTs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PCBs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TAL Metals + Tin (HNO3 Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____

Sampled By: MR Signature(s): [Signature]

# Brown & Root Environmental

900 Trail Ridge Road

Aiken, SC 29803

(803) 648-7983

Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name: 2N6-59-13 Project: NAS Key West BRAC SI

Project Number: 7593

Zone: Poinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory: GEL

Sample Date: <u>4/26/99</u>
Sample Time: <u>17:19</u>
Sample Depth (ft): <u>3'</u>
FID Reading: _____
Sample Color: _____
Sample Description: _____

**Sample Method:**

DPT

Hand Auger

HSA

**Type of Sample:**

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

**Duplicate ID:**

\_\_\_\_\_

**MS/MSD:** YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

\_\_\_\_\_

Observations/Notes:

SB-04

**ANALYSES:**

~~TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: Arsevic~~

~~TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_~~

~~TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_~~

~~TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_~~

TAL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By: MR

Signature(s): [Signature]

# Brown & Root Environmental

900 Trail Ridge Road

Aiken, SC 29803

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Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name: ZNG-SS-14 Project: NAS Key West BRAC SI

Project Number: 7593

Zone: PoINCIANG

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_

Laboratory: GEL

Sample Date: <u>4/20/09</u>
Sample Time: <u>17:25</u>
Sample Depth (ft): <u>6'</u>
FID Reading: _____
Sample Color: _____
Sample Description: _____

Sample Method:

DPT

Hand Auger

HSA

Type of Sample:

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID:

ZNG-SS-D2

MS/MSD: YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

SB-04

### ANALYSES:

TCL VOCs (HCL Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: <u>Arsenic</u>
TCL SVOCs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PESTs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PCBs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TAL Metals + Tin (HNO3 Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____

Sampled By: MR

Signature(s): Murphy

# Brown & Root Environmental

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Aiken, SC 29803

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## SURFACE SOIL SAMPLE LOG SHEET

Sample Name: ZN6-44-15 Project: NAS Key West BRAC SI

Project Number: 7593

Zone: Poinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_

Laboratory: GEL

Sample Date: <u>9/26/99</u>
Sample Time: <u>17:35</u>
Sample Depth (ft): <u>3</u>
FID Reading:
Sample Color:
Sample Description:

Sample Method:

DPT

Hand Auger

HSA

Type of Sample:

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID:

MS/MSD: YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

SB-03

**ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: Arsenic

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TAL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By: MR Signature(s): [Signature]

# Brown & Root Environmental

900 Trail Ridge Road

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(803) 648-7963

Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name: ZN6-SS-16

Project: NAS Key West BRAC SI

Project Number: 7593

Zone: Panciana

Subzone: \_\_\_\_\_

Airbill No.: \_\_\_\_\_

Laboratory: GEL

Sample Date: <u>4/26/99</u>
Sample Time: <u>17:40</u>
Sample Depth (ft): <u>6'</u>
FID Reading: _____
Sample Color: _____
Sample Description: _____

Sample Method:

DPT

Hand Auger

HSA

Type of Sample:

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID: \_\_\_\_\_

MS/MSD: YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

SB-03

**ANALYSES:**

TCL VOCs (HCL Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: <u>Arsenic</u>
TCL SVOCs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PESTs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PCBs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TAL Metals + Tin (HNO3 Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____

Sampled By: MR

Signature(s): *Matthew*

# Brown & Root Environmental

900 Trail Ridge Road

Aiken, SC 29803

(803) 642-7963

Fax (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name: 214-55-17 Project: NAS Key West BRAC SI

Project Number: 7593

Zone: Piñoniana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory: GEL

Sample Date: <u>4/26/99</u>
Sample Time: <u>17:55</u>
Sample Depth (ft): <u>3'</u>
FID Reading:
Sample Color:
Sample Description:

Sample Method:

DPT

Hand Auger

HSA

Type of Sample:

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID:

~

MS/MSD: YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

58-06

### ANALYSES:

TCL VOCs (HCL Preservative): YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: <u>Arsenic</u>
TCL SVOCs: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PESTs: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PCBs: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TAL Metals + Tin (HNO3 Preservative): YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____

Sampled By: MR

Signature(s): Murphy

# Brown & Root Environmental

900 Trail Ridge Road

Aiken, SC 29803

(803) 648-7963

Fax (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name: 2N6-55-12 Project: NAS Key West BRAC SI

Project Number: 7593

Zone: Poinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory: GEL

Sample Date: <u>4/26/99</u>
Sample Time: <u>18:00</u>
Sample Depth (ft): <u>6'</u>
FID Reading:
Sample Color:
Sample Description:

Sample Method:
<input type="checkbox"/> DPT
<input type="checkbox"/> Hand Auger
<input type="checkbox"/> HSA

Type of Sample:
<input type="checkbox"/> Low Concentration
<input type="checkbox"/> High Concentration
<input type="checkbox"/> Grab
<input type="checkbox"/> Composite
<input type="checkbox"/> Grab-Composite

Duplicate ID:

MS/MSD: YES <input type="checkbox"/> NO <input type="checkbox"/>
--

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

SB-06

<b>ANALYSES:</b>			
<del>TCL VOCs (HCL Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/></del>	<del>Bottle Lot Number:</del>	<u>Arsenic</u>	
<del>TCL SVOCs: YES <input type="checkbox"/> NO <input type="checkbox"/></del>	<del>Bottle Lot Number:</del>	_____	
<del>TCL PESTs: YES <input type="checkbox"/> NO <input type="checkbox"/></del>	<del>Bottle Lot Number:</del>	_____	
<del>TCL PCBs: YES <input type="checkbox"/> NO <input type="checkbox"/></del>	<del>Bottle Lot Number:</del>	_____	
<del>TAL Metals + Tin (HNO3 Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/></del>	<del>Bottle Lot Number:</del>	_____	

