May 5, 2014

Ms. Jody Murata
NGB/A7OR
Sheppard Hall
3501 Fetchet Avenue
Joint Base Andrews, Maryland 20762-5157

RE: Final Letter Work Plan Addendum
Non-Time Critical Removal Action Work Plan
174th Attack Wing
Hancock Air National Guard Base
Syracuse, New York
Contract W9128F-10-D-0059
Delivery Order 0001

Dear Ms. Murata:

AMEC Environment & Infrastructure, Inc. (AMEC) has prepared this Letter Work Plan Addendum to the Final Non-Time Critical Removal Action (NTCRA) Work Plan (ANG, 2013) to present (1) the results of an amendment evaluation and (2) a supplemental chemical stabilization approach to the NTCRA Work Plan. The chemical stabilization approach involves mechanical mixing of TerraBond™ soil amendment with lead-impacted soils to reduce the mobility/solubility of range-related lead concentrations below the Resource Conservation and Recovery Act (RCRA) Leaching Procedure (TCLP) criteria of 5 milligrams per liter (mg/L) (40 CFR §261.24). The sections below detail the proposed chemical stabilization agent, present the results of the bench scale amendment evaluation, and detail amendment implementation activities to be conducted prior to offsite disposal. The Community Air Monitoring Plan is supplied as **Attachment A** to this letter work plan.

CHEMICAL STABILIZATION AGENT

TerraBond™ is a buffered alkali, calcium-based granular reagent that is specifically formulated for use in the remediation/stabilization of metal-impacted soils. TerraBond™ works by mineralizing lead to form insoluble complexes that are generally stable and resistant to leaching. In addition, the amendment increases and buffers soil pH to further reduce lead mobility.

BENCH SCALE AMENDMENT EVALUATION

Between October and December 2013, a bench-scale amendment evaluation was conducted on soils from Munitions Response Site (MRS) SR001 and SR002 to evaluate amendment application rates of lead-impacted soils at each MRS. The evaluation focused on chemical fixation and stabilization (CFS) of site soils to treat both screened and unscreened samples. The goal of the study was to determine if mechanical screening, CFS (TerraBond™-FBA), and/or stabilization/solidification (S/S) (Portland Cement) technologies are required to meet project specific criterion as either joint or independent technologies. To reduce leachable lead concentrations below the RCRA TCLP for lead (5 mg/L), the amendment study evaluated the following:

- Evaluate the effectiveness of particulate separation via mechanical screening;
- Evaluate the effectiveness of CFS, S/S, and a combination of CFS and S/S reagents; and,
- Identify the lowest effective reagent dose for the selected CFS or S/S reagents.

A total of eight soil samples were collected, consisting of vertical composites collected at the targeted design depths applicable to each MRS and ranged from 0 to 2 feet (ft) below ground surface (bgs). Each sample point generated one 5-gallon container representing targeted vertical composites from each sample area (e.g., range floor, berm, etc.).

Based upon the results of the treatability study, multiple options are available for reducing leachable lead concentrations below 5 mg/L. As shown in **Table 1**, the utilization of TerraBond™-FBA was successful in reducing lead concentrations below 5 mg/L with the exception of the 3 percent mixture, which still showed marked reduction of leachable lead. Portland cement was also successful in reducing lead concentrations using both a 10 percent slurry/2 percent reagent mixture and at 15 percent application rate. Additional details can be found in the *Bench Scale Amendment Evaluation Report* (**Attachment B**).

Table 1. Summary of Bench Scale Amendment Evaluation Results

Sample Location	Pre-Treatment Lead (mg/L)		Post-Treatment Lead (mg/L)					
			Screened		Unscreened		Unscreened	
	Unscreened	Screened	3% TB	6% TB	5% TB	7% TB	10% PC + 2% TB	15% PC
SR001 Range Floor	1.20	0.62	--	--	--	--	0.03(ND)	0.03(ND)
SR001 Impact Berm	**93.30**	**91.40**	**39.80**	0.55	--	--	--	--
SR001 Range Floor & Berm Consolidated	**6.30**	--	--	--	1.30	0.03(ND)	--	--
SR002 Firing-In Buttress	0.22	0.34	0.34	0.12	0.028	0.03(ND)	--	--

Notes:
mg/L – milligrams per liter
% – percent
TB – TerraBond™
-- not evaluated
PC – Portland Cement

IMPLEMENTATION ACTIVITIES

This section outlines the proposed modifications to NTCRA field activities presented in the Final NTCRA Work Plan (ANG, 2013). These modifications include changes in the implementation of excavation activities, the introduction of soil amendments to stabilize leachable lead in soils, and confirmation as to the waste characterization sampling approach. All other aspects of the Final NTCRA Work Plan (ANG, 2013) still apply.

Excavation

MRS SR001

Excavation activities will be phased at MRS SR001 to avoid incidental contamination of otherwise "clean" areas and to allow excavation activities and confirmation sampling activities to be conducted concurrently with minimal, if any, delay. Soil excavation activities will be phased as follows:

- Phase I – Impact Berm and Pre-Berm; and,
- Phase II – Range Floor/Safety Berms (**Figure 1, Attachment C**).

Soil that is identified to contain lead and copper at concentrations exceeding the New York State Department of Environmental Conservation (NYSDEC) Residential Soil Cleanup Objective of 400 milligrams per kilogram (mg/kg) (lead) and 270 mg/kg (copper) will be excavated, stockpiled within the range floor area of MRS SR001, and chemically stabilized. Preliminary excavation dimensions and volumes are presented in **Table 2**; however, actual excavation extents will be determined by confirmatory sampling results.

Table 2. MRS SR001 Removal Action Areas

Phase	Sampling Unit	Preliminary Dimensions (ft)	Preliminary Volume (ft^3)	Preliminary Soil Volume[a] (CY)
I	Impact Berm	62 x 110 x 2.3	15,579	577
	Pre-Berm	51 x 80 x 2	8,208	304
II	Range Floor and Safety Berms	235 x 68 x 1.5	23,814	882

Notes:
[a] Actual volumes will be guided by performance screening and confirmed using waste characterization sampling results.

Phase I – Impact Berm and Pre-Berm

Excavation will start on one side (either north or south) of the impact berm and pre-berm and move laterally to the opposite side. Soil will be excavated from the face of the impact berm and within the pre-berm to depths ranging to approximately 2 ft to 2.3 ft and staged in the range floor area. Excavated soils will be staged into independent piles that are manageable for mixing/incorporation of TerraBond™-FBA. It is estimated the 577 CY of soil will be excavated from the Impact Berm and 304 CY of soil will be excavated from the Pre-Berm. Following

excavation to the pre-determined depth, in-situ XRF readings will be collected along the ground surface of the sidewalls and floor to determine if lead concentrations are below the field screening action level (200 mg/kg). If in-situ XRF readings indicate that lead concentrations are above 200 mg/kg, additional soil will be spot excavated in 6-inch lifts and remaining soil will be re-analyzed with the XRF. This process will be repeated until XRF readings indicate that lead concentrations in residual soils are below 200 mg/kg. Once XRF field screening indicates lead concentrations below 200 mg/kg, confirmatory soil samples will be collected from the floor and sidewalls of each excavation to confirm that residual soils are below the 400 mg/kg cleanup criteria.

Phase II – Range Floor/Safety Berms

Excavation will begin on the eastern side of the range floor and move west toward the Firing Line (**Figure 1, Attachment C**). Soil will be excavated to a depth of 1.5 ft bgs and stockpiled in the western portion of the range floor. Excavated soils will be stockpiled into independent piles that are manageable for mixing/incorporation of TerraBond^{TM}-FBA. It is estimated the 882 CY of soil will be excavated from the range floor and safety berms. Following excavation to the predetermined depths, XRF screening and confirmatory sampling will be conducted as detailed above.

MRS SR002

The excavation area at MRS SR002 includes the pre-berm and impact berm, located within the Firing-In Buttress. Soils identified to contain lead and copper at concentrations exceeding the NYSDEC Residential Soil Cleanup Objective of 400 mg/kg (lead) and 270 mg/kg (copper) will be excavated, stockpiled, and chemically stabilized. Due to the height of the Firing-In Buttress, chemical stabilization cannot be conducted within the Firing-In Buttress; therefore, excavated soils will be staged outside of but adjacent to the Firing-In Buttress (**Figure 2, Attachment C**).

Preliminary excavation dimensions and volume are presented in **Table 3**; however, actual excavation extents will be determined by confirmatory sampling results. Excavated soils will be staged into independent piles that are manageable for mixing/incorporation of TerraBond^{TM}-FBA. It is estimated that 111 CY of soil will be excavated at MRS SR002. Following excavation to the pre-determined depth of 2 ft bgs, in-situ XRF readings will be collected along the ground surface of the sidewalls and floor to determine if lead concentrations are below the field screening action level (200 mg/kg). If in-situ XRF readings indicate that lead concentrations are above 200 mg/kg, additional soil will be spot excavated in 6-inch lifts and the soil will be re-analyzed with the XRF. This process will be repeated until XRF readings indicate that lead concentrations are below 200 mg/kg. Once XRF field screening indicates lead concentrations below 200 mg/kg, confirmatory soil samples will be collected from the floor and sidewalls of the impact berm and pre-berm excavation to confirm that residual soils are below the 400 mg/kg cleanup criteria.

Table 3. MRS SR002 Removal Action Areas

Sampling Unit	Preliminary Dimensions (ft)	Preliminary Volume (ft^3)	Preliminary Soil Volume[a] (CY)
Impact Berm	13 x 78 x 2	972	36
Pre-berm	34 x 31 x 2	2,025	75

Notes:
[a] Actual volumes will be guided by performance screening and confirmed using waste characterization sampling results.

Chemical Stabilization Process

Based upon the results of the bench scale amendment evaluation, the recommended approach is to chemically stabilize lead- and copper-impacted soils at MRS SR001 and SR002 using TerraBond™-FBA. Chemical Stabilization will be conducted through the mixing of TerraBond™-FBA using the excavator bucket, a rotary mixer, or similar tooling within each staged soil pile. The initial dosage rates of TerraBond™-FBA are summarized in **Table 4** along with estimated quantities of amendment.

Table 4. Dosage Rate

Sampling Unit	Preliminary Soil Volume (Tons)	Preliminary Soil Volume (CY)	Dosage Rate (%)	Volume of Amendment (Tons)*
MRS SR001				
Impact Berm/Pre-Berm	1,190	881	6	71.4
Range Floor	1,191	882	5	59.5
MRS SR002				
Impact Berm/Pre-Berm	150	111	3	4.5

Notes:
*It should be noted that since the TCLP criteria of 5 mg/L for lead can be achieved using TerraBond™, the use of portland cement is not anticipated during the field application.
CY cubic yards
% – percent

Since TerraBond™-FBA is partially water activated, requiring slightly more moisture than is typically present in most soils, the soil and TerraBond™-FBA mixture will be hydrated as needed using a high pressure low volume pressure washer, providing both activation and dust control. Following the mixing of TerraBond™-FBA and addition of water, waste characterization sampling will be conducted. Waste characterization sampling will be conducted to determine proper handling/disposal of remediated range soils.

Waste Characterization Sampling

As per the landfill requirements, a minimum frequency of one sample per 500 CY of stockpiled soil will be collected. To satisfy this requirement and to verify that each independent staged soil pile was sufficiently amended, a minimum of one waste characterization sample will be collected from each staged soil pile to determine proper shipment and disposal of remediated range soils. Composite soil samples will consist of approximately five aliquot samples per 500 CY of

stockpiled soil. The five aliquots will be collected to represent one waste characterization sample and will be equally spaced around the perimeter of each 500 cubic yards of soil and/or stockpile. To collect a representative waste characterization sample, aliquots of approximately equal volume will be collected using a soil auger or scoop (~0-4 inches in depth) and homogenized in a stainless steel bowl before filling sample containers. Samples will be submitted to an off-site laboratory for analysis of TCLP metals, VOCs, SVOCs, PCBs, pesticides, and herbicides. Stockpiled soil will be disposed at the appropriate treatment facility, pending laboratory analysis of waste characterization samples. Landfills that may be utilized during field activities are detailed in Section 5.8.5 of the NTCRA Work Plan (ANG, 2013).

Should you have any questions, feel free to contact Darlene Abbott (AMEC) at (865) 671-6774.

Sincerely,

Darlene E. Abbott, L.S.S.
Project Manager/Licensed Soil Scientist

Cc: Robert Corcoran – NYSDEC
Jody Murata – ANG Program Manager
2nd Lt Brent Lynch – Hancock Air National Guard Base Environmental Manager
Adam Little – United States Corps of Engineers Project Manager
AMEC Central Files (electronic copy)

Appendices

Attachment A: Community Air Monitoring Plan
Attachment B: Bench Scale Amendment Evaluation Report
Attachment C: Figures

References

Air National Guard (ANG), 2013. *Final Non-Time Critical Removal Action Work Plan, 174th Attack Wing, Hancock Air National Guard Base, Syracuse, New York*. December 18.

Code of Federal Regulations (CFR), Title 40: *Protection of the Environment*, Part 261: *Identification and Listing of Hazardous Waste*, Subpart C: *Characteristics of Hazardous Waste*, §261.24: *Toxicity Characteristic*.

ATTACHMENT A

COMMUNITY AIR MONITORING PLAN

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COMMUNITY AIR MONITORING PLAN
NON-TIME CRITICAL REMOVAL ACTION
HANCOCK AIR NATIONAL GUARD BASE

Introduction

This Community Air Monitoring Plan (CAMP) was prepared for health and safety requirements concerning potential exposure to fugitive dust by off-site receptors during the Non-Time Critical Removal Action (NTCRA) at Munitions Response Sites (MRSs) SR001, Small Arms Range and Shooting-In Buttress, and SR002, Firing-In Buttress, located at the Hancock Air National Guard Base (Hancock Field), in Syracuse, New York. This CAMP documents the air monitoring program that will be implemented to protect the downwind community (e.g., residences, businesses, and/or on-site workers not involved with NTCRA activities) from potential airborne contaminant releases as a result of removal action activities (NYSDEC Guidance. In addition, the implementation of this CAMP will assist to verify that contamination (i.e., lead-impacted fugitive dust) was not transported off-site through the air during NTCRA activities.

