CATLIN
Engineers and Scientists

Post Office Box 10279
Wilmington, North Carolina 28404-0279

Telephone: (910) 452-5861
Fax: (910) 452-7563

www.catlinusa.com

October 16, 2009

NAVFAC Mid-Atlantic
Marine Corps North Carolina IPT
Environmental Business Line
Attn: Mr. David Borton, P.G.
6506 Hampton Boulevard
Building C, Room 314
Norfolk, VA 23508-1278

Re: **Site AS-843 – Excavation Activities**
Marine Corps Base, Camp Lejeune, North Carolina
Navy Contract No. N62470-05-D-6200
Delivery Order No. 0070
CATLIN Project No. 209-025

Dear Mr. Borton:

CATLIN Engineers and Scientists (CATLIN) has conducted a small contaminated soil excavation adjacent to an Aboveground Storage Tank (AST) at the Building AS-843 site aboard Marine Corps Air Station (MCAS) New River (See Figures 1 and 2). The excavation was conducted between the AST and parking lot area, following which confirmation soil samples were also collected from the base of the excavation area. These tasks were completed per a July 7, 2009 e-mail inquiry about a potential release from the AST by Mr. Bruce Reed of the North Carolina Department of Environment and Natural Resources (NCDENR). Please find below a brief history, summary of the excavation and sampling activities, analytical results and CATLIN's recommendations.

Site Information and History

After review of the recently submitted Annual Monitoring Report (AMR) for the UST portion of Site AS-843, Mr. Bruce Reed of the NCDENR inquired about a potential release from a 550 gallon AST at the subject site. This information was obtained from the October 19, 2005 AMR produced by Engineering and Environment, Inc. (EEI). In this report the following was stated: "The August 1999 investigation also identified an area of distressed vegetation and petroleum-stained soil and concrete located approximately 15 feet north of well MW-3 and adjacent to an AST. It was considered likely that the staining was associated with possible overfilling of the AST during refueling events. A surface soil sample subsequently collected from the affected area (sample depth of 0 to 1 foot bgs) indicated C9-C22 Aromatics were present above the Soil-to-Groundwater Maximum Soil Contaminant Concentration (MSCC) but below the

Industrial/Commercial MSCC considered applicable to the site. A soil sample collected directly beneath the surface sample (collection depth of 1-to-2 feet bgs) did not exhibit detectable concentrations of any analyte. It was concluded that the stained soils in this area did not appear to be affecting groundwater quality at the site (Mactec, 2003)."

To address the NCDENR's concerns, CATLIN was tasked to conduct excavation of soil adjacent to the AST and collect a confirmation soil sample.

Excavation and Soil Sampling

On September 2, 2009 CATLIN personnel arrived on-site to conduct an excavation of the soil adjacent to the AST. An area of approximately one foot by seven feet by one foot deep was dug by hand with a shovel. Approximately 0.26 cubic yards of soil was excavated. The excavated soil was loaded into buckets and then transported to UST Site AS-4147 and added to drums containing petroleum-contaminated soil. These drums are scheduled to be removed from the air station and disposed at a state-approved disposal facility. After the soil was excavated to approximately one foot Below Land Surface (BLS) and there was no evidence of gross contamination, the soil sample ASTAS843-SB01(1') was collected. The excavation was then backfilled with clean fill material to grade. The soil sample was packed into pre-labeled glassware and placed in a cooler with ice for transport to SGS Laboratories in Wilmington, North Carolina for analysis per Diesel Range Organics (DRO) and Gasoline Range Organics (GRO).

Analytical results revealed that GRO was not detected at concentrations above the quantitation limits. However, DRO was detected at a concentration of 93 mg/kg which was above the NCDENR action level of 40 mg/kg (The complete laboratory report and Chain of Custody (COC) documentation is included in Attachment A). Therefore, CATLIN was tasked with conducting additional excavation activities and the collection of an additional soil sample.

On October 5, 2009 CATLIN personnel re-mobilized to the site to conduct an additional excavation of the soil adjacent to the AST. The clean fill used to backfill the September 2009 excavation was removed and stockpiled on-site (area of approximately one foot by seven foot by one foot deep). CATLIN personnel then conducted additional excavation activities with a shovel. An area of approximately one foot by seven feet by 2.5 feet deep was dug by hand. The excavated soil was loaded into a 55-gallon drum which will be disposed at a state-approved disposal facility. After the soil was excavated to approximately 2.5 feet BLS and there was no evidence of contamination, the soil sample ASTAS843-SB02(2.5') was collected. The excavation was then backfilled with the existing stock-piled and new clean fill material to grade. The soil sample was packed into pre-labeled glassware and placed in a cooler with ice for transport to SGS Laboratories in Wilmington, North Carolina for analysis per DRO and GRO. Analytical results from this second confirmation soil sample revealed again that GRO was not

detected at concentrations above the quantitation limits. Diesel Range Organics were detected at an estimated concentration of 2.25 mg/kg which was well below the NCDENR action level of 40 mg/kg. Again, the complete laboratory report and COC documentation is included in Attachment A.