Sampled By: MR Signature(s): Murphy

# Brown & Root Environmental

900 Trail Ridge Road

Aiken, SC 29803

(803) 648-7983

Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name: ZNG-SS-19 Project: NAS Key West BRAC SI

Project Number: 7593

Zone: Poinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory: GEL

Sample Date: <u>4/26/99</u>
Sample Time: <u>18:05</u>
Sample Depth (ft): <u>3'</u>
FID Reading: _____
Sample Color: _____
Sample Description: _____

Sample Method:

DPT

Hand Auger

HSA

Type of Sample:

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID:

ZNG-SS-D3

MS/MSD: YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

SB-05

**ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: Arsenic

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TAL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By: ML Signature(s): [Signature]

# Brown & Root Environmental

900 Trail Ridge Road

Aiken, SC 29803

(803) 646-7963

Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name: ZNG-SS-20 Project: NAS Key West BRAC SI

Project Number: 7593

Zone: Poinciana

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory: GEL

Sample Date: <u>4/26/99</u>
Sample Time: <u>18:10</u>
Sample Depth (ft): <u>6'</u>
FID Reading:
Sample Color:
Sample Description:

Sample Method:

DPT

Hand Auger

HSA

Type of Sample:

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID:

\_\_\_\_\_

MS/MSD: YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

SB-05

### ANALYSES:

TCL VOCs (HCL Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: <u>Arsenic</u>
TCL SVOCs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PESTs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TCL PCBs: YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____
TAL Metals + Tin (HNO3 Preservative): YES <input type="checkbox"/> NO <input type="checkbox"/>	Bottle Lot Number: _____

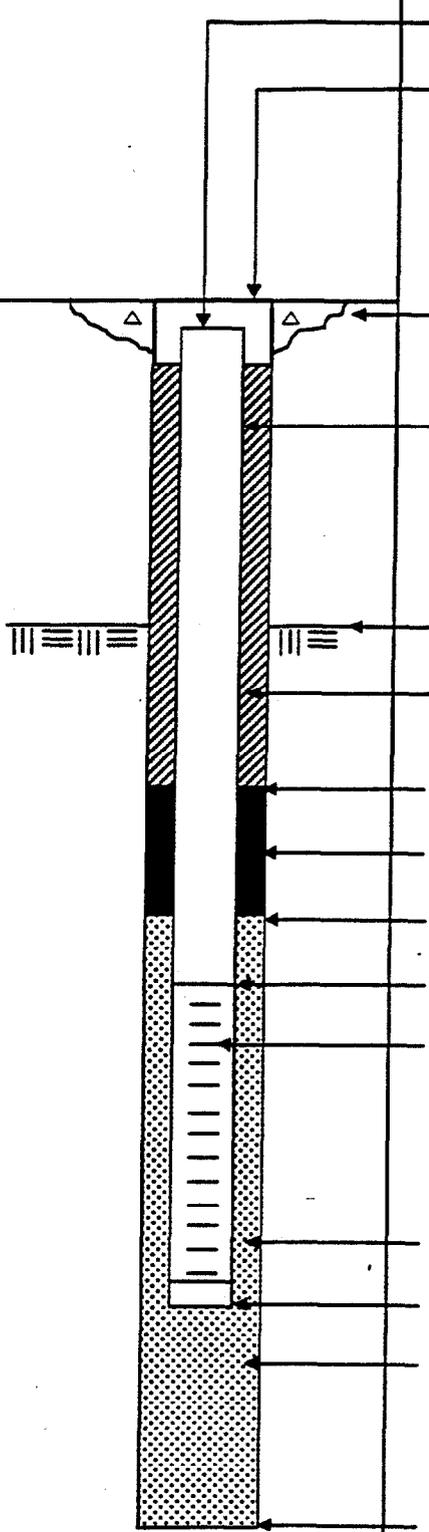
Sampled By: MR Signature(s): Marty



MONITORING WELL SHEET

PROJECT: Poinciana Housing SSII DRILLING Co.: Precision Drilling BORING No.: 2  
 PROJECT No.: N7593 DRILLER: Mike Czajkowski DATE COMPLETED: 4/26/99  
 SITE: Poinciana Housing DRILLING METHOD: HSA NORTHING: \_\_\_\_\_  
 GEOLOGIST: \_\_\_\_\_ DEV. METHOD: peristaltic pump EASTING: \_\_\_\_\_

Ground Elevation = Datum:



Not to Scale

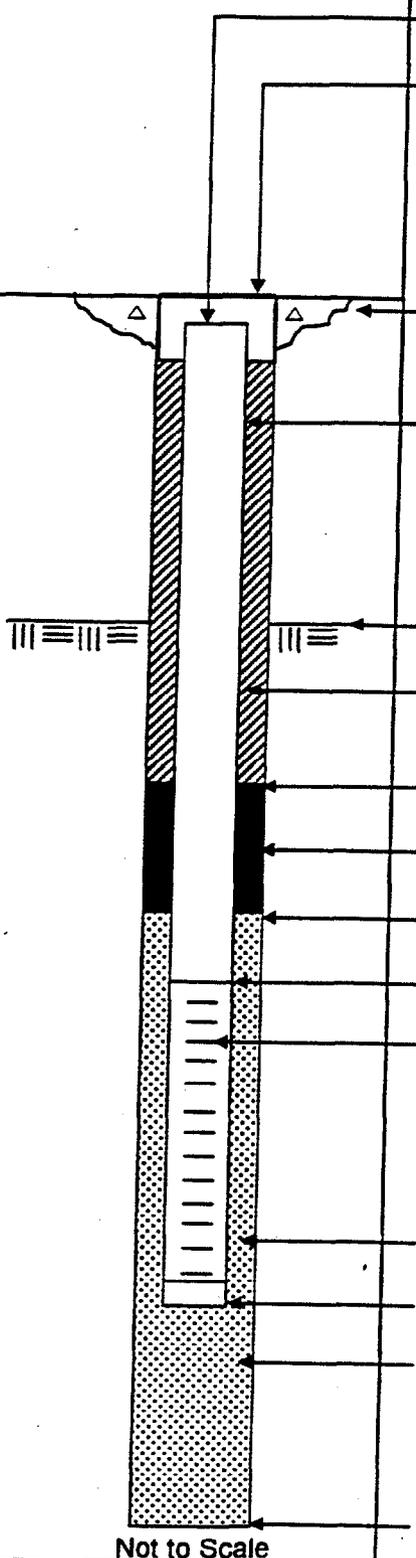
Elevation / Depth of Top of Riser: 1  
 Elevation / Height of Top of Surface Casing: 1  
 I.D. of Surface Casing: 12"  
 Type of Surface Casing: concrete/steel  
 Type of Surface Seal: concrete/  
 I.D. of Riser: 2"  
 Type of Riser: 2" sch 40 PVC  
 Borehole Diameter: 8.25"  
 Elevation / Depth Top of Rock: 1' 15.5"  
 Type of Backfill: 20/30 sand  
1 bag bentonite on top of 30/65 sand seal  
 Elevation / Depth of Seal: 15' 15"  
 Type of Seal: 30/65 sand  
 Elevation / Depth of Top of Filter Pack: 18' 0"  
 Elevation / Depth of Top of Screen: 20' 10"  
 Type of Screen: 2" sch 40 PVC  
 Slot Size x Length: 10 slot x 5"  
 I.D. of Screen: 2"  
 Type of Filter Pack: 20-30 sand  
 Elevation / Depth of Bottom of Screen: 25' 10"  
 Elevation / Depth of Bottom of Filter Pack: 25' 6"  
 Type of Backfill Below Well: 20/30 sand  
 Elevation / Total Depth of Borehole: 25' 6"



MONITORING WELL SHEET

PROJECT: Poinciana Housing SSE DRILLING Co.: Precision Drilling BORING No.: 3  
 PROJECT No.: N7593 DRILLER: Mike Czajkowski DATE COMPLETED: 4/26/99  
 SITE: Poinciana Housing DRILLING METHOD: HSA NORTHING: \_\_\_\_\_  
 GEOLOGIST: \_\_\_\_\_ DEV. METHOD: peristaltic pump EASTING: \_\_\_\_\_

Ground Elevation =  
Datum:



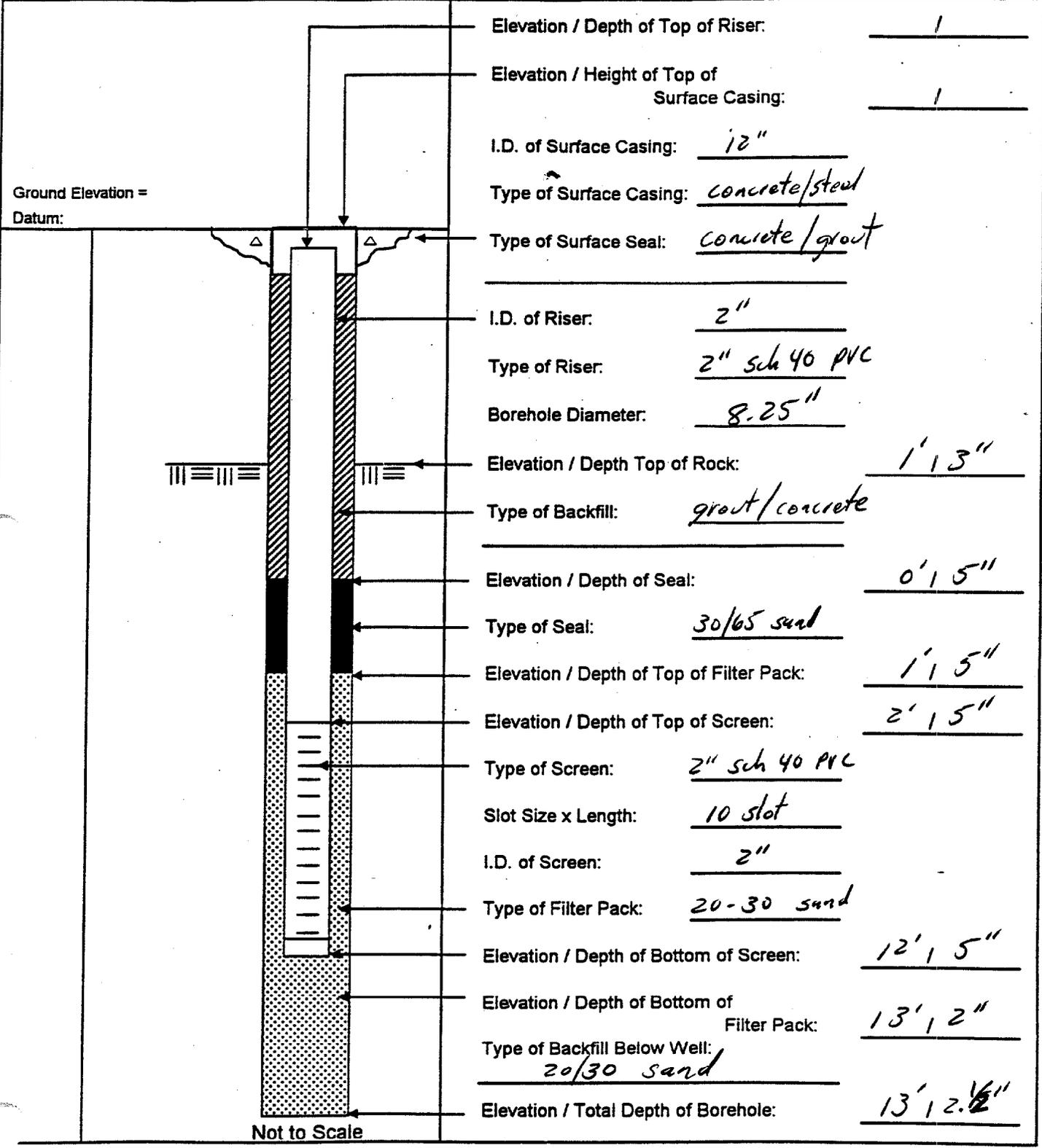
Not to Scale

Elevation / Depth of Top of Riser: 1  
 Elevation / Height of Top of Surface Casing: 1  
 I.D. of Surface Casing: 12"  
 Type of Surface Casing: concrete/steel  
 Type of Surface Seal: concrete  
 I.D. of Riser: 2"  
 Type of Riser: 2" sch 40 PVC  
 Borehole Diameter: 8.25"  
 Elevation / Depth Top of Rock: 18"  
 Type of Backfill: 30/60 sand to surface will dig out for flushmount  
 Elevation / Depth of Seal: 1'10"  
 Type of Seal: 30/65 sand  
 Elevation / Depth of Top of Filter Pack: 2'10"  
 Elevation / Depth of Top of Screen: 2'18"  
 Type of Screen: 2" sch 40 PVC  
 Slot Size x Length: 10 slot  
 I.D. of Screen: 2"  
 Type of Filter Pack: 20-30 sand  
 Elevation / Depth of Bottom of Screen: 12'8"  
 Elevation / Depth of Bottom of Filter Pack: 13'16"  
 Type of Backfill Below Well: 20/30 sand  
 Elevation / Total Depth of Borehole: 13'6"



MONITORING WELL SHEET

PROJECT: Poinciana Housing SSZ DRILLING Co.: Precision Drilling BORING No.: 4  
 PROJECT No.: N7593 DRILLER: Mike Czajkowski DATE COMPLETED: 4/26/99  
 SITE: Poinciana Housing DRILLING METHOD: HSA NORTHING: \_\_\_\_\_  
 GEOLOGIST: \_\_\_\_\_ DEV. METHOD: peristaltic pump EASTING: \_\_\_\_\_

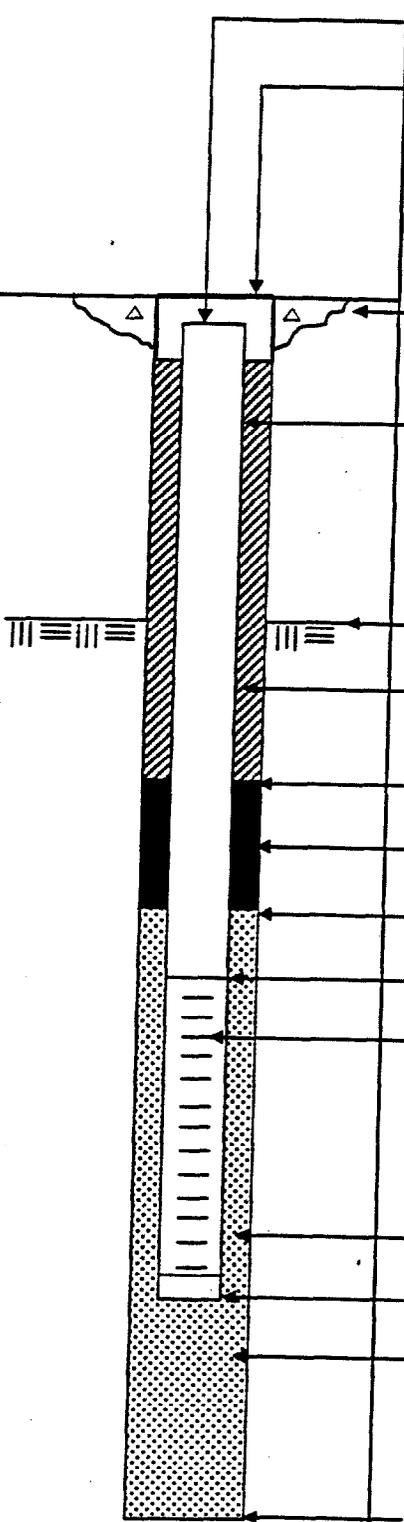




MONITORING WELL SHEET

PROJECT: Poinciana Housing 6SE DRILLING Co.: Precision Drilling BORING No.: 5  
 PROJECT No.: N7593 DRILLER: Mike Czajkowski DATE COMPLETED: 4/26/99  
 SITE: Poinciana Housing DRILLING METHOD: HSA NORTHING: \_\_\_\_\_  
 GEOLOGIST: \_\_\_\_\_ DEV. METHOD: peristaltic pump EASTING: \_\_\_\_\_

Ground Elevation =  
Datum:



Not to Scale

Elevation / Depth of Top of Riser: 1  
 Elevation / Height of Top of Surface Casing: 1  
 I.D. of Surface Casing: 12"  
 Type of Surface Casing: concrete/steel  
 Type of Surface Seal: concrete  
 I.D. of Riser: 2"  
 Type of Riser: 2" sch 40 PVC  
 Borehole Diameter: 8.25"  
 Elevation / Depth Top of Rock: 0' 1 7/8"  
 Type of Backfill: grout/concrete  
 Elevation / Depth of Seal: 0' 1 6 1/4"  
 Type of Seal: 30/65 sand  
 Elevation / Depth of Top of Filter Pack: 1' 1 5 3/4"  
 Elevation / Depth of Top of Screen: 2' 1 6"  
 Type of Screen: 2" sch 40 PVC  
 Slot Size x Length: 10 slot  
 I.D. of Screen: 2"  
 Type of Filter Pack: 20-30 sand  
 Elevation / Depth of Bottom of Screen: 12' 1 7"  
 Elevation / Depth of Bottom of Filter Pack: 13' 1 3"  
 Type of Backfill Below Well: 20/30 sand  
 Elevation / Total Depth of Borehole: 13' 1 3"

**TETRA TECH NUS, INC.**  
**FIELD TASK MODIFICATION REQUEST FORM**

SouthDiv CTO 0032 SSI-1

Client Identification Project Number TMR Number

To D.Patrick Location Poinciana Housing Date 4/26/99

**Description**

During Split-spoon sampling at the location of GRYZNG-MW-02 the blow counts for 18 to 24 inches was 78, this meets refusal requirements. We will not be able to conduct soil sampling utilizing split-spoon techniques.

**Reason for Change**

The formation is too hard to effectively conduct split-spoon sampling.

**Recommended Disposition**

Soil samples will be collected directly from the auger, by pulling the auger straight out of the bore-hole without turning the auger so accurate depths can be identified. Using a stainless steel spoon the smear portion of the soil on the auger will be removed, and the soil beneath will be collected directly from the auger at the location of the desired depth.

Marty Ray 4/26/99  
Field Operations Leader( Signature, if applicable) Date

**Disposition**

Collected soil samples ZNG-SS-02 through ZNG-SS-20 using the method described above. ZNG-SS-01 was collected utilizing Split-spoon collection methods.

\_\_\_\_\_  
Task Order Manager (Signature, if required) Date

Distribution: Other distribution required  
Program Manager  
Quality Assurance Officer:  
Task Order Manager:  
Field Operations Leader

# Tetra Tech NUS Inc.

900 Trail Ridge Road

Aiken, SC 29803

(803) 649-7963

Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name GRY2NG-SS-19 Project: NAS Key West IRA Confirmation Project Number: 7593

Zone: \_\_\_\_\_ Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>7-8-99</u>
Sample Time:	<u>0925</u>
Sample Depth (ft)	<u>0' - <del>0.25</del> 0.5</u>
FID Reading:	
Sample Color:	<u>very dark almost black</u>
Sample Description:	<u>fine to medium sand with some organics</u>

Sample Method:

DPT

Hand Auger

HSA

Type of Sample

Low Concentration

High Concentration

Grab

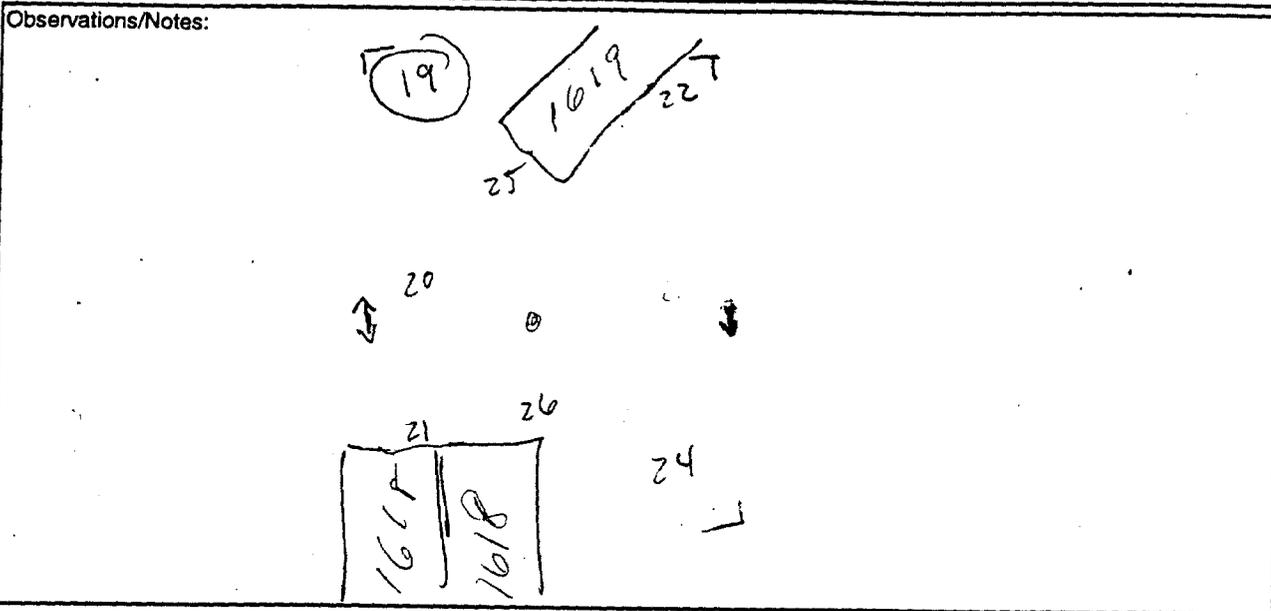
Composite

Grab-Composite

Duplicate ID:

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:



**ANALYSES:**

**Arsenic**  **ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By Marty Ray Signature(s): Marty Ray

**Tetra Tech NUS Inc.**

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**SURFACE SOIL SAMPLE LOG SHEET**

Sample Name BRYEN6-S5-20 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: \_\_\_\_\_

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>7-8-99</u>
Sample Time:	<u>0930</u>
Sample Depth (ft)	<u>0 TO <del>0.5</del> 0.5</u>
FID Reading:	
Sample Color:	<u>To 2" dark almost black below 2" light grey</u>
Sample Description:	<u>Fine to medium sand with some small gravel &amp; organics</u>

**Sample Method:**

DPT

Hand Auger

HSA

**Type of Sample**

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

**Duplicate ID:**

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

Aseptic   ANALYSES:

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By MR Signature(s): [Signature]

# Tetra Tech NUS Inc.

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## SURFACE SOIL SAMPLE LOG SHEET

Sample Name GRY2NG-SS-21 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: \_\_\_\_\_

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>9-8-99</u>
Sample Time:	<u>0940</u>
Sample Depth (ft)	<u>0 to <del>0.5</del> 0.5</u>
FID Reading:	
Sample Color:	<u>Top 2" - very dark almost blk below 2" - hard white (limestone)</u>
Sample Description:	<u>Fine to medium sand with some small gravel and organics.</u>

Sample Method:

DPT

Hand Auger

HSA

Type of Sample

Low Concentration

High Concentratio

Grab

Composite

Grab-Composite

Duplicate ID:

GRY2NG-D1

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

Arsenic   ANALYSES:

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By MR Signature(s): [Signature]

**Tetra Tech NUS Inc.**

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Aiken, SC 29803

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**SURFACE SOIL SAMPLE LOG SHEET**

Sample Name GRY2NG-SS-22 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: \_\_\_\_\_

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>6-8-99</u>
Sample Time:	<u>0950</u>
Sample Depth (ft)	<u>0 to <del>0.25</del> 0.5</u>
FID Reading:	
Sample Color:	<u>Top 3" dark to black below 3" hard white</u>
Sample Description:	<u>Finesand with gravel &amp; some organics</u>

**Sample Method:**

DPT

Hand Auger

HSA

**Type of Sample**

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

**Duplicate ID:**

\_\_\_\_\_

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

\_\_\_\_\_

Observations/Notes:

\_\_\_\_\_

Arsenic   ANALYSES:

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By MR

Signature(s): Mat Ray

# Tetra Tech NUS Inc.

900 Trail Ridge Road

Aiken, SC 29803

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## SURFACE SOIL SAMPLE LOG SHEET

Sample Name GRY2NG-SS-23 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: \_\_\_\_\_

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>6-8-99</u>
Sample Time:	<u>10:00</u>
Sample Depth (ft)	<u>0 to <del>0.75</del> 0.5</u>
FID Reading:	
Sample Color:	<u>top 3" very dark below 3" hard &amp; white</u>
Sample Description:	<u>fine sand with some organics</u>

**Sample Method:**

DPT

Hand Auger

HSA

**Type of Sample**

Low Concentration

High Concentratio

Grab

Composite

Grab-Composite

**Duplicate ID:**

no

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

Arsenic   ANALYSES:

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By MR

Signature(s): Mart Kay

# Tetra Tech NUS Inc.

900 Trail Ridge Road

Aiken, SC 29803

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## SURFACE SOIL SAMPLE LOG SHEET

Sample Name GRY2N6-SS-2f Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: \_\_\_\_\_

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>6-8-99</u>
Sample Time:	<u>10:10</u>
Sample Depth (ft)	<u>0 to <del>0.75</del> 0.5</u>
FID Reading:	
Sample Color:	<u>Top 3" very dark below 3" light</u>
Sample Description:	<u>Fine to medium sand with some organics and small gravel.</u>

Sample Method:

DPT

Hand Auger

HSA

Type of Sample

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID: \_\_\_\_\_

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

Arsenic  ANALYSES:

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By MR

Signature(s): Marty

# Tetra Tech NUS Inc.

900 Trail Ridge Road

Aiken, SC 29803

(803) 649-7963

Fax: (803) 642-8454

## SURFACE SOIL SAMPLE LOG SHEET

Sample Name GRY2NG-SS-25 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: \_\_\_\_\_

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>6-8-99</u>
Sample Time:	<u>10:15</u>
Sample Depth (ft)	<u>0 to 0.25</u>
FID Reading:	
Sample Color:	<u>dark</u>
Sample Description:	<u>fine sand with some organics</u>

Sample Method:

DPT

Hand Auger

HSA

Type of Sample

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

Duplicate ID: \_\_\_\_\_

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

\_\_\_\_\_

Observations/Notes:

\_\_\_\_\_

Arsenic  ANALYSES:

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By MR Signature(s): Marty Ray

**Tetra Tech NUS Inc.**

900 Trail Ridge Road

Aiken, SC 29803

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**SURFACE SOIL SAMPLE LOG SHEET**

Sample Name GRYZNG-SS-26 Project: NAS Key West IRA Confirmation

Project Number: 7593

Zone: \_\_\_\_\_

Subzone: \_\_\_\_\_

Airbill No: \_\_\_\_\_ Laboratory Accutest

Sample Date	<u>6-8-99</u>
Sample Time:	<u>10:22</u>
Sample Depth (ft)	<u>0 to <del>0.25</del> 0.5</u>
FID Reading:	
Sample Color:	<u>dark almost black</u>
Sample Description:	<u>fine sand with some small gravel</u>