Monitoring Requirements

The purpose of air monitoring is to identify and quantify airborne contaminants to document the level of airborne contaminants that may potentially migrate from the Site. Based upon site knowledge and results from previous investigations, the primary concern during work activities is the transport of lead-impacted fugitive dust during ground intrusive activities. Therefore, air monitoring will only be conducted when disturbing the areas of impacted soil, and when deemed necessary by the Site Safety and Health Officer (SSHO).

Fugitive Dust Monitoring

Fugitive Dust air monitoring will be implemented during the excavation, stockpiling, mixing, and loading of impacted soil at MRSs SR001 and SR002. Respirable particulate matter will be monitored using a DustTrak Aerosol Flow Monitor (or equivalent equipment), which will provide real-time monitoring of particulate matter less than 10 micrometers in size (PM_{10}).

An air monitor will be placed at both the upwind and downwind perimeter of the exclusion zone at temporary particulate monitoring stations. As wind direction changes, these temporary monitoring stations shall be moved at the appropriate locations. During site perimeter monitoring, if the downwind PM_{10} particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for a 15-minute period or if airborne dust is observed leaving the work area, dust suppression techniques will be employed (i.e., spray working area with water). Work will continue with dust suppression techniques as long as

downwind PM_{10} levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is leaving the work area. If downwind PM_{10} levels are greater than 150 mcg/m^3 above the upwind level following dust suppression techniques, work will stop and an evaluation will be conducted to determine what techniques can be utilized to decrease dust levels to levels within 150 mcg/m^3 above the upwind level.

Air Monitoring Calibration

The SSHO or designee under the SSHO's direction will calibrate monitoring equipment in accordance with the manufacturer's instructions. Frequency of calibration varies with the instrument. Direct-reading instruments require calibration before use and after each use. A span gas check (bump test) using a tedlar bag is the preferred method to determine if the instrument is within the manufacturer's calibration parameters. Other instruments are less prone to response drift and may require less frequent checks of instrument response. The user should verify the calibration frequency before use. Factory servicing of the monitoring instruments will be conducted periodically as recommended by the manufacturer. The SSHO will make provisions for replacement equipment when factory service of an instrument is needed.

Record Keeping

Readings collected during perimeter air monitoring will be recorded on a Site Air Surveillance Record (Appendix C, Final Accident Prevention Plan) and available for State and County Health personnel to review. In addition, an Instrument Calibration Log will be used to document instrument calibration for direct-reading instruments. Each calibration event will be noted in the respective log sheet.

ATTACHMENT B

BENCH SCALE AMENDMENT EVALUATION REPORT

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HANCOCK AIR NATIONAL GUARD BASE

MUNITION RESPONSE SITE

NON- TIME CRITICAL REMOVAL ACTION

SYRACUSE, NEW YORK

BENCH SCALE AMENDMENT EVALUATION REPORT

Prepared for:

AMEC Environment & Infrastructure

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Knoxville, TN 37932

Prepared by:

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Revision 1- Submitted: 1/2/13

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MRS S001 & MRS SR002

HANCOCK AIR NATIONAL GUARD BASE

BENCH SCALE AMENDMENT EVALUATION SUMMARY

PREPARED FOR: AMEC ENVIRONMENT & INFRASTRUCTURE

1.0 INTRODUCTION

This report summarizes the results of a bench scale amendment evaluation/scoping study performed on multiple soil samples retrieved from Munitions Response Sites (MRSs) known as MRS SR001 and SR002 at the Hancock Air National Guard Base (Hancock ANG) located in Syracuse, New York. The study focuses on the chemical fixation and stabilization (CFS) of lead impacted soils and evaluates treatment of both screened and non-screened samples (Attachments I-V). The scoping study was conducted by VIASANT LLC (VIASANT) for AMEC Environment & Infrastructure (Prime Contractor) as part of a planned Non-Time Critical Removal Action (NTCRA) being conducted at Hancock ANG for the United States Army Corps of Engineers (USACE).

2.0 SCOPING STUDY PURPOSE STATEMENT

The purpose of this scoping study was to determine if mechanical screening, CFS and or Stabilization/Solidification (S/S) technologies are required to meet project specific criterion as either joint or separable technologies. The study was designed to mimic conventional means and methods amendable to the planned implementation methods proposed by the Prime Contractor in the field. Specifically, the scoping study includes the following key items:

1. Evaluate the effectiveness of particulate separation via mechanical screening to reduce Lead (Pb) concentrations to < 5.0 mg/L for RCRA Toxicity Characteristics as defined by 40 CFR Part 261 Subpart C as measured by TCLP laboratory analysis.

2. Evaluate the effectiveness of S/S and S/S-CFS technology combinations on the soil, rock, and metallic fractions generated from the mechanical screening process to reduce Lead (Pb) concentrations to < 5.0 mg/L for RCRA Toxicity Characteristics as defined by 40 CFR Part 261 Subpart C as measured by TCLP laboratory analysis.

3. Evaluate the effectiveness of readily available and cost effective CFS or S/S Reagents to reduce Lead (Pb) concentrations to < 5.0 mg/L for RCRA Toxicity Characteristics as defined by 40 CFR Part 261 Subpart C as measured by both TCLP laboratory analysis.

4. Identify the lowest effective reagent dose (LERD) for the selected CFS or S/S reagents to reduce Lead (Pb) concentrations to < 5.0 mg/L for RCRA Toxicity Characteristics as defined by 40 CFR Part 261 Subpart C as measured by both TCLP laboratory analysis.

5. Validate that the LERD can be successfully applied via the conventional construction means and methods planned by the Prime Contractor in the field.

6. Provide Geotechnical analysis on the subject soils to facilitate a better understanding of weight conversions (i.e.…Cubic Yards to Tons) for offsite disposal and accurately calculate amendment additions in the field.

3.0 REAGENT SELECTION

3.1 CFS Reagent Selection

TerraBond FBA was strategically selected as an effective and readily available reagent based upon its performance record for the treatment of Pb soils as well as its logistics flexibility in terms of delivery, storage and overall cost.

TerraBond FBA is a buffered alkali, calcium-based granular reagent weighing approximately 100lbs per cubic foot (MSDS within Attachment IV of this report). The product can be directly added to either soils, sediments or waste matrices as a dry add reagent and is capable of remediating a wide range of heavy metals via CFS, while largely maintaining the existing physical characteristics of the soil or waste it is added to. The reagent is not primarily reliant on activation of pozzolans allowing soils to maintain their naturally occurring physical characteristics and remain in a free-flowing and manageable condition. The reagent has the added benefit of producing minimal dust in contrast to finer ground products. FBA is available in supersacks and bulk dump trailers making it an ideal choice for onsite mixing without a silo or other specialized storage, distribution or handling equipment. TerraBond FBA is also partially water activated requiring slightly more moisture then is typically present in most soils and it is amendable to hydration via high pressure low volume pressure washer units or equal, providing both activation and dust control simultaneously.

3.2 S/S Reagent Selection

Portland Cement Type I/II (MSDS within Attachment IV of this report) is a proven and readily available pozzolanic reagent that can be utilized in various dose rates to either Stabilize or Solidify soils, sediments and waste matrices in a broad spectrum of applications. PC can be hydrated for use as slurry to solidify materials or utilized as a dry alkaline reagent. As a dry add reagent PC utilizes its alkaline properties to convert lead into its amphoteric state and retain it with pozzolans to reduce the leachability of the materials. As slurry PC provides partial alkaline adjustment of the soils with a greater degree of pozzolanic solidification as water and cement slurry displace air pockets within the waste materials to create a controlled low strength material (CLSM) or Soil-Cement dependent upon the PC addition rates and water ratios utilized.

4.0 SAMPLING EVENT SUMMARY

VIASANT performed an initial field sampling event in combination with the Prime Contractor personnel on July 24, 2012 at the Hancock ANG Base. The samples were retrieved with a combination of hand augers and shovels with the sample points advanced to targeted design depths of 0- 24” as applicable to the proposed soil removal at SR001 & SR002.

It is important to note that the site has a high degree of variability for historical leachable lead concentrations within SR001 and SR002 due to the distribution of lead bullets/fragments. The provided prior investigation data lacks specific survey nodes which would have afforded a more precise correlation of sample points with elevated Pb concentrations. Accordingly VIASANT utilized a random selection of vertical composites within the respective AOC's which is a valid measure for removal actions of this type.

Field sample ID numbers and the quantity of samples for each area were as follows:

MRS SR001 – Small Arms Range and Shooting-In Buttress

- SR-001 Range Floor: Sample #'s SR-001-001, SR-001- 002.
- SR-001 Range Berm: Sample #'s SR-001-003, SR-001-004, SR-001-005

MRS SR002 – Firing-In Buttress

- SR-002 Firing in Buttress Floor: Sample #'s SR-002-001, SR-002-002, SR-002-003

Each sampling point generated (1) U.S. 5 gallon plastic container representing targeted vertical composites from each sample area. Untreated sample preparation and reagent additions for this supplemental study were performed by VIASANT at our Claymont, DE facility. The details of sample preparation and reagent addition for this event are provided within Section 5.0 of this study. A scoping study photo log is also provided as Attachment II of this report.

VIASANT self-performed pH testing and moisture content at the Claymont facility. Analytical and Geotechnical sample analysis were performed on pre and post-treatment samples by the following certified third party laboratories (Certifications within Attachment V of this report):

Chemical Analysis:
Chemtech Labs, Inc.
284 Sheffield Street,
Mountainside, New Jersey 07092

Geotechnical Analysis:
ATC Associates, Inc.
3 Terris Lane
Burlington, New Jersey 08016

All third party laboratory reports and COCs are provided as Attachment III of this report. VIASANT pH and moisture content results are provided within Attachment I of this report.

5.0 BENCH SCALE STUDY

A representative soil composite from each plastic sample container was utilized for the amendment evaluation, with no preference to either include or discard discrete anomalies within the sample. Samples with free water content were decanted to within 1”-2” of the top of the containers consolidated contents. The scoping sample material was then thoroughly homogenized to obtain a material suitable for the proposed testing. All samples were prepared at ambient air conditions. Ambient conditions for Northern Delaware in November show temperatures ranging from 54^{o}F to 68^{o}F with an average humidity of 69% as a general point of reference.

The following procedure was replicated for all samples and selected reagent ratios as identified in greater detail by sample ID within Attachment I of this report:

1. The untreated sample buckets were homogenized to minimize differences in sample composition to serve as a master untreated sample.

2. All homogenized samples were tested for pH and moisture content then allowed air dry for 48 hours.

3. Aliquots were removed from the master untreated sample from each area and either sent to an outside testing (chemical or geotechnical) laboratory or prepared for screening and reagent addition as applicable.

4. Applicable aliquots of untreated samples were shipped for analysis of TCLP Pb levels to validate sampling locations and provide baseline analysis pre-treatment.

5. Applicable aliquots of untreated samples from SR001 Range Berm and Floor samples were homogenized on a 1:1 basis to mimic potential consolidation efforts of both areas.

6. Applicable aliquots of untreated samples were hand screened through 1”, ¾”, ½”, 3/8”, ¼” and #4 sieves to replicate mechanical screening of soils in the field. The sieve size was matched to historic small arms calibers used within the ranges capturing .50 caliber or greater down to .223 caliber (5.56 mm). The weight of retained materials on each sieve and materials passing the # 4 sieve was weighed and recorded.

7. Metallic fractions within the Over-Sized Materials (OSM) were hand segregated and weighed separately to establish a % by total weight.

8. Applicable aliquots of untreated screened soils, unscreened soils, or OSM were then measured out in uniform amounts of approximately 300 grams (+/- 5 grams of variability). All measurements were performed with a properly calibrated Ohaus portable scale unit.

9. Measured samples representing material from each sample location and selected remedial process (i.e.…Consolidation, Screened /Treated, Unscreened/Treated, OSM Solidification) were then mixed with either dry reagent or slurry at the various percentages noted with Table 1 and in further detail within Attachment I of this report.

Reagent and slurry mixing/blending was conducted with a standard stainless steel spoon or spatula within stainless steel bowls. Basic cut and fold techniques were used to replicate conventional machine assisted mixing in the field via Excavator or Backhoe. Water was added via standard spray bottle misting to mimic pressure washer misting for activation of the reagent.

10. All samples were then containerized in lab glass, properly labeled and sent with a completed chain of custody (COC) to the applicable third party testing laboratory.

6.0. RESULTS & RECOMMENDATIONS

Based upon the laboratory data received the choice to use a broad spectrum of material management methods and reagent additions within this study were largely validated. The results provide the Prime Contractor multiple options for successfully reducing Lead (Pb) concentrations to < 5.0 mg/L for RCRA Toxicity Characteristics as defined by 40 CFR Part 261 Subpart C as measured by TCLP.

The untreated samples results for SR001 contained elevated levels of Pb at 93.30 mg/L (Berms) and 6.30 mg/L (Floor) which represent valid baselines for the study and fall within anticipated starting concentrations for the site. Conversely untreated TCLP results for the SR002 Firing In- Buttress Floor were lower than anticipated at 0.22 mg/L. Both SR001 & SR002 soils contained relatively low bullet fragment/metallic content weights averaging 2.4% of the samples.

The utilization of the selected CFS reagent was successful with the exception of the lowest concentration range of 3%, which still showed marked reduction of leachable Pb at these low addition rates. The S/S reagent for the OSM's was also successful using both a 10% slurry/ 2% reagent mix and a PC slurry at 15%.