Recommendations

The second confirmation soil sample collected from the base of the excavation (approximately 2.5 feet BLS) revealed only minor concentrations of DRO, well below the NCDENR action level. Therefore, CATLIN recommendations that the site be considered for "No Further Action" (NFA) because it appears soil contamination does not exist in this area above the NCDENR action levels.

CATLIN Engineers and Scientists appreciate the opportunity to continue to provide services to NAVFAC Mid-Atlantic and the MCB on your environmental projects.

Sincerely,

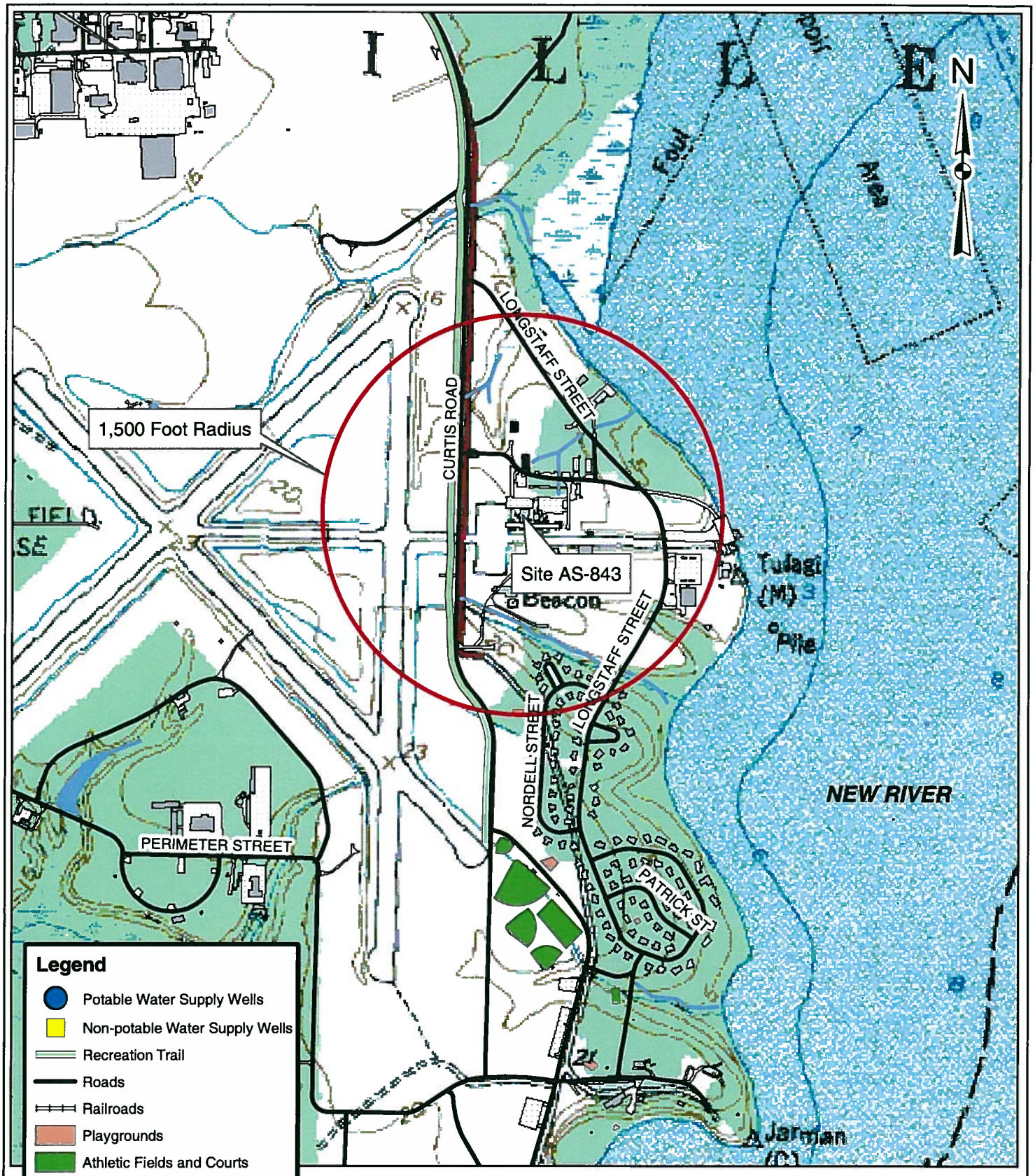
Shane A. Chasteen
Project Manager

Michael E. Mason, P.E.
Program Manager

cc: Ms. Susan Tsimpinos - NAVFAC Mid-Atlantic Contracts (letter only)
Commanding Officer - Attn: Director I&E/EMD/EQB (with two copies)