**Sample Method:**

DPT

Hand Auger

HSA

**Type of Sample**

Low Concentration

High Concentration

Grab

Composite

Grab-Composite

**Duplicate ID:**

MS/MSD YES  NO

If Sample Location was Changed from that Designated in the Workplan, The Rationale is Provided Here, along with a Description of the New Location:

Observations/Notes:

Arsenic   **ANALYSES:**

TCL VOCs (HCL Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL SVOCs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PESTs: YES  NO  Bottle Lot Number: \_\_\_\_\_

TCL PCBs: YES  NO  Bottle Lot Number: \_\_\_\_\_

AL Metals + Tin (HNO3 Preservative): YES  NO  Bottle Lot Number: \_\_\_\_\_

Sampled By MR

Signature(s): Martha

**APPENDIX C**

**POINCIANA HOUSING SUPPLEMENTAL SITE INSPECTION ELECTRONIC DATA SET**

FILE_NAME	NSAMPLE	CLIENT_ID	SAMPLE	LABORATORY	BATCH_NO	ASSOC	BLNK	QC_TYPE	EXTN_DA	ANAL_DA	RUN_NUMBER	SOS	PARA_OLD	PARA	CAS_NO	FRACTO	SORT	METHOD	LAB_RES	VAL_RES	RESULT	LA	VA	QUINTE	QUAL_CODE	IDL	MCL	CRDL	CRCL	DIL_FACTOR	PCT_MDSH	COMMENTS	COLLECT	MEDIA	VALEREF	CNT
E1102_RES	ZNG-AMV-Q2	ZNG-AMV-Q2	PADT1-1	Accutest, NJ	0.00000	MP1702	MB1	NM	5/3/99	5/3/99	1.00000	PADT1	Arsenic	ARSENIC	7440-38-2	M	AS	59846-6010A	203.00000	203.00000	203.00000	U	U	U	A	2.70000	5.00000	5.00000	1.00000	0.00000		427799	WATER DATA	L	Y	0.00000
E1102_RES	ZNG-AMV-Q2	ZNG-AMV-Q2	PADT1-2	Accutest, NJ	0.00000	MP1702	MB1	NM	5/3/99	5/3/99	1.00000	PADT1	Arsenic	ARSENIC	7440-38-2	M	AS	59846-6010A	9.50000	9.50000	9.50000	U	U	U	A	2.70000	5.00000	5.00000	1.00000	0.00000		427799	WATER DATA	L	Y	0.00000
E1102_RES	ZNG-AMV-Q2	ZNG-AMV-Q2	PADT1-3	Accutest, NJ	0.00000	MP1702	MB1	NM	5/3/99	5/3/99	1.00000	PADT1	Arsenic	ARSENIC	7440-38-2	M	AS	59846-6010A	2.70000	9.90000	9.90000	U	U	U	A	2.70000	5.00000	5.00000	1.00000	0.00000		427799	WATER DATA	L	Y	0.00000
E1102_RES	ZNG-AMV-Q4	ZNG-AMV-Q4	PADT1-4	Accutest, NJ	0.00000	MP1702	MB1	NM	5/3/99	5/3/99	1.00000	PADT1	Arsenic	ARSENIC	7440-38-2	M	AS	59846-6010A	3.70000	3.70000	3.70000	B	U	U	A	2.70000	5.00000	5.00000	1.00000	0.00000		427799	WATER DATA	L	Y	0.00000
E1102_RES	ZNG-AMV-Q2	ZNG-AMV-Q2	PADT1-5	Accutest, NJ	0.00000	MP1702	MB1	NM	5/3/99	5/3/99	1.00000	PADT1	Arsenic	ARSENIC	7440-38-2	M	AS	59846-6010A	4.90000	4.90000	4.90000	B	U	U	A	2.70000	5.00000	5.00000	1.00000	0.00000		427799	WATER DATA	L	Y	0.00000