The following data within Table 1 below is a brief summation of the bench scale amendment evaluation results:

Sample Location	Pre-Treatment Pb (mg/L)		Post-Treatment Pb (mg/L)					
	Raw Unscreened	Raw Screened	Screened		Unscreened		Unscreened	
			3% TB	6% TB	5% TB	7% TB	10% PC + 2% TB	15% PC
SR-001 Range Floor	1.20	0.62	--	--	--	--	0.03 (ND)	0.03 (ND)
SR-001 Range Berm	93.30	91.40	39.80	0.55	--	--	--	--
SR-001 Range Floor & Berm Consolidated	6.30	--	--	--	1.30	0.03 (ND)	--	--
SR-002 Firing in Buttress Floor	0.22	0.34	0.12	0.13	0.028	0.03 (ND)	--	--

TB= TerraBond FBA | PC=Portland Cement Type I/II Slurry |ND=Non-Detect | >5.0 Mg/L |

Geotechnical data including particle size distribution, maximum dry density, and optimum moisture are provided within Attachment III of this report. The ATC lab reports correlate with VIASANT sample ID's as follows:

-SAR-Fs-02: SR001 Screened Range Floor Sample

-SAR-Bs-04: SR001 Screened Range Berm Sample

-SAR-FIBS-06: SR002 Firing-In Buttress Screened Floor Sample

It is worth noting that mechanical screening of bullets/bullet fragments from the soils of SR001 provided only modest reduction in leachable Pb concentrations and provides reasonable evidence that the elevated Pb concentrations are driven by superficially adhered micro-particles within the soil matrix, and not necessarily the metallic content.

A portion of the study focused on the consolidation of SR001 Range Berm and Floor soils on a 1:1 basis to mimic the process of consolidation that will likely occur in the field during full scale implementation. Based upon the data, some beneficial dilution of Pb concentrations may occur as berm and range floor soils are consolidated together during the removal action. However, as these materials are present within the same AOC, there are no known regulatory restrictions regarding consolidation prior to treatment. To be clear VIASANT is not recommending remediation with mechanical mixing of soils alone, as insufficient data exists to validate this approach.

For SR001, screening the bullet and fragments from the berm and range floor consolidation sample is not effective in reducing leachable Pb concentrations. The data further shows that removal of bullets and fragments from these soils does not reduce leachability sufficiently to render the materials Non-RCRA Hazardous for Pb using a 3% CFS reagent dosage. It should be noted that there was a drastic concentration reduction of leachable Pb during subsequent 6% additions of reagent for each sample. It is not uncommon when driving amendable metals such as Pb amphoteric in soils with buffered alkali reagent that a very distinct event develops within the reagent dosing, known as the "waterfall effect". The "waterfall effect" is an incremental increase in reagent resulting in massive reduction in leachability, when prior increases did not develop a correlative trend in incremental reductions. It is likely that an interim percentage of 5% would be effective enough to comply with the stated project objectives of <5mg/L post-screening; However, the amendment application was not tested at that dosage rate. The data does decisively validate the effective utilization of 5% addition on unscreened samples of the consolidated/blended materials within SR001.

In consideration of the above stated, VIASANT is recommending that the LERD for the selected CFS reagent, TerraBond FBA be set at 5% addition by weight for this Site. The 5% LERD will likely accommodate either the approach of treating post-screened high concentration materials within the Berm, or direct addition of reagent to consolidated materials within SR001.

The low leachable Pb levels present within SR002 provide for a separate options analysis provided that the levels remain consistently below RCRA Toxicity Limits. It may be prudent to "polish" soils within SR002 at low dosage rates (i.e.. 2%) using TerraBond FBA to account

for any potential variability in sampling or anomalies, especially if soils are not pre-screened mechanically.

Finally, in the event that either SR001 or SR002 soils are screened during remedial implementation the study provides evidence that the OSM can be rendered Non-Hazardous via S/S with reasonably low additions of PC Slurry in the 10%-15% range.

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Attachment I

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Bench Scale Amendment Evaluation Results by Area

Location	Pre-Treatment Pb (mg/L)		Post-Treatment Pb (mg/L)					
	Raw Unscreened	Raw Screened	Screened		Unscreened		Unscreened	
			3% TB	6% TB	5% TB	7% TB	10% PC + 2% TB	15% PC
SR-001 Range Floor	1.20	0.62	--	--	--	--	0.03 (ND)	0.03 (ND)
SR-001 Range Berm	**93.30**	**91.40**	**39.80**	0.55	--	--	--	--
SR-001 Range Floor & Berm Blend	**6.30**	--	--	--	1.30	0.03 (ND)	--	--
SR-002 Firing in Butt	0.22	0.34	0.12	0.13	0.028	0.03 (ND)	--	--

Notes:

1. Leachable Lead (Pb) above RCRA Hazardous Level (5.0 mg/L)

2. TB = TerraBond FBA
3. PC = Portland Cement Type I/II Slurry
4. ND = Non Detect

Bench Scale Analytical Results Summary

No	Lab Sample ID	Sample ID	Sample Description			pH	Pb Leachate (ug/L)	Pb Leachate (mg/L)	% Solids	% Moisture
1	E4336-18	SAR-Fu-01	SR-001	Unscreened	Range Floor Raw	9.07	1200	1.20	92.6%	7.4%
2	E4336-26	SAR-Fs-02	SR-001	Screened	Range Floor Raw	9.22	620	0.62	92.0%	8.0%
3	E4336-19	SAR-Bu-03	SR-001	Unscreened	Range Berm Raw	8.32	93300	**93.30**	84.7%	15.3%
4	E4336-27	SAR-Bs-04	SR-001	Screened	Range Berm Raw	8.60	91400	**91.40**	84.4%	15.6%
5	E4336-20	SAR-FBu-05	SR-001	Unscreened	Range Floor & Berm Blend Raw	8.76	6300	**6.30**	88.1%	11.9%
6	E4336-28	SAR-FIBs-06	SR-002	Screened	Firing-in-Buttress Raw	8.59	336	0.34	90.9%	9.1%
7	E4336-21	SAR-FIBu-07	SR-002	Unscreened	Firing-in-Buttress Raw	8.72	222	0.22	91.7%	8.3%
8	E4336-22	SAR-FBu-TB05-08	SR-001	Unscreened	Range Floor & Berm Blend Treated Sample - 5% addition	10.84	1300	1.30	89.6%	10.4%
9	E4336-23	SAR-FIBu-TB05-09	SR-002	Unscreened	Firing-in-Buttress Treated Sample -5% addition	11.37	28.1	0.028	90.8%	9.2%
10	E4336-24	SAR-FBu-TB07-10	SR-001	Unscreened	Range Floor & Berm Blend Treated Sample - 7% addition	11.15	30 (ND)	0.03 (ND)	90.0%	10.0%
11	E4336-25	SAR-FIBu-TB07-11	SR-002	Unscreened	Firing-in-Buttress Treated Sample -7% addition	11.35	30 (ND)	0.03 (ND)	91.9%	8.1%
12	E4336-29	SAR-Bs-TB03-12	SR-001	Screened	Berm Treated Sample - 3% addition	10.85	39800	**39.80**	85.3%	14.7%
13	E4336-30	SAR-Bs-TB06-13	SR-001	Screened	Berm Treated Sample - 6% addition	11.52	548	0.55	86.9%	13.1%
14	E4336-33	SAR-FIBs-TB03-14	SR-002	Screened	Firing-in-Buttress Treated Sample - 3% addition	11.04	123	0.12	91.7%	8.3%
15	E4336-34	SAR-FIBs-TB06-15	SR-002	Screened	Firing-in-Buttress Treated Sample - 6% addition	11.49	129	0.13	91.6%	8.4%
16	E4336-31	SAR-Fu-OSMPC10+TB02-16	SR-001	Unscreened	Range Floor Gravel/OSM for S/S @ 10% Portland Slurry w/2% TB FBA	11.72	30 (ND)	0.03 (ND)	89.5%	10.5%
17	E4336-32	SAR-Fu-OSMPC15-17	SR-001	Unscreened	Range Floor Gravel/ OSM for S/S @ 15% Portland Slurry (neat)	11.63	30 (ND)	0.03 (ND)	87.5%	12.5%

Notes:

1. ND = Non Detect
2. **Pb >RCRA Hazardous Level (5.0 mg/L)**

viasant

Bench Scale Amendment Evaluation

AMEC

Air National Guard
Syracuse, NY

Amendment Evaluation - Bench Scale Log

Sample Breakdown	No.	Sample ID	Sample Description	SAMPLE					Additive(s)					TESTING		Notes
				Total Weight (g)	Tare Weight (g)	Sample Weight (g)	Sample Weight (lbs)	Sample Container Volume (oz)	Type	Weight (g)	Weight (lbs)	Density (lbs/CF)	% Addition (by weight)	Analytical	Geotechnical	
RAW	1	SAR-Fu-01	SR-001 Unscreened Range Floor Raw	N/A	N/A	300.00	0.66	8.0	N/A	N/A	N/A	N/A	N/A	TCLP Pb, pH, % Solids	None	Gravel; Water in Samples
	2	SAR-Fs-02	SR-001 Screened Range Floor Raw	N/A	N/A	300.00	0.66	8.0	N/A	N/A	N/A	123.3	N/A	TCLP Pb, pH, % Solids	Std Proctor; PSA; Hydrometer	1.66 Tons per CY @ 13.9% Moisture
	3	SAR-Bu-03	SR-001 Unscreened Range Berm Raw	N/A	N/A	300.00	0.66	8.0	N/A	N/A	N/A	N/A	N/A	TCLP Pb, pH, % Solids	None	Clay
	4	SAR-Bs-04	SR-001 Screened Range Berm Raw	N/A	N/A	300.00	0.66	8.0	N/A	N/A	N/A	115.2	N/A	TCLP Pb, pH, % Solids	Std Proctor; PSA; Hydrometer	1.56 Tons per CY @ 11.4% Moisture
	5	SAR-FBu-05	SR-001 Unscreened Range Floor & Berm Blend Raw	N/A	N/A	300.00	0.66	8.0	N/A	N/A	N/A	N/A	N/A	TCLP Pb, pH, % Solids	None	Mixed 1:1 Ratio
	6	SAR-FIBs-06	SR-002 Screened FIB Raw	N/A	N/A	300.00	0.66	8.0	N/A	N/A	N/A	118.9	N/A	TCLP Pb, pH, % Solids	Std Proctor; PSA; Hydrometer	1.16 Tons per CY @10.4% Moisture
	7	SAR-FIBu-07	SR-002 Unscreened FIB Raw	N/A	N/A	300.00	0.66	8.0	N/A	N/A	N/A	N/A	N/A	TCLP Pb, pH, % Solids	None	Large visual metallics
CFS Unscreened	8	SAR-FBu-TB05-08	SR-001 Unscreened Range Floor & Berm Blend Treated Sample - 5% addition	559.0	259.0	300.0	0.66	8.0	TerraBond FBA	15.0	0.033	97.5	5%	TCLP Pb, pH, % Solids	None	
	9	SAR-FIBu-TB05-09	SR-002 Unscreened FIB Treated Sample -5% addition	522.0	222.0	300.0	0.66	8.0	TerraBond FBA	15.0	0.033	97.5	5%	TCLP Pb, pH, % Solids	None	
	10	SAR-FBu-TB07-10	SR-001 Unscreened Range Floor & Berm Blend Treated Sample - 7% addition	564.0	264.0	300.0	0.66	8.0	TerraBond FBA	21.0	0.046	97.5	7%	TCLP Pb, pH, % Solids	None	
	11	SAR-FIBu-TB07-11	SR-002 Unscreened FIB Treated Sample -7% addition	600.0	300.0	300.0	0.66	8.0	TerraBond FBA	21.0	0.046	97.5	7%	TCLP Pb, pH, % Solids	None	
CFS Screened	12	SAR-Bs-TB03-12	SR-001 Screened Berm Treated Sample - 3% addition	522.0	222.0	300.0	0.66	8.0	TerraBond FBA	9.0	0.020	97.5	3%	TCLP Pb, pH, % Solids	None	
	13	SAR-Bs-TB06-13	SR-001 Screened Berm Treated Sample - 6% addition	564.0	264.0	300.0	0.66	8.0	TerraBond FBA	18.0	0.040	97.5	6%	TCLP Pb, pH, % Solids	None	
	14	SAR-FIBs-TB03-14	SR-002 Screened FIB Treated Sample - 3% addition	622.0	322.0	300.0	0.66	8.0	TerraBond FBA	9.0	0.020	97.5	3%	TCLP Pb, pH, % Solids	None	
	15	SAR-FIBs-TB06-15	SR-002 Screened FIB Treated Sample - 6% addition	603.0	303.0	300.0	0.66	8.0	TerraBond FBA	18.0	0.040	97.5	6%	TCLP Pb, pH, % Solids	None	
S/S Unscreened	16	SAR-Fu-OSMPC10+TB02-16	SR-001 Unscreened Range Floor Gravel/OSM for S/S @ 10% Portland Slurry w/2% TB FBA	564.0	264.0	300.0	0.66	8.0	PC Type I/II +H2O+ TB	35.0	0.077	94.6	12%	TCLP Pb, pH, % Solids	None	Added 25mL water
	17	SAR-Fu-OSMPC15-17	SR-001 Unscreened Range Floor Gravel/ OSM for S/S @ 15% Portland Slurry (neat)	559.0	259.0	300.0	0.66	8.0	PC Type I/II +H2O	45.0	0.099	94.0	15%	TCLP Pb, pH, % Solids	None	Added 35mL water

Notes:

"Screened" material is defined as any material passing a 3/8" Sieve.