209025_AS843_Excav_LtrRpt.doc

FIGURES

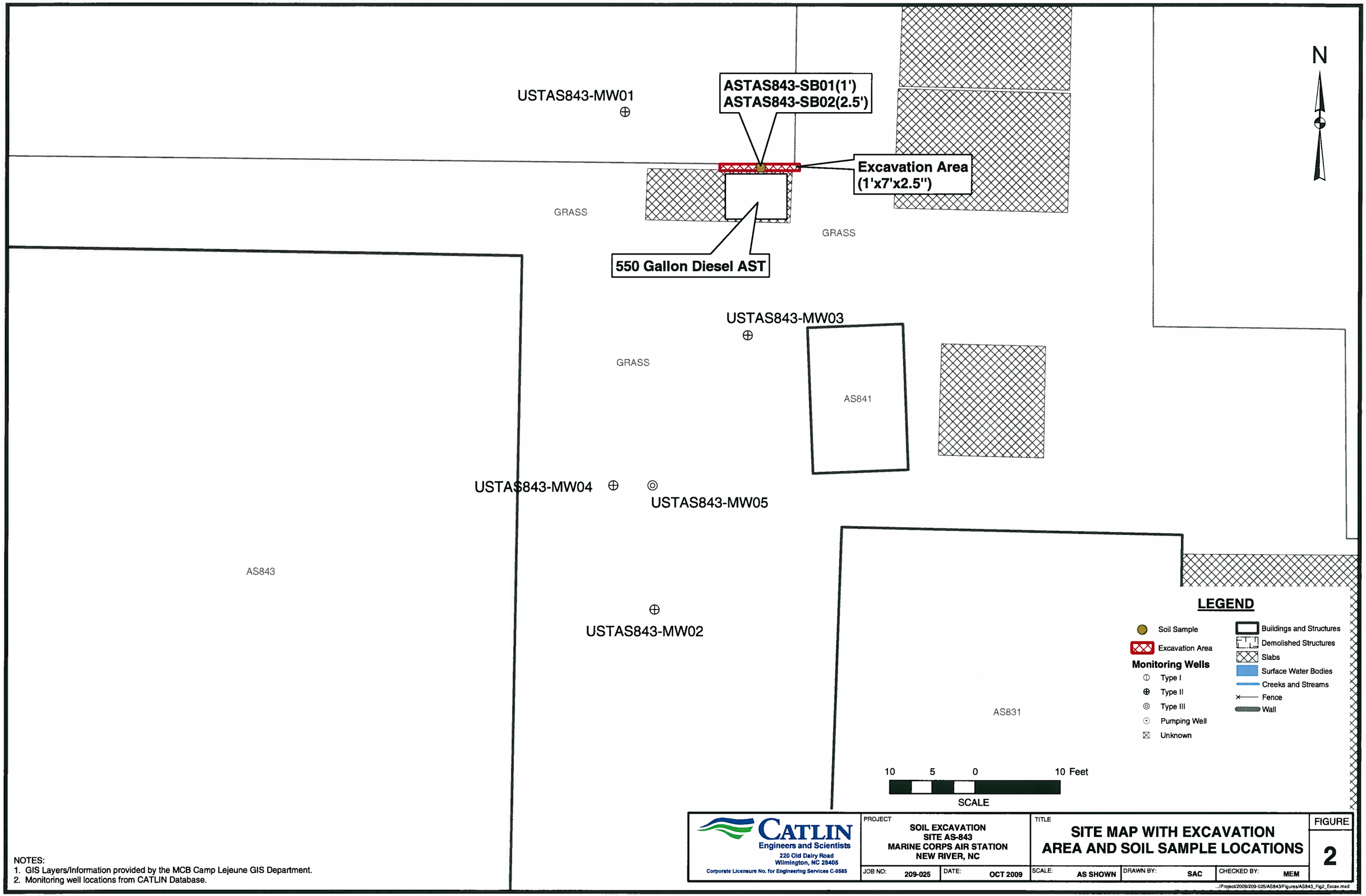


Data Sources: Data Layers provided by MCB Camp Lejeune GIS Office.