FILE_NAME	NSAMPLE	CLIENT_ID	SAMPLE	LABORATORY	BATCH_NO	ASSOC_BLNK	QC_TYPE	EXTR_DATE	ANAL_DATE	RUN_NUMBER	SDG	PARA_OLD	PARA	CAS_NO	FRACTION	SORT	METHOD	LAB_RES	VAL_RES	RESULT	LAB_QUAL	VAL_QUAL	QUAL	UNITS	QUAL_CODE	IDL	MDL	CRDL_CRQL	DIL_FACTOR	PCT_MOIST	COMMENTS	COLLECTED	MEDIA	VALIDATED	REVIEWED	CNT
E11032_RES	ZNG-SS-01	ZNG-SS-01	F4060-1	Accutest, NJ	0.00000	MP1784-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	7.00000	7.00000	7.00000				MG/KG		0.32000	1.20000	1.20000	1.00000	15.70000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-09	ZNG-SS-09	F4060-10	Accutest, NJ	0.00000	MP1785-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.49000	0.49000	0.49000	B		U	MG/KG	A	0.32000	1.20000	1.20000	1.00000	14.50000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-10	ZNG-SS-10	F4060-11	Accutest, NJ	0.00000	MP1785-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.32000	0.32000	0.32000	U		U	MG/KG		0.32000	1.20000	1.20000	1.00000	15.80000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-11	ZNG-SS-11	F4060-12	Accutest, NJ	0.00000	MP1785-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.47000	0.47000	0.47000	B		U	MG/KG	A	0.31000	1.20000	1.20000	1.00000	13.80000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-12	ZNG-SS-12	F4060-13	Accutest, NJ	0.00000	MP1785-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.48000	0.48000	0.48000	B		U	MG/KG	A	0.32000	1.20000	1.20000	1.00000	16.50000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-13	ZNG-SS-13	F4060-14	Accutest, NJ	0.00000	MP1785-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	1.50000	1.50000	1.50000			U	MG/KG	A	0.32000	1.20000	1.20000	1.00000	14.50000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-14	ZNG-SS-14	F4060-15	Accutest, NJ	0.00000	MP1785-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	1.30000	1.30000	1.30000	B		U	MG/KG	A	0.34000	1.30000	1.30000	1.00000	20.10000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-15	ZNG-SS-15	F4060-16	Accutest, NJ	0.00000	MP1785-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.31000	0.31000	0.31000	U		U	MG/KG		0.31000	1.20000	1.20000	1.00000	13.40000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-16	ZNG-SS-16	F4060-17	Accutest, NJ	0.00000	MP1785-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	2.70000	2.70000	2.70000			U	MG/KG	A	0.33000	1.20000	1.20000	1.00000	18.70000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-17	ZNG-SS-17	F4060-18	Accutest, NJ	0.00000	MP1785-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	2.30000	2.30000	2.30000			U	MG/KG	A	0.32000	1.20000	1.20000	1.00000	15.00000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-18	ZNG-SS-18	F4060-19	Accutest, NJ	0.00000	MP1786-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.92000	0.92000	0.92000	B		U	MG/KG	A	0.33000	1.20000	1.20000	1.00000	19.10000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-02	ZNG-SS-02	F4060-2	Accutest, NJ	0.00000	MP1784-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	2.50000	2.50000	2.50000			U	MG/KG	A	0.34000	1.20000	1.20000	1.00000	19.80000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-19	ZNG-SS-19	F4060-20	Accutest, NJ	0.00000	MP1786-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	1.10000	1.10000	1.10000	B		U	MG/KG	A	0.31000	1.20000	1.20000	1.00000	13.80000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-20	ZNG-SS-20	F4060-21	Accutest, NJ	0.00000	MP1786-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	4.00000	4.00000	4.00000				MG/KG		0.33000	1.20000	1.20000	1.00000	17.10000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-14-D	ZNG-SS-D2	F4060-22	Accutest, NJ	0.00000	MP1786-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.89000	0.89000	0.89000	B		U	MG/KG	A	0.34000	1.30000	1.30000	1.00000	21.20000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-19-D	ZNG-SS-D3	F4060-23	Accutest, NJ	0.00000	MP1786-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	1.20000	1.20000	1.20000			U	MG/KG	A	0.31000	1.20000	1.20000	1.00000	13.90000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-03	ZNG-SS-03	F4060-3	Accutest, NJ	0.00000	MP1784-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.56000	0.56000	0.56000	B		U	MG/KG	A	0.31000	1.20000	1.20000	1.00000	13.90000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-04	ZNG-SS-04	F4060-4	Accutest, NJ	0.00000	MP1784-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	1.20000	1.20000	1.20000	B		U	MG/KG	A	0.35000	1.30000	1.30000	1.00000	22.20000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-05	ZNG-SS-05	F4060-5	Accutest, NJ	0.00000	MP1784-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.38000	0.38000	0.38000	B		U	MG/KG	A	0.31000	1.20000	1.20000	1.00000	13.70000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-06	ZNG-SS-06	F4060-6	Accutest, NJ	0.00000	MP1784-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.53000	0.53000	0.53000	B		U	MG/KG	A	0.32000	1.20000	1.20000	1.00000	16.20000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-07	ZNG-SS-07	F4060-7	Accutest, NJ	0.00000	MP1784-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.65000	0.65000	0.65000	B		U	MG/KG	A	0.33000	1.20000	1.20000	1.00000	17.60000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-08	ZNG-SS-08	F4060-8	Accutest, NJ	0.00000	MP1784-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	0.32000	0.32000	0.32000	U		U	MG/KG		0.32000	1.20000	1.20000	1.00000	16.80000	4/26/99	SOIL DATA	L	Y	0.00000		
E11032_RES	ZNG-SS-04-D	ZNG-SS-D1	F4060-9	Accutest, NJ	0.00000	MP1784-MB1	NM	4/29/99	4/29/99	1.00000	F4060	Arsenic	ARSENIC 7440-38-2	M	AS	SW846 6010A	1.10000	1.10000	1.10000	B		U	MG/KG	A	0.35000	1.30000	1.30000	1.00000	22.90000	4/26/99	SOIL DATA	L	Y	0.00000		

## Surface Soil Sample Results

sample	para	fraction	result	val_qual	units	idl	mdl	crdl_crql	samp_date	media	validated	reviewed	cnt
GRYZNG-SS-19	ARSENIC	M	0.84		MG/KG		0.46	1.3	1.3 08-Jun-99	SOIL DATA	L	Y	0
GRYZNG-SS-20	ARSENIC	M	0.54		MG/KG		0.48	1.4	1.4 08-Jun-99	SOIL DATA	L	Y	0
GRYZNG-SS-21AVG	ARSENIC	M	0.73		MG/KG								
GRYZNG-SS-22	ARSENIC	M	0.49		MG/KG		0.48	1.4	1.4 08-Jun-99	SOIL DATA	L	Y	0
GRYZNG-SS-23	ARSENIC	M	0.50		MG/KG		0.44	1.3	1.3 08-Jun-99	SOIL DATA	L	Y	0
GRYZNG-SS-24	ARSENIC	M	0.64		MG/KG		0.54	1.6	1.6 08-Jun-99	SOIL DATA	L	Y	0
GRYZNG-SS-25	ARSENIC	M	0.44	U	MG/KG		0.44	1.3	1.3 08-Jun-99	SOIL DATA	L	Y	0
GRYZNG-SS-26	ARSENIC	M	0.64		MG/KG		0.43	1.3	1.3 08-Jun-99	SOIL DATA	L	Y	0