Blend of SR-001 Floor and Berm is mixed at a 1:1 ratio based on estimated volumes in Table 1. MRS SR001 Estimate Excavation Events in RFP Exhibit 1 Scope of Work

SAR =	Small Arms Range	PC=Portland Cement Type I/II
FIB=	"Firing in Butt"	TB=TerraBond FBA Reagent
CFS=	Chemical Fixation/Stabilization	OSM= Over-Sized Materials (Not screened in Bench Scale)
S/S=	Solidification/Stabilization	

PC density standard assumed (94lbs/cf)

Input Fields

Hard Enter Numerical Values

Particle Size Analysis Log

Sieve Size	Sieve Tare (g)	SAR SR-001 Floor				SAR SR-001 Berm				SAR SR-002 Firing-in-Butt				
		Sample + Sieve Weight (g)	Sample Weight (g)	% Passing	Retained Metallics Weight (g)	Total Weight (g)	Sample Weight (g)	% Passing	Retained Metallics Weight (g)	Total Weight (g)	Sample Weight (g)	% Passing	Retained Metallics Weight (g)	
1"	1001	1029	28	99.36%	0	1001	0	100.00%	0	1154	153	96.66%	0	
3/4"	991	1012	21	99.52%	0	1014	23	99.39%	0	1169	178	96.11%	99	*"unscreened"*
1/2"	958	1178	220	94.98%	0	1271	313	91.69%	54	1138	180	96.06%	26	
3/8"	953	1233	280	93.61%	39	1270	317	91.58%	43	1094	141	96.92%	8	
1/4"	922	1400	478	89.09%	26	1623	701	81.39%	4	1184	262	94.27%	3	
#4	902	1571	669	84.74%	0	1311	409	89.14%	1	1100	198	95.67%	1	*"screened"*
< #4	902	3589	2687	38.69%	0	2905	2003	46.81%	0	4364	3462	24.31%	0	
Total Weight (g)			4,383.0		65.0		3,766.0		102.0		4,574.0		137.0	
Uncompacted Sample Vol (oz)			208.0				208.0				208.0			
% Metallics by Weight			1.5%				2.7%				3.0%			

Notes:

Bench Scale Input Fields

Hard Enter Numerical Values

Moisture Content Readings

No.	Date	Time	Sample ID	% Moisture	Ambient Temperature	Average % Moisture	Average pH*	Comments
1	10/30/13	10:35	SR-001-003	23.5%	54˚F	-		
2	10/30/13	10:36	SR-001-004	18.4%	54˚F	-		
3	10/30/13	10:37	SR-001-005	21.9%	54˚F	-		
4	10/30/13	11:22	SR-002-001	13.1%	55˚F	-		
5	10/30/13	11:23	SR-002-002	11.0%	55˚F	-		
6	10/30/13	11:30	SR-002-003	30.4%	55˚F	-		
7	10/30/13	14:51	SAR-Bu-03	11.0%	60˚F	-		
8	10/30/13	14:53	SAR-Fu-01	14.3%	60˚F	-		
9	10/30/13	14:54	SAR-FBu-05	9.1%	60˚F	-		
10	10/30/13	15:00	SAR-FIBu-07	13.8%	60˚F	-		
11	11/1/13	8:30	SAR-Bu-03	16.1%	68˚F			
12	11/1/13	8:30	SAR-Bu-03	15.5%	68˚F			
13	11/1/13	8:30	SAR-Bu-03	14.6%	68˚F			
14	11/1/13	8:30	SAR-Bu-03	16.8%	68˚F			
15	11/1/13	8:30	SAR-Bu-03	14.8%	68˚F	15.6%	8-9	Avg for SAR-Bu-03 on 11/1/13
16	11/1/13	8:32	SAR-Fu-01	7.3%	68˚F			
17	11/1/13	8:32	SAR-Fu-01	0.2%	68˚F			Potential Interference from Gravel
18	11/1/13	8:32	SAR-Fu-01	5.4%	68˚F			
19	11/1/13	8:32	SAR-Fu-01	2.0%	68˚F			
20	11/1/13	8:32	SAR-Fu-01	7.4%	68˚F	4.5%	8-9	Avg for SAR-Fu-01 on 11/1/13
21	11/1/13	8:34	SAR-FIBu-07	9.4%	68˚F			
22	11/1/13	8:34	SAR-FIBu-07	13.1%	68˚F			
23	11/1/13	8:34	SAR-FIBu-07	10.7%	68˚F			
24	11/1/13	8:34	SAR-FIBu-07	13.2%	68˚F			
25	11/1/13	8:34	SAR-FIBu-07	9.1%	68˚F	11.1%	7-8	Avg for SAR-FIBu-07 on 11/1/13
26	11/1/13	8:36	SAR-FBu-05	4.3%	68˚F			
27	11/1/13	8:36	SAR-FBu-05	3.7%	68˚F			
28	11/1/13	8:36	SAR-FBu-05	3.3%	68˚F			
29	11/1/13	8:36	SAR-FBu-05	4.9%	68˚F			
30	11/1/13	8:36	SAR-FBu-05	4.7%	68˚F	4.2%	7-8	Avg for SAR-FBu-05 on 11/1/13

Notes:

*pH determined by Litmus paper

Soil Sample Log

No	Lab ID	Sample ID	Sample (C/G)	Containers	Sample Date	Sample Time	Matrix	Required Testing	Lab	TAT (Days)	Date Delivered	Date Results Rec'd
1	E4336	SAR-Fu-01	C	(1) 8oz Glass	11/1/2013	10:39	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
2	E4336	SAR-Bu-03	C	(1) 8oz Glass	11/1/2013	10:40	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
3	E4336	SAR-FBu-05	C	(1) 8oz Glass	11/1/2013	10:42	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
4	E4336	SAR-FIBu-07	C	(1) 8oz Glass	11/1/2013	10:44	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
5	E4336	SAR-FBu-TB05-08	C	(1) 8oz Glass	11/1/2013	10:46	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
6	E4336	SAR-FIBu-TB05-09	C	(1) 8oz Glass	11/1/2013	10:49	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
7	E4336	SAR-FBu-TB07-10	C	(1) 8oz Glass	11/1/2013	10:53	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
8	E4336	SAR-FIBu-TB07-11	C	(1) 8oz Glass	11/1/2013	10:55	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
9	E4336	SAR-Fs-02	C	(1) 8oz Glass	11/1/2013	13:19	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
10	E4336	SAR-Bs-04	C	(1) 8oz Glass	11/1/2013	14:25	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
11	E4336	SAR-FIBs-06	C	(1) 8oz Glass	11/1/2013	15:09	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
14	E4336	SAR-Bs-TB03-12	C	(1) 8oz Glass	11/1/2013	15:40	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
15	E4336	SAR-Bs-TB06-13	C	(1) 8oz Glass	11/1/2013	15:36	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
12	E4336	SAR-Fu-OSMPC10+TB02-16	C	(1) 8oz Glass	11/1/2013	15:41	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
13	E4336	SAR-Fu-OSMPC15-17	C	(1) 8oz Glass	11/1/2013	15:43	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
16	E4336	SAR-FIBs-TB03-14	C	(1) 8oz Glass	11/1/2013	15:46	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
17	E4336	SAR-FIBs-TB06-15	C	(1) 8oz Glass	11/1/2013	15:48	S	TCLP Pb, pH	Chemtech	5	11/2/2013	11/8/2013
18	BS-3	SAR-Fs-02	C	(1) 5gal Bucket	11/1/2013	N/A	S	Std Proctor; PSA + Hydrometer	Cardno ATC	5	11/4/2013	11/14/2013
19	BS-2	SAR-Bs-04	C	(1) 5gal Bucket	11/1/2013	N/A	S	Std Proctor; PSA + Hydrometer	Cardno ATC	5	11/4/2013	11/14/2013
20	BS-1	SAR-FIBs-06	C	(1) 5gal Bucket	11/1/2013	N/A	S	Std Proctor; PSA + Hydrometer	Cardno ATC	5	11/4/2013	11/14/2013

Notes:

1. C/G = Composite or Grab
2. PSA = Particle Size Analysis
3. S = Soil

Reagent Density QC Testing

No.	Container Volume (mL)	Container Volume (CF)	Container Tare Weight (g)	Reagent + Container (g)	Reagent		
					Weight (g)	Weight (lb)	Density (lb/cf)
1	60	0.00212	46.0	138.0	92.0	0.203	95.72
2	60	0.00212	46.0	131.0	85.0	0.187	88.44
3	60	0.00212	46.0	141.0	95.0	0.209	98.84
4	60	0.00212	46.0	142.0	96.0	0.212	99.88
5	60	0.00212	46.0	140.0	94.0	0.207	97.80
6	60	0.00212	46.0	139.0	93.0	0.205	96.76
7	60	0.00212	46.0	142.0	96.0	0.212	99.88
8	60	0.00212	46.0	139.0	93.0	0.205	96.76
9	60	0.00212	46.0	142.0	96.0	0.212	99.88
10	60	0.00212	46.0	143.0	97.0	0.214	100.92
				AVG	93.7	0.207	97.49

Notes:

1. TerraBond Product Data states density range of 95-105pcf.

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Attachment II

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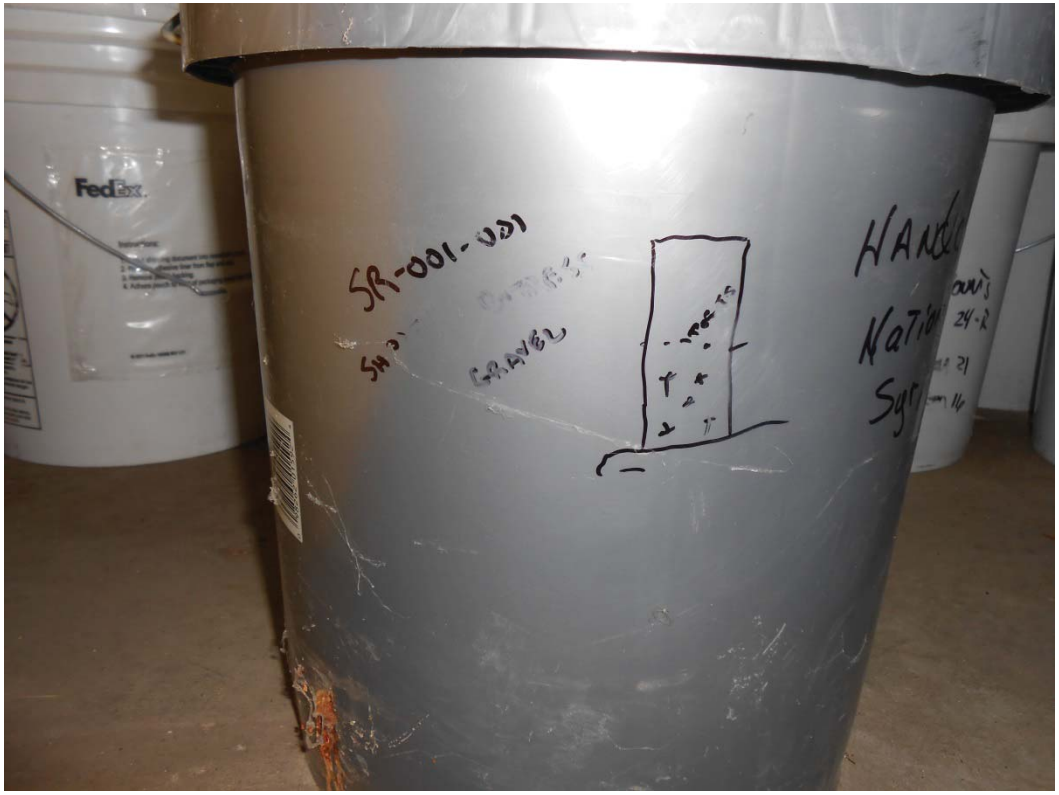
November 2013

Amendment Evaluation

Hancock Air National Guard Base
MRS SR001 and MRS SR002
AMEC Environmental & Infrastructure, Inc.