CATLIN
Engineers and Scientists
220 Old Dairy Road
Wilmington, NC 28405
Corporate Licensure No. for Engineering Services C-0585

PROJECT	TITLE	FIGURE
SOIL EXCAVATION SITE AS-843 MARINE CORPS AIR STATION NEW RIVER, NC	SITE LOCATION MAP	1

JOB NO.	DATE	SCALE	DRAWN BY	CHECKED BY
209-025	OCT 2009	AS SHOWN	SAC	MEM



NOTES:
1. GIS Layers/Information provided by the MCB Camp Lejeune GIS Department.
2. Monitoring well locations from CATLIN Database.

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PROJECT
SOIL EXCAVATION
SITE AS-843
MARINE CORPS AIR STATION
NEW RIVER, NC

TITLE
SITE MAP WITH EXCAVATION AREA AND SOIL SAMPLE LOCATIONS

FIGURE
2

JOB NO:	DATE:	SCALE:	DRAWN BY:	CHECKED BY:
209-025	OCT 2009	AS SHOWN	SAC	MEM

.../Project/2009/209-025/AS843/Figures/AS843_Fig2_Excav.mxd

ATTACHMENT A

LABORATORY ANALYTICAL REPORTS AND CHAIN OF CUSTODY DOCUMENTATION

SGS

Shane Chasteen
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

Report Number: G128-2437

Client Project: Soil Excavation Around AST, Bldg. AS-843

Dear Shane Chasteen,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Barbara Hager at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America, Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America, Inc.

Barbara Hager Sept 9.2009

Project Manager
Barbara Hager

Date

List of Reporting Abbreviations
And Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantification Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL/CL = Reporting Limit / Control Limit

RPD = Relative Percent Difference

UJ = Target analytes with recoveries that are 10% < %R < LCL; # of MEs are allowable and compounds are not detected in the sample.

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% soilds = Percent Solids

Special Notes:
1) Metals and mercury samples are digested with a hot block; see the standard operating procedure document for details.
2) Uncertainty for all reported data is less than or equal to 30 percent.

Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

Client Sample ID:	ASTAS843-SB01(1')	Analyzed By:	DVO
Client Project ID:	Soil Excavation Around AST, Bldg. AS-843	Date Collected:	9/2/2009 11:00
Lab Sample ID:	G128-2437-1B	Date Received:	9/2/2009
Lab Project ID:	G128-2437	Matrix:	Soil
Report Basis:	Dry Weight	Solids	84.41

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.47	mg/Kg	1	09/03/09 15:23

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	94.5	94.5		70-130

Comments:

Batch Information

Analytical Batch:	VP090309	Prep Method:	5030
Analytical Method:	8015	Initial Wt/Vol:	5.49 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	DVO		

Analyst: DVO

NC Certification #481

Reviewed By: GRO

Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

Client Sample ID:	ASTAS843-SB01(1')	Date Collected:	9/2/2009 11:00
Client Project ID:	Soil Excavation Around AST, Bldg. AS-843	Date Received:	9/2/2009
Lab Sample ID:	G128-2437-1C	Matrix:	Soil
Lab Project ID:	G128-2437	Solids	84.41
		Report Basis:	Dry Weight

Parameter	Result	RL	MDL	Units	Dilution Factor	Date Analyzed
Diesel Range Organics	**93.0**	6.84	1.33	mg/Kg	1	09/09/09 09:55

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	34.3	85.6

Comments:

J= Estimated value between MDL and RL

Batch Information

Analytical Batch:	EP090909	Prep batch:	15064
Analytical Method:	8015	Prep Method:	3541
Instrument:	GC6	Prep Date:	09/08/09
Analyst:	BWS	Initial Prep Wt/Vol:	34.64 G
		Prep Final Vol:	10 mL

Analyst: BWS

NC Certification #481

Reviewed By: DRO XLS

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Locations Nationwide
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- Maryland
- New Jersey
- New York
- North Carolina
- Ohio

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098982

(1)

CLIENT: CATLIN

CONTACT: Shane Chesteen PHONE NO:(910) 452-5861

PROJECT: Soil Excavation around AST, Bldg. AS-843 SITE/PWSID#:

REPORTS TO: Shane @ Catlin FAX NO.:(910) 452-7563

INVOICE TO: Sheila @ Catlin QUOTE #: DOD101

P.O. NUMBER: 290902-1

SGS Reference: G128-2437

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used: 1	Analysis Required (3): GRO / DRO (3550/5030)	REMARKS
	AST AS 843-SB01(1')	9-2-09	11:00	Soil	2	G	✓		- Lajeune and Summary EDD Format - Please report lowest runs

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Tom Stutts	9-2-09	14:17	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature°C: 5.8°C

Special Deliverable Requirements:

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed ☒ STD

❑ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
❑ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

SGS

Shane Chasteen
Richard Catlin & Associates
P.O. Box 10279
Wilmington, NC 28404-0279

Report Number: G128-2444

Client Project: Additonal Soil Excavation AST, Blg AS-843

Dear Shane Chasteen,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Barbara Hager at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America, Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America, Inc.