Syracuse, NY

Samples as Received



Picture ID: DSCN1021

Date Taken: October 30, 2013

Photographer: Robin White

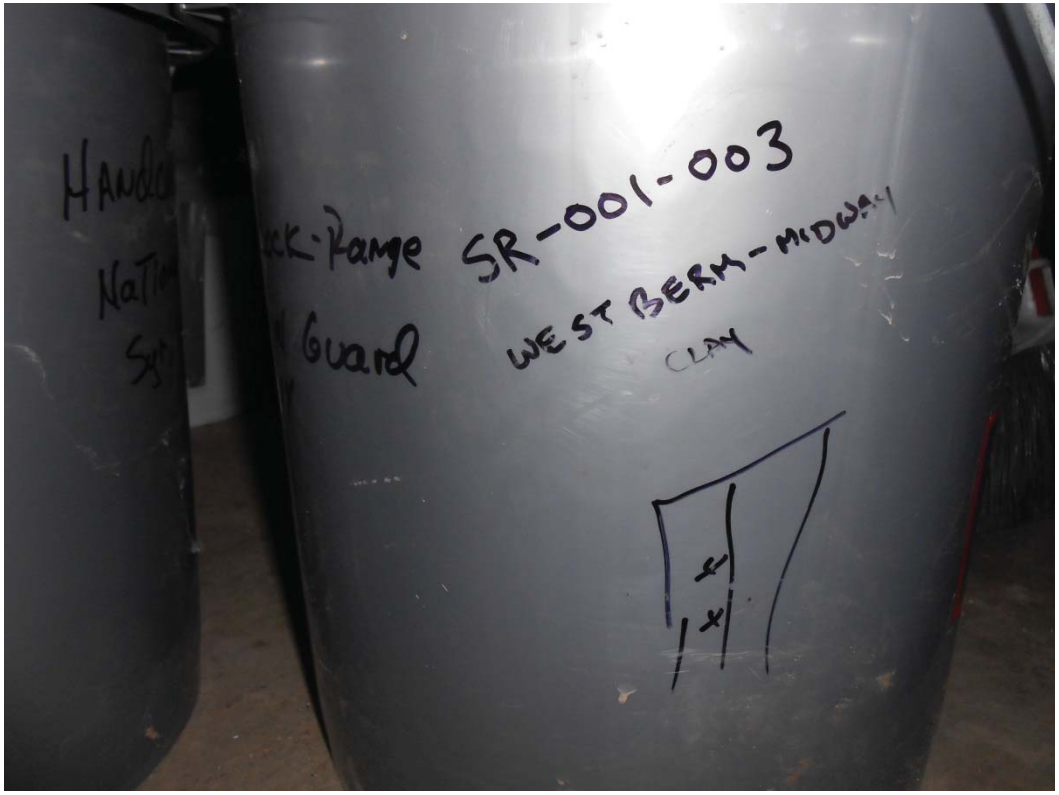
Description:
Sample ID: SR-001-001
Floor
Gravel

Picture ID: DSCN1022

Date Taken: October 30, 2013

Photographer: Robin White

Description:
Sample ID: SR-001-002
Floor
Gravel

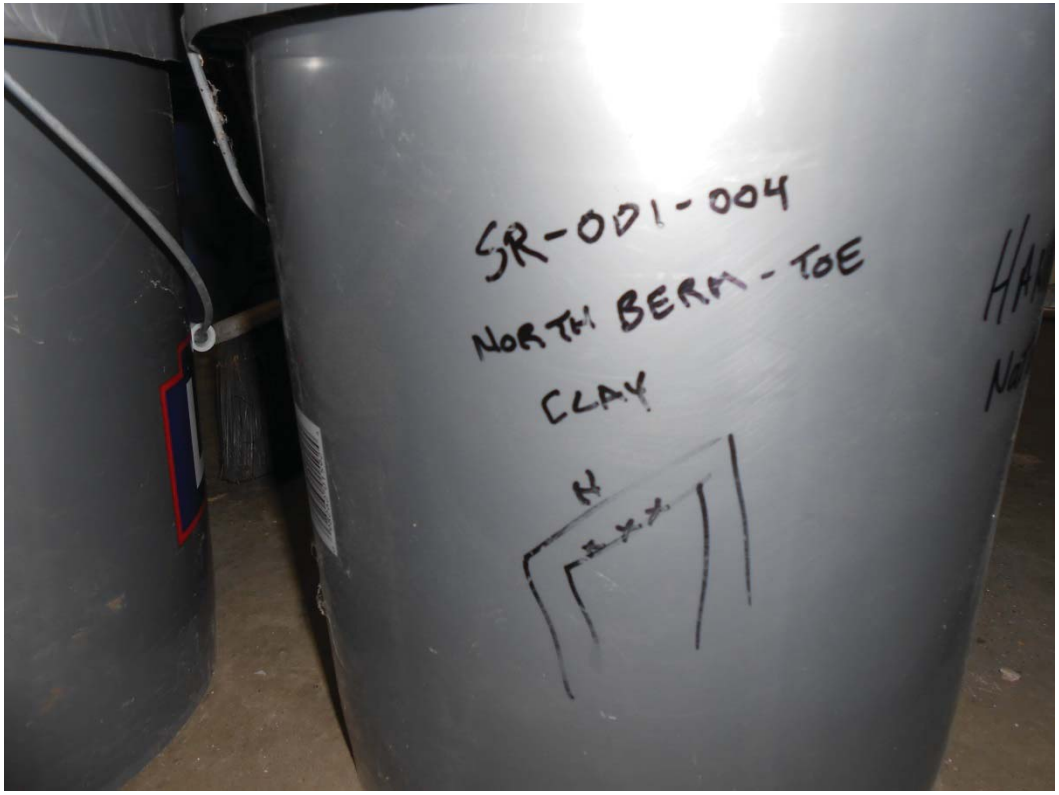


Picture ID: DSCN1023

Date Taken: October 30, 2013

Photographer: Robin White

Description:
Sample ID: SR-001-003
Berm – Midway on Western Berm
Clay

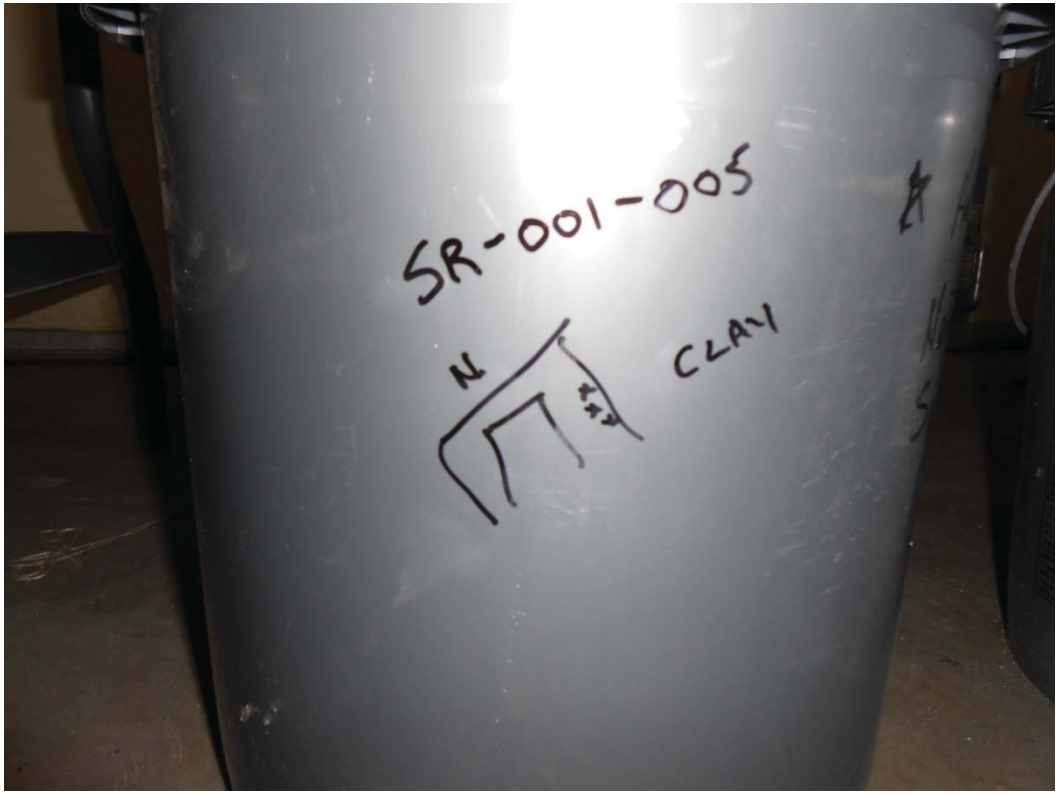


Picture ID: DSCN1024

Date Taken: October 30, 2013

Photographer: Robin White

Description:
Sample ID: SR-001-004
Berm – Northern Berm Toe
Clay



Picture ID: DSCN1025

Date Taken: October 30, 2013

Photographer: Robin White

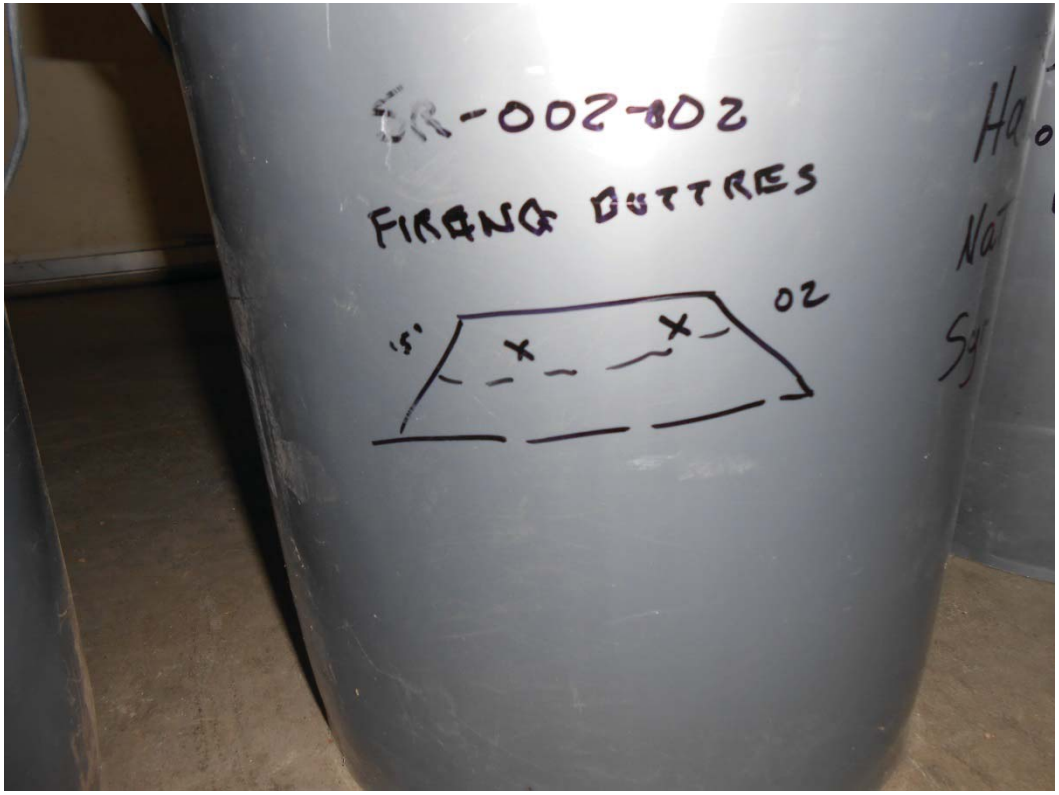
Description:
Sample ID: SR-001-005
Berm
Clay

Picture ID: DSCN1026

Date Taken: October 30, 2013

Photographer: Robin White

Description:
Sample ID: SR-002-001
Firing in Buttress

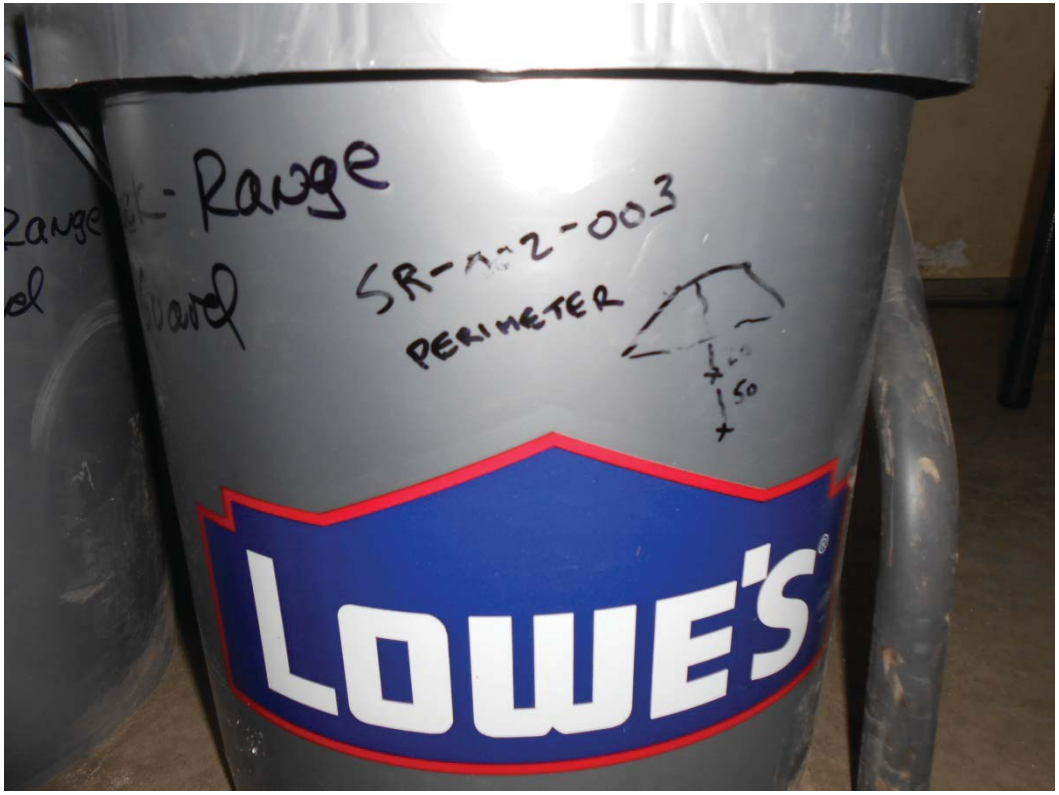


Picture ID: DSCN1027

Date Taken: October 30, 2013

Photographer: Robin White

Description:
Sample ID: SR-002-002
Firing in Buttress



Picture ID: DSCN1028

Date Taken: October 30, 2013

Photographer: Robin White

Description:
Sample ID: SR-002-003
Firing in Buttress
Perimeter

Picture ID: DSCN1030

Date Taken: October 30, 2013

Photographer: Robin White

Description:
SR001
Floor Samples
- Gravel – SR-001-001
- Water (~4”)– SR-001-002

Picture ID: DSCN1032

Date Taken: October 30, 2013

Photographer: Robin White

Description:
SR001
Berm Samples

Picture ID: DSCN1035

Date Taken: October 30, 2013

Photographer: Robin White

Description:
SR002
Firing in Buttress Samples

Processed Samples

Picture ID: DSCN1050

Date Taken: November 1, 2013

Photographer: Robin White

Description:
SR001 Floor
Unscreened

Picture ID: DSCN1048

Date Taken: November 1, 2013

Photographer: Robin White

Description:
SR001 Berm
Unscreened

Picture ID: DSCN1051

Date Taken: November 1, 2013

Photographer: Robin White

Description:
SR001 Floor & Berm 1:1 Blend
Unscreened

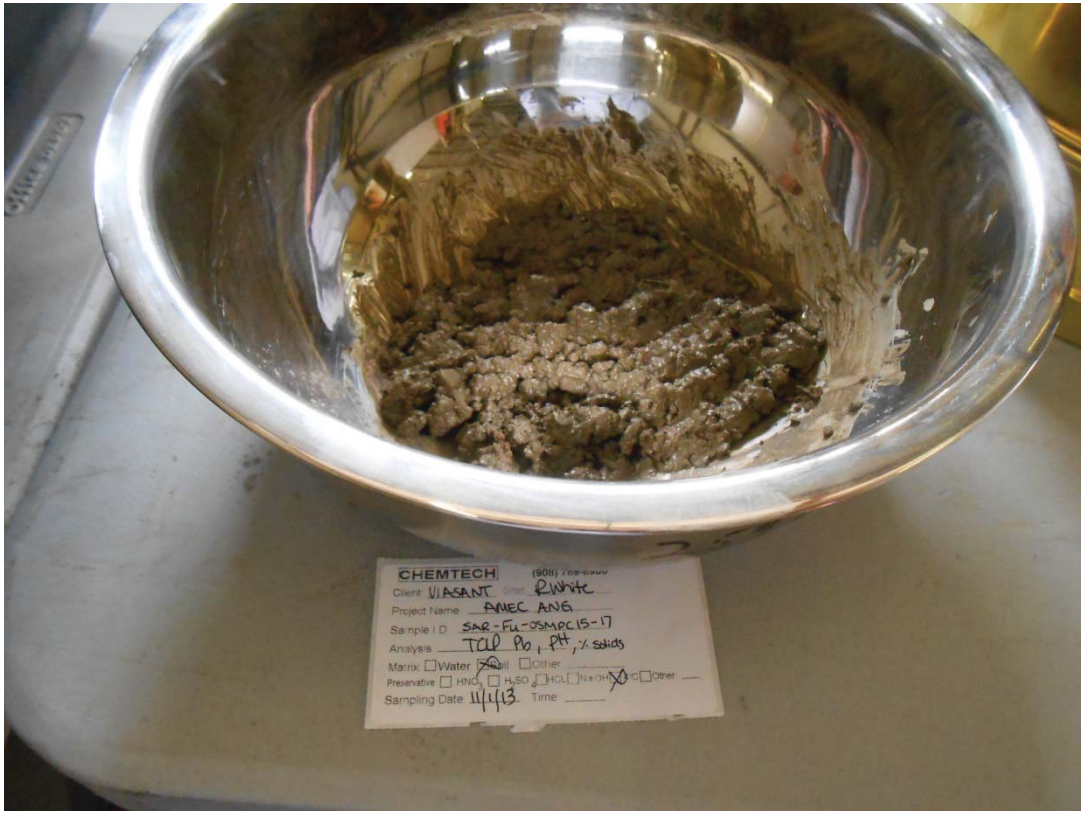
Picture ID: DSCN1052

Date Taken: November 1, 2013

Photographer: Robin White

Description:
SR002 Firing In Buttress
(note: ID in picture is incorrect as "SIB" in lieu of "FIB")

Portland Cement



Picture ID: DSCN1057

Date Taken: November 1, 2013

Photographer: Robin White

Description:
SR001 Floor
Unscreened
Post-mixing
- 15% Portland Cement
- 35mL Water

Picture ID: DSCN1058

Date Taken: November 1, 2013

Photographer: Robin White

Description:
SR001 Floor
Unscreened
Post-mixing
- 10% Portland Cement
- 2% Terrabond
- 25mL Water

Particle Size Analysis

Picture ID: DSCN1060

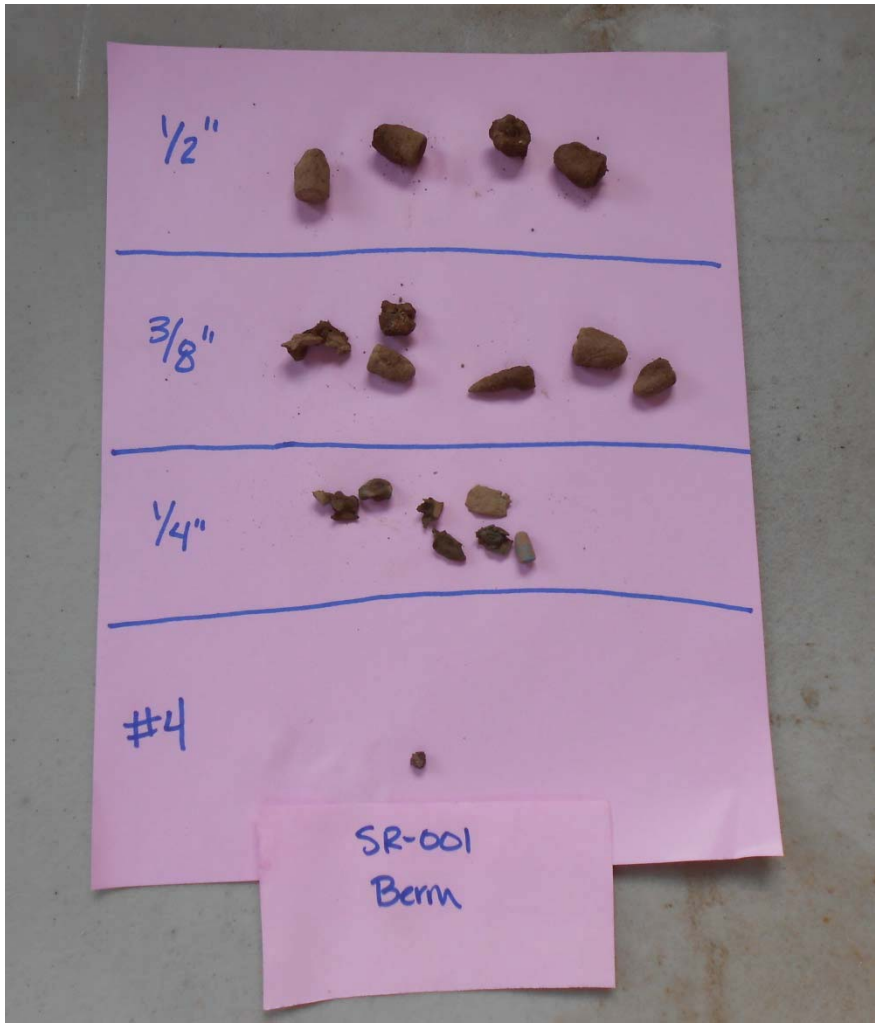
Date Taken: November 1, 2013

Photographer: Robin White

Description:

SR001 Floor

Metallic screenings and soil peds retained on the $^{3}/_{8}$"sieve



Picture ID: DSCN1061

Date Taken: November 1, 2013

Photographer: Robin White

Description:
SR001 Berm
Metallic screenings from the ½", $^{3}/_{8}$", ¼" and #4 sieves

Picture ID: DSCN1062

Date Taken: November 1, 2013

Photographer: Robin White

Description:
SR002 Firing-in-Buttress
Metallic screenings from the ¾", ½", $^{3}/_{8}$", and the ¼" sieves
(note: ID in picture is incorrect as "SIB" in lieu of "FIB")

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Attachment III

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CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

ANALYTICAL RESULTS SUMMARY

GENERAL CHEMISTRY
METALS

PROJECT NAME : AMEC ANG

VIASANT, LLC

606 East Baltimore Pike, Floor 3

Media, PA - 19063

Phone No: 484-427-2960

ORDER ID : E4336

ATTENTION : Robin White

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Hit Summary Sheet
SW-846

SDG No.: E4336 **Order ID:** E4336

Client: VIASANT, LLC **Project ID:** AMEC ANG

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	LOD	RDL	Units
Client ID : SAR-FU-01									
E4336-18	SAR-FU-01	TCLP	Lead	1,200.000		26	30.0	60	ug/L
Client ID : SAR-BU-03									
E4336-19	SAR-BU-03	TCLP	Lead	93,300.000		26	30.0	60	ug/L
Client ID : SAR-FBU-05									
E4336-20	SAR-FBU-05	TCLP	Lead	6,300.000		26	30.0	60	ug/L
Client ID : SAR-FIBU-07									
E4336-21	SAR-FIBU-07	TCLP	Lead	222.000		26	30.0	60	ug/L
Client ID : SAR-FBU-TB05-08									
E4336-22	SAR-FBU-TB05-08	TCLP	Lead	1,300.000		26	30.0	60	ug/L
Client ID : SAR-FIBU-TB05-09									
E4336-23	SAR-FIBU-TB05-09	TCLP	Lead	28.100	J	26	30.0	60	ug/L
Client ID : SAR-FS-02									
E4336-26	SAR-FS-02	TCLP	Lead	620.000		26	30.0	60	ug/L
Client ID : SAR-BS-04									
E4336-27	SAR-BS-04	TCLP	Lead	91,400.000		26	30.0	60	ug/L
Client ID : SAR-FIBS-06									
E4336-28	SAR-FIBS-06	TCLP	Lead	336.000		26	30.0	60	ug/L
Client ID : SAR-BS-TB03-12									
E4336-29	SAR-BS-TB03-12	TCLP	Lead	39,800.000		26	30.0	60	ug/L
Client ID : SAR-BS-TB06-13									
E4336-30	SAR-BS-TB06-13	TCLP	Lead	548.000		26	30.0	60	ug/L
Client ID : SAR-FIBS-TB03-14									
E4336-33	SAR-FIBS-TB03-14	TCLP	Lead	123.000		26	30.0	60	ug/L
Client ID : SAR-FIBS-TB06-15									
E4336-34	SAR-FIBS-TB06-15	TCLP	Lead	129.000		26	30.0	60	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

DATA PACKAGE

GENERAL CHEMISTRY
METALS

PROJECT NAME : AMEC ANG

VIASANT, LLC

606 East Baltimore Pike, Floor 3

Media, PA - 19063

Phone No: 484-427-2960

ORDER ID : E4336

ATTENTION : Robin White

DoD ELAP

Table Of Contents for E4336

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Cover Page

Order ID : E4336

Project ID : AMEC ANG

Client : VIASANT, LLC

Lab Sample Number	Client Sample Number
E4336-01	SAR-FU-01
E4336-02	SAR-BU-03
E4336-03	SAR-FBU-05
E4336-04	SAR-FIBU-07
E4336-05	SAR-FBU-TB05-08
E4336-06	SAR-FIBU-TB05-09
E4336-07	SAR-FBU-TB07-10
E4336-08	SAR-FIBU-TB07-11
E4336-09	SAR-FS-02
E4336-10	SAR-BS-04
E4336-11	SAR-FIBS-06
E4336-12	SAR-BS-TB03-12
E4336-13	SAR-BS-TB06-13
E4336-14	SAR-FU-OSMPC10-TB02-16
E4336-15	SAR-FU-OSMPC-15-17
E4336-16	SAR-FIBS-TB03-14
E4336-17	SAR-FIBS-TB06-15
E4336-18	SAR-FU-01
E4336-19	SAR-BU-03
E4336-20	SAR-FBU-05
E4336-21	SAR-FIBU-07
E4336-22	SAR-FBU-TB05-08
E4336-23	SAR-FIBU-TB05-09
E4336-24	SAR-FBU-TB07-10
E4336-25	SAR-FIBU-TB07-11
E4336-26	SAR-FS-02
E4336-27	SAR-BS-04
E4336-28	SAR-FIBS-06
E4336-29	SAR-BS-TB03-12
E4336-30	SAR-BS-TB06-13

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____ Date: 11/13/2013

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Cover Page

Order ID : E4336

Project ID : AMEC ANG

Client : VIASANT, LLC

Lab Sample Number	Client Sample Number
E4336-31	SAR-FU-OSMPC10-TB02-16
E4336-32	SAR-FU-OSMPC-15-17
E4336-33	SAR-FIBS-TB03-14
E4336-34	SAR-FIBS-TB06-15

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

Date: 11/13/2013

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

CHEMTECH
284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

CASE NARRATIVE

VIASANT, LLC
Project Name: AMEC ANG
Project # N/A
Chemtech Project # E4336
Test Name: TCLPMetals Group3

A. Number of Samples and Date of Receipt:
34 Solid samples were received on 11/02/2013.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: pH, TCLP Extraction and TCLPMetals Group3. This data package contains results for TCLPMetals Group3.

C. Analytical Techniques:
The analysis of TCLPMetals Group3 was based on method 6010C and digestion based on method 3010 (waters) and TCLP extraction method was 1311.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.
The Serial Dilution met the acceptable requirements.

E. Additional Comments:
For Lb68471, %Recovery for LLCCV13 is outside the acceptance limit but not affecting any samples and QCs.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

CHEMTECH
284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

CASE NARRATIVE

VIASANT, LLC
Project Name: AMEC ANG
Project # N/A
Chemtech Project # E4336
Test Name: pH

A. Number of Samples and Date of Receipt:
34 Solid samples were received on 11/02/2013.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: pH, TCLP Extraction and TCLPMetals Group3. This data package contains results for pH.

C. Analytical Techniques:
The analysis of pH was based on method 9045C.

D. QA/ QC Samples:
The Holding Times were not meet for all samples for pH.
The Duplicate analysis met criteria for all samples.
The Calibration met the requirements.