Project Manager
Barbara Hager

30 October 2009
Date

Environmental Division 5500 Business Dr., Wilmington, NC 28405 t (910) 350-1903 f (910) 350-1557 www.us.sgs.com

List of Reporting Abbreviations
And Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantification Limit (RL or MDL)

DF = Dilution Factor

Dup = Duplicate

D = Detected, but RPD is > 40% between results in dual column method.

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL/CL = Reporting Limit / Control Limit

RPD = Relative Percent Difference

UJ = Target analytes with recoveries that are 10% < %R < LCL; # of MEs are allowable and compounds are not detected in the sample.

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% soilds = Percent Solids

Special Notes:
1) Metals and mercury samples are digested with a hot block; see the standard operating procedure document for details.
2) Uncertainty for all reported data is less than or equal to 30 percent.

MI34.021808.4

SGS North America, Inc.

Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

Client Sample ID: ASTAS843-SB02(2.5)
Client Project ID: Additonal Soil Excavation AST, Big AS-843
Lab Sample ID: G128-2444-1D
Lab Project ID: G128-2444

Date Collected: 10/5/2009 13:15
Date Received: 10/6/2009
Matrix: Soil
Solids 87.76
Report Basis: Dry Weight

Parameter	Result	RL	MDL	Units	Dilution Factor	Date Analyzed	
Diesel Range Organics	**2.25**	6.92	1.35	mg/Kg	1	10/09/09 16:21	J

Surrogate Spike Results	Spike Added	Control Limits	Spike Result	Percent Recovery
OTP	40	40-140	31.2	77.9

Comments:

J= Estimated value between MDL and RL

Batch Information

Analytical Batch: EP100909
Analytical Method: 8015
Instrument: GC6
Analyst: BWS

Prep batch: 15280
Prep Method: 3541
Prep Date: 10/09/09
Initial Prep Wt/Vol: 32.91 G
Prep Final Vol: 10 mL

Analyst: BWJ

NC Certification #481

Reviewed By: DRO XLS

SGS North America, Inc.

Results for Total Petroleum Hydrocarbons
by **GC/FID 8015**

Client Sample ID:	ASTAS843-SB02(2.5)	Analyzed By:	DVO
Client Project ID:	Additonal Soil Excavation AST, Blg AS-843	Date Collected:	10/5/2009 13:15
Lab Sample ID:	G128-2444-1A	Date Received:	10/6/2009
Lab Project ID:	G128-2444	Matrix:	Soil
Report Basis:	Dry Weight	Solids	87.76

Analyte	Result	RL	Units	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	4.47	mg/Kg	1	10/09/09 15:46

Surrogate Spike Results

	Added	Result	Recovery	Flag	Limits
BFB	100	101.0	101.0		70-130

Comments:

Batch Information

Analytical Batch:	VP100909	Prep Method:	5035
Analytical Method:	8015	Initial Wt/Vol:	7.65 g
Instrument ID:	GC4	Final Volume:	5 mL
Analyst:	DVO		

Analyst: DVO

NC Certification #481

Reviewed By: GRO

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Locations Nationwide
- Alaska
- New Jersey
- North Carolina
- Maryland
- New York
- Ohio

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096144

(1)

CLIENT: CATLIN

CONTACT: Shane Chasteen PHONE NO:(910) 452-5861

PROJECT: Additional soil excavation around AST, Bldg AS-843 SITE/PWSID#:

REPORTS TO: Shane@Catlin FAX NO.:(910) 452-7563

INVOICE TO: Sheila@Catlin QUOTE #: DOD 101 P.O. NUMBER: 291002-5

SGS Reference: 6128-2444

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	Preservatives Used	Analysis Required (3) DRO/GRO	REMARKS
	AST AS843-SB02(2.5)	10-5-09	13:15	Soil	3	G	MeOH	✓	- Lejeune & summa EDD format - report low runs

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Tim Stk	10/6/09	11:08	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature°C: 3.3

Special Deliverable Requirements:

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Special Instructions:

Requested Turnaround Time:

☐ RUSH _____ Date Needed ☒ STD

N.C. Certification #481

SGS North America, Inc.

Page 5 of 5

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❑ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client