E. Additional Comments:

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following " Results Qualifiers" are used:

J	Indicates the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit (IDL).
U	Indicates the analyte was analyzed for, but not detected.
ND	Indicates the analyte was analyzed for, but not detected
E	Indicates the reported value is estimated because of the presence of interference
M	Indicates Duplicate injection precision not met.
N	Indicates the spiked sample recovery is not within control limits.
S	Indicates the reported value was determined by the Method of Standard Addition (MSA).
*	Indicates that the duplicate analysis is not within control limits.
+	Indicates the correlation coefficient for the MSA is less than 0.995.
D	Indicates the reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
M	Method qualifiers **"P"** for ICP instrument **"PM"** for ICP when Microwave Digestion is used **"CV"** for Manual Cold Vapor AA **"AV"** for automated Cold Vapor AA **"CA"** for MIDI-Distillation Spectrophotometric **"AS"** for Semi –Automated Spectrophotometric **"C"** for Manual Spectrophotometric **"T"** for Titrimetric **"NR"** for analyte not required to be analyzed
OR	Indicates the analyte's concentration exceeds the calibrated range of the instrument for that specific analysis.
Q	Indicates the LCS did not meet the control limits requirements
H	Sample Analysis Out Of Hold Time

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: E4336

	Completed
For thorough review, the report must have the following:	
GENERAL:	
Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)	✓
Check chain-of-custody for proper relinquish/return of samples	✓
Is the chain of custody signed and complete	✓
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts	✓
Collect information for each project id from server. Were all requirements followed	✓
COVER PAGE:	
Do numbers of samples correspond to the number of samples in the Chain of Custody on login page	✓
Do lab numbers and client Ids on cover page agree with the Chain of Custody	✓
CHAIN OF CUSTODY:	
Do requested analyses on Chain of Custody agree with form I results	✓
Do requested analyses on Chain of Custody agree with the log-in page	✓
Were the correct method log-in for analysis according to the Analytical Request and Chain of Castody	✓
Were the samples received within hold time	✓
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle	✓
ANALYTICAL:	
Was method requirement followed?	✓
Was client requirement followed?	✓
Does the case narrative summarize all QC failure?	✓
All runlogs and manual integration are reviewed for requirements	✓
All manual calculations and /or hand notations verified	✓

1st Level QA Review Signature: SOHIL JODHANI **Date:** 11/13/2013

2nd Level QA Review Signature: _____ **Date:** _____

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

LAB CHRONICLE

OrderID:	E4336	**OrderDate:**	11/4/2013 1:04:16 PM
Client:	VIASANT, LLC	**Project:**	AMEC ANG
Contact:	Robin White	**Location:**	J31

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
E4336-18	**SAR-FU-01**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/05/13	
E4336-19	**SAR-BU-03**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/05/13	
E4336-20	**SAR-FBU-05**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/05/13	
E4336-21	**SAR-FIBU-07**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-22	**SAR-FBU-TB05-08**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-23	**SAR-FIBU-TB05-09**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-24	**SAR-FBU-TB07-10**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-25	**SAR-FIBU-TB07-11**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-26	**SAR-FS-02**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-27	**SAR-BS-04**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-28	**SAR-FIBS-06**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-29	**SAR-BS-TB03-12**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	

LAB CHRONICLE

E4336-30	**SAR-BS-TB06-13**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-31	**SAR-FU-OSMPC10-TB 02-16**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-32	**SAR-FU-OSMPC-15-1 7**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-33	**SAR-FIBS-TB03-14**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	
E4336-34	**SAR-FIBS-TB06-15**	**TCLP**			**11/01/13**			**11/02/13**
			TCLPMetals Group3	6010C		11/05/13	11/06/13	

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Hit Summary Sheet
SW-846

SDG No.: E4336 **Order ID:** E4336

Client: VIASANT, LLC **Project ID:** AMEC ANG

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	LOD	RDL	Units
Client ID : SAR-FU-01									
E4336-18	SAR-FU-01	TCLP	Lead	1,200.000		26	30.0	60	ug/L
Client ID : SAR-BU-03									
E4336-19	SAR-BU-03	TCLP	Lead	93,300.000		26	30.0	60	ug/L
Client ID : SAR-FBU-05									
E4336-20	SAR-FBU-05	TCLP	Lead	6,300.000		26	30.0	60	ug/L
Client ID : SAR-FIBU-07									
E4336-21	SAR-FIBU-07	TCLP	Lead	222.000		26	30.0	60	ug/L
Client ID : SAR-FBU-TB05-08									
E4336-22	SAR-FBU-TB05-08	TCLP	Lead	1,300.000		26	30.0	60	ug/L
Client ID : SAR-FIBU-TB05-09									
E4336-23	SAR-FIBU-TB05-09	TCLP	Lead	28.100	J	26	30.0	60	ug/L
Client ID : SAR-FS-02									
E4336-26	SAR-FS-02	TCLP	Lead	620.000		26	30.0	60	ug/L
Client ID : SAR-BS-04									
E4336-27	SAR-BS-04	TCLP	Lead	91,400.000		26	30.0	60	ug/L
Client ID : SAR-FIBS-06									
E4336-28	SAR-FIBS-06	TCLP	Lead	336.000		26	30.0	60	ug/L
Client ID : SAR-BS-TB03-12									
E4336-29	SAR-BS-TB03-12	TCLP	Lead	39,800.000		26	30.0	60	ug/L
Client ID : SAR-BS-TB06-13									
E4336-30	SAR-BS-TB06-13	TCLP	Lead	548.000		26	30.0	60	ug/L
Client ID : SAR-FIBS-TB03-14									
E4336-33	SAR-FIBS-TB03-14	TCLP	Lead	123.000		26	30.0	60	ug/L
Client ID : SAR-FIBS-TB06-15									
E4336-34	SAR-FIBS-TB06-15	TCLP	Lead	129.000		26	30.0	60	ug/L

SAMPLE DATA

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FU-01	SDG No.:	E4336
Lab Sample ID:	E4336-18	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	1200		1	26	30.0	60	ug/L	11/05/13	11/05/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-BU-03	SDG No.:	E4336
Lab Sample ID:	E4336-19	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	93300		1	26	30.0	60	ug/L	11/05/13	11/05/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FBU-05	SDG No.:	E4336
Lab Sample ID:	E4336-20	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	6300		1	26	30.0	60	ug/L	11/05/13	11/05/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBU-07	SDG No.:	E4336
Lab Sample ID:	E4336-21	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	222		1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FBU-TB05-08	SDG No.:	E4336
Lab Sample ID:	E4336-22	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	1300		1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBU-TB05-09	SDG No.:	E4336
Lab Sample ID:	E4336-23	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	28.1	J	1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FBU-TB07-10	SDG No.:	E4336
Lab Sample ID:	E4336-24	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	30	U	1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBU-TB07-11	SDG No.:	E4336
Lab Sample ID:	E4336-25	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	30	U	1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FS-02	SDG No.:	E4336
Lab Sample ID:	E4336-26	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	620		1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

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Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-BS-04	SDG No.:	E4336
Lab Sample ID:	E4336-27	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	91400		1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

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Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBS-06	SDG No.:	E4336
Lab Sample ID:	E4336-28	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	336		1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-BS-TB03-12	SDG No.:	E4336
Lab Sample ID:	E4336-29	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	39800		1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-BS-TB06-13	SDG No.:	E4336
Lab Sample ID:	E4336-30	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	548		1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FU-OSMPC10-TB02-16	SDG No.:	E4336
Lab Sample ID:	E4336-31	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	30	U	1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FU-OSMPC-15-17	SDG No.:	E4336
Lab Sample ID:	E4336-32	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	30	U	1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

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Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBS-TB03-14	SDG No.:	E4336
Lab Sample ID:	E4336-33	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	123		1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBS-TB06-15	SDG No.:	E4336
Lab Sample ID:	E4336-34	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7439-92-1	Lead	129		1	26	30.0	60	ug/L	11/05/13	11/06/13	SW6010

Color Before:	Colorless	Clarity Before:		Texture:	Clear
Color After:	Colorless	Clarity After:		Artifacts:	Clear
Comments:	TCLPMetals Group3				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

METAL CALIBRATION DATA

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Lead	1012.1	1002	101.0	90 - 110	P	11/05/2013	17:17	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLICV01	Lead	10.69	12	89.1	70 - 130	P	11/05/2013	17:28	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Lead	4966.1	5000	99.3	90 - 110	P	11/05/2013	17:49	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLCCV01	Lead	11.88	12	99.0	70 - 130	P	11/05/2013	17:53	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV02	Lead	4883.1	5000	97.7	90 - 110	P	11/05/2013	18:46	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLCCV02	Lead	11.19	12	93.3	70 - 130	P	11/05/2013	18:50	LB68471

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV03	Lead	4853.1	5000	97.1	90 - 110	P	11/05/2013	19:39	LB68471
CCV04	Lead	4819.4	5000	96.4	90 - 110	P	11/05/2013	20:33	LB68471
CCV05	Lead	4850.4	5000	97.0	90 - 110	P	11/05/2013	21:23	LB68471
CCV06	Lead	4852.2	5000	97.0	90 - 110	P	11/05/2013	22:13	LB68471
CCV07	Lead	4928.5	5000	98.6	90 - 110	P	11/05/2013	23:04	LB68471
CCV08	Lead	4861.4	5000	97.2	90 - 110	P	11/05/2013	23:55	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLCCV08	Lead	12.25	12	102.1	70 - 130	P	11/05/2013	23:59	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV09	Lead	4916.2	5000	98.3	90 - 110	P	11/06/2013	00:50	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLCCV09	Lead	11.39	12	94.9	70 - 130	P	11/06/2013	00:54	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV10	Lead	4920.4	5000	98.4	90 - 110	P	11/06/2013	01:46	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLCCV10	Lead	11.53	12	96.1	70 - 130	P	11/06/2013	01:50	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV11	Lead	4898.3	5000	98	90 - 110	P	11/06/2013	02:40	LB68471
CCV12	Lead	4893	5000	97.9	90 - 110	P	11/06/2013	03:32	LB68471
CCV13	Lead	4918.4	5000	98.4	90 - 110	P	11/06/2013	04:25	LB68471

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLCCV13	Lead	35.98	12	299.8	70 - 130	P	11/06/2013	04:29	LB68471

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV14	Lead	4936.1	5000	98.7	90 - 110	P	11/06/2013	05:26	LB68471
CCV15	Lead	4952.7	5000	99.1	90 - 110	P	11/06/2013	06:25	LB68471
CCV16	Lead	4968.5	5000	99.4	90 - 110	P	11/06/2013	07:21	LB68471

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Metals

- 2b -

CRDL STANDARD FOR AA & ICP

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Initial Calibration Source:

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Lead	11.76	12	98.0	40 - 160	P	11/05/2013	17:36	LB68471

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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/05/2013	17:32	LB68471

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	LOD	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/05/2013	17:57	LB68471
CCB02	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/05/2013	18:54	LB68471
CCB03	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/05/2013	19:43	LB68471
CCB04	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/05/2013	20:37	LB68471
CCB05	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/05/2013	21:27	LB68471
CCB06	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/05/2013	22:17	LB68471
CCB07	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/05/2013	23:08	LB68471
CCB08	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/06/2013	00:03	LB68471
CCB09	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/06/2013	00:58	LB68471
CCB10	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/06/2013	01:54	LB68471
CCB11	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/06/2013	02:44	LB68471
CCB12	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/06/2013	03:36	LB68471
CCB13	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/06/2013	04:34	LB68471
CCB14	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/06/2013	05:31	LB68471
CCB15	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/06/2013	06:30	LB68471
CCB16	Lead	6.0	+/-12.0	U	6.0	12.0	P	11/06/2013	07:26	LB68471

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Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: VIASANT, LLC **SDG No.:** E4336

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	LOD ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB73269BL		**WATER**		**Batch Number:**		**PB73269**		**Prep Date:**	**11/05/2013**	
	Lead	30.0	<60.0	U	30.0	60.0	P	11/05/2013	23:13	LB68471

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	LOD ug/L	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB73269TB		**WATER**		**Batch Number:**		**PB73269**		**Prep Date:**	**11/05/2013**	
	Lead	30.0	<60.0	U	30.0	60.0	P	11/05/2013	23:21	LB68471

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Metals
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INTERFERENCE CHECK SAMPLE

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

ICS Source: EPA **Instrument ID:** P4

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Lead	8.44	10	84.4	0 - 200%	11/05/2013	17:41	LB68471
ICSAB01	Lead	56.7	58	97.8	80 - 120%	11/05/2013	17:45	LB68471

METAL QC DATA

metals
- 5a -
MATRIX SPIKE SUMMARY

client: VIASANT, LLC **level:** low **sdg no.:** E4336

contract: VIAS01 **lab code:** CHEM **case no.:** E4336 **sas no.:** E4336

matrix: WATER **sample id:** E4336-18 **client id:** SAR-FU-01MS

Percent Solids for Sample: NA **Spiked ID:** E4336-18MS **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Lead	ug/L	74 - 119	5800		1200		5000	92		P

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metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: VIASANT, LLC **level:** low **sdg no.:** E4336

contract: VIAS01 **lab code:** CHEM **case no.:** E4336 **sas no.:** E4336

matrix: WATER **sample id:** E4336-18 **client id:** SAR-FU-01MSD

Percent Solids for Sample: NA **Spiked ID:** E4336-18MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Lead	ug/L	74 - 119	5800		1200		5000	92		P

CHEMTECH

Metals
- 5b -

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Matrix: **Level:** LOW **Client ID:**

Sample ID: **Spiked ID:**

Analyte	Units	Acceptance Limit %R	C	Sample Result	C	Spike Added	% Recovery	Qual	M

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Metals

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DUPLICATE SAMPLE SUMMARY

Client: VIASANT, LLC **Level:** LOW **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Matrix: WATER **Sample ID:** E4336-18 **Client ID:** SAR-FU-01DUP

Percent Solids for Sample: NA **Duplicate ID** E4336-18DUP **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Lead	ug/L	20	1200		1100		9		P

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

Metals

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DUPLICATE SAMPLE SUMMARY

Client: VIASANT, LLC **Level:** LOW **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Matrix: WATER **Sample ID:** E4336-18MS **Client ID:** SAR-FU-01MSD

Percent Solids for Sample: NA **Duplicate ID** E4336-18MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Lead	ug/L	20	5800		5800		0		P

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

Metals

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LABORATORY CONTROL SAMPLE SUMMARY

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB73269BS							
Lead	ug/L	5000	4800		96.0	83 - 119	P

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

SAR-FU-01L

Lab Name: Chemtech Consulting Group **Contract:** VIAS01

Lab Code: CHEM **Lb No.:** lb68471 **Lab Sample ID :** E4336-18L **SDG No.:** E4336

Matrix (soil/water): WATER **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Lead	1200		1100		8		P

METAL PREPARATION & INSTRUMENT DATA

Metals

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Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Instrument ID: P4 **Preparation Method:**

Analyte	Wave- length (nm)	MDL	LOD	PQL	Date:
LIQUID					
Method:	**6010C**				
Lead	220.35	2.6	3.0	6.0	

Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Instrument ID: **Date:**

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave-Length (nm)	ICP Interelement Correction Factors For: Al	Ca	Fe	Mg	Ag
Lead	220.353	-0.0001070	0.0000000	0.0000280	0.0000000	0.0000000

Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Instrument ID: **Date:**

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave-Length (nm)	ICP Interelement Correction Factors For: As	Ba	Be	Cd	Co
Lead	220.353	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Instrument ID: **Date:**

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave-Length (nm)	ICP Interelement Correction Factors For: Cr	Cu	K	Mn	Mo
Lead	220.353	-0.0003060	0.0000000	0.0000000	0.0001250	-0.0013650

Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Instrument ID: **Date:**

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave-Length (nm)	ICP Interelement Correction Factors For: Na	Ni	Pb	Sb	Se
Lead	220.353	0.0000000	0.0002444	0.0000000	0.0000000	0.0000000

Metals
- 11 -
ICP INTERELEMENT CORRECTION FACTORS

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Instrument ID: **Date:**

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave-Length (nm)	ICP Interelement Correction Factors For: Sn	Ti	Tl	V	Zn
Lead	220.353	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Metals

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LINEAR RANGES

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Case No.:** E4336 **SAS No.:** E4336

Instrument ID: P4 **Date:** 12/06/2012

Analyte	Integration Time (sec)	LDR ug/L
Lead	10	280000

METAL PREPARATION & ANALYICAL SUMMARY

Metals
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SAMPLE PREPARATION SUMMARY

Client: VIASANT, LLC **SDG No.:** E4336

Contract: VIAS01 **Lab Code:** CHEM **Method:**

Case No.: E4336 **SAS No.:** E4336

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number:	**PB73269**						
E4336-18	SAR-FU-01	SAM	WATER	11/05/2013	5.0	25.0	
E4336-18DUP	SAR-FU-01DUP	DUP	WATER	11/05/2013	5.0	25.0	
E4336-18MS	SAR-FU-01MS	MS	WATER	11/05/2013	5.0	25.0	
E4336-18MSD	SAR-FU-01MSD	MSD	WATER	11/05/2013	5.0	25.0	
E4336-19	SAR-BU-03	SAM	WATER	11/05/2013	5.0	25.0	
E4336-20	SAR-FBU-05	SAM	WATER	11/05/2013	5.0	25.0	
E4336-21	SAR-FIBU-07	SAM	WATER	11/05/2013	5.0	25.0	
E4336-22	SAR-FBU-TB05-08	SAM	WATER	11/05/2013	5.0	25.0	
E4336-23	SAR-FIBU-TB05-09	SAM	WATER	11/05/2013	5.0	25.0	
E4336-24	SAR-FBU-TB07-10	SAM	WATER	11/05/2013	5.0	25.0	
E4336-25	SAR-FIBU-TB07-11	SAM	WATER	11/05/2013	5.0	25.0	
E4336-26	SAR-FS-02	SAM	WATER	11/05/2013	5.0	25.0	
E4336-27	SAR-BS-04	SAM	WATER	11/05/2013	5.0	25.0	
E4336-28	SAR-FIBS-06	SAM	WATER	11/05/2013	5.0	25.0	
E4336-29	SAR-BS-TB03-12	SAM	WATER	11/05/2013	5.0	25.0	
E4336-30	SAR-BS-TB06-13	SAM	WATER	11/05/2013	5.0	25.0	
E4336-31	SAR-FU-OSMPC10-TB02-16	SAM	WATER	11/05/2013	5.0	25.0	
E4336-32	SAR-FU-OSMPC-15-17	SAM	WATER	11/05/2013	5.0	25.0	
E4336-33	SAR-FIBS-TB03-14	SAM	WATER	11/05/2013	5.0	25.0	
E4336-34	SAR-FIBS-TB06-15	SAM	WATER	11/05/2013	5.0	25.0	
PB73269BL	PB73269BL	MB	WATER	11/05/2013	5.0	25.0	
PB73269BS	PB73269BS	LCS	WATER	11/05/2013	5.0	25.0	
PB73269TB	PB73269TB	MB	WATER	11/05/2013	5.0	25.0	

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metals
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ANALYSIS RUN LOG

Client: VIASANT, LLC **Contract:** VIAS01

Lab code: CHEM **Case no.:** E4336 **Sas no.:** E4336 **Sdg no.:** E4336

Instrument id number: **Method:** **Run number:** LB68471

Start date: 11/05/2013 **End date:** 11/05/2013

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1652	Pb
S1	S1	1	1656	Pb
S2	S2	1	1700	
S3	S3	1	1704	Pb
S4	S4	1	1708	Pb
S5	S5	1	1712	Pb
ICV01	ICV01	1	1717	Pb
LLICV01	LLICV01	1	1728	Pb
ICB01	ICB01	1	1732	Pb
CRI01	CRI01	1	1736	Pb
ICSA01	ICSA01	1	1741	Pb
ICSAB01	ICSAB01	1	1745	Pb
CCV01	CCV01	1	1749	Pb
LLCCV01	LLCCV01	1	1753	Pb
CCB01	CCB01	1	1757	Pb
CCV02	CCV02	1	1846	Pb
LLCCV02	LLCCV02	1	1850	Pb
CCB02	CCB02	1	1854	Pb
CCV03	CCV03	1	1939	Pb
CCB03	CCB03	1	1943	Pb
CCV04	CCV04	1	2033	Pb
CCB04	CCB04	1	2037	Pb
CCV05	CCV05	1	2123	Pb
CCB05	CCB05	1	2127	Pb
CCV06	CCV06	1	2213	Pb
CCB06	CCB06	1	2217	Pb
E4336-19	SAR-BU-03	1	2300	Pb
CCV07	CCV07	1	2304	Pb
CCB07	CCB07	1	2308	Pb
PB73269BL	PB73269BL	1	2313	Pb
PB73269BS	PB73269BS	1	2317	Pb
PB73269TB	PB73269TB	1	2321	Pb
E4336-18	SAR-FU-01	1	2325	Pb
E4336-18DUP	SAR-FU-01DUP	1	2329	Pb
E4336-18L	SAR-FU-01L	5	2334	Pb
E4336-18MS	SAR-FU-01MS	1	2338	Pb
E4336-18MSD	SAR-FU-01MSD	1	2342	Pb
E4336-20	SAR-FBU-05	1	2350	Pb
CCV08	CCV08	1	2355	Pb
LLCCV08	LLCCV08	1	2359	Pb
CCB08	CCB08	1	0003	Pb
E4336-21	SAR-FIBU-07	1	0007	Pb
E4336-22	SAR-FBU-TB05-08	1	0011	Pb

metals
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ANALYSIS RUN LOG

Client: VIASANT, LLC **Contract:** VIAS01

Lab code: CHEM **Case no.:** E4336 **Sas no.:** E4336 **Sdg no.:** E4336

Instrument id number: **Method:** **Run number:** LB68471

Start date: 11/05/2013 **End date:** 11/05/2013

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
E4336-23	SAR-FIBU-TB05-09	1	0016	Pb
E4336-24	SAR-FBU-TB07-10	1	0020	Pb
E4336-25	SAR-FIBU-TB07-11	1	0024	Pb
E4336-26	SAR-FS-02	1	0029	Pb
E4336-27	SAR-BS-04	1	0033	Pb
E4336-28	SAR-FIBS-06	1	0037	Pb
E4336-29	SAR-BS-TB03-12	1	0042	Pb
E4336-30	SAR-BS-TB06-13	1	0046	Pb
CCV09	CCV09	1	0050	Pb
LLCCV09	LLCCV09	1	0054	Pb
CCB09	CCB09	1	0058	Pb
E4336-31	SAR-FU-OSMPC10-TB02-16	1	0103	Pb
E4336-32	SAR-FU-OSMPC-15-17	1	0108	Pb
E4336-33	SAR-FIBS-TB03-14	1	0112	Pb
E4336-34	SAR-FIBS-TB06-15	1	0116	Pb
CCV10	CCV10	1	0146	Pb
LLCCV10	LLCCV10	1	0150	Pb
CCB10	CCB10	1	0154	Pb
CCV11	CCV11	1	0240	Pb
CCB11	CCB11	1	0244	Pb
CCV12	CCV12	1	0332	Pb
CCB12	CCB12	1	0336	Pb
CCV13	CCV13	1	0425	Pb
LLCCV13	LLCCV13	1	0429	Pb
CCB13	CCB13	1	0434	Pb
CCV14	CCV14	1	0526	Pb
CCB14	CCB14	1	0531	Pb
CCV15	CCV15	1	0625	Pb
CCB15	CCB15	1	0630	Pb
CCV16	CCV16	1	0721	Pb
CCB16	CCB16	1	0726	Pb

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LAB CHRONICLE

OrderID:	E4336	**OrderDate:**	11/4/2013 1:04:16 PM
Client:	VIASANT, LLC	**Project:**	AMEC ANG
Contact:	Robin White	**Location:**	J31

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
E4336-01	**SAR-FU-01**	**SOIL**			**11/01/13 10:39**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:35	
E4336-02	**SAR-BU-03**	**SOIL**			**11/01/13 10:40**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:37	
E4336-03	**SAR-FBU-05**	**SOIL**			**11/01/13 10:42**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:38	
E4336-04	**SAR-FIBU-07**	**SOIL**			**11/01/13 10:44**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:39	
E4336-05	**SAR-FBU-TB05-08**	**SOIL**			**11/01/13 10:46**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:40	
E4336-06	**SAR-FIBU-TB05-09**	**SOIL**			**11/01/13 10:49**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:41	
E4336-07	**SAR-FBU-TB07-10**	**SOIL**			**11/01/13 10:53**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:42	
E4336-08	**SAR-FIBU-TB07-11**	**SOIL**			**11/01/13 10:55**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:43	
E4336-09	**SAR-FS-02**	**SOIL**			**11/01/13 13:19**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:44	
E4336-10	**SAR-BS-04**	**SOIL**			**11/01/13 14:25**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:46	
E4336-11	**SAR-FIBS-06**	**SOIL**			**11/01/13 15:09**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:47	
E4336-12	**SAR-BS-TB03-12**	**SOIL**			**11/01/13 15:40**			**11/02/13**
			pH	9045C		11/05/13	11/05/13 10:48	

LAB CHRONICLE

E4336-13	**SAR-BS-TB06-13**	**SOIL**			**11/01/13**	**15:36**		**11/02/13**
			pH	9045C			11/05/13	11/05/13 10:49
E4336-14	**SAR-FU-OSMPC10-TB 02-16**	**SOIL**			**11/01/13**	**15:41**		**11/02/13**
			pH	9045C			11/05/13	11/05/13 10:50
E4336-15	**SAR-FU-OSMPC-15-1 7**	**SOIL**			**11/01/13**	**15:43**		**11/02/13**
			pH	9045C			11/05/13	11/05/13 10:51
E4336-16	**SAR-FIBS-TB03-14**	**SOIL**			**11/01/13**	**15:46**		**11/02/13**
			pH	9045C			11/05/13	11/05/13 10:52
E4336-17	**SAR-FIBS-TB06-15**	**SOIL**			**11/01/13**	**15:48**		**11/02/13**
			pH	9045C			11/05/13	11/05/13 10:53

SAMPLE DATA

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 10:39
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FU-01	SDG No.:	E4336
Lab Sample ID:	E4336-01	Matrix:	SOIL
		% Solid:	92.6

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	9.07	H	1	0	0	0	pH	11/05/13	11/05/13 10:35	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 10:40
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-BU-03	SDG No.:	E4336
Lab Sample ID:	E4336-02	Matrix:	SOIL
		% Solid:	84.7

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	8.32	H	1	0	0	0	pH	11/05/13	11/05/13 10:37	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 10:42
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FBU-05	SDG No.:	E4336
Lab Sample ID:	E4336-03	Matrix:	SOIL
		% Solid:	88.1

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	8.76	H	1	0	0	0	pH	11/05/13	11/05/13 10:38	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 10:44
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBU-07	SDG No.:	E4336
Lab Sample ID:	E4336-04	Matrix:	SOIL
		% Solid:	91.7

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	8.72	H	1	0	0	0	pH	11/05/13	11/05/13 10:39	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 10:46
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FBU-TB05-08	SDG No.:	E4336
Lab Sample ID:	E4336-05	Matrix:	SOIL
		% Solid:	89.6

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	10.84	H	1	0	0	0	pH	11/05/13	11/05/13 10:40	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 10:49
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBU-TB05-09	SDG No.:	E4336
Lab Sample ID:	E4336-06	Matrix:	SOIL
		% Solid:	90.8

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	11.37	H	1	0	0	0	pH	11/05/13	11/05/13 10:41	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 10:53
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FBU-TB07-10	SDG No.:	E4336
Lab Sample ID:	E4336-07	Matrix:	SOIL
		% Solid:	90

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	11.15	H	1	0	0	0	pH	11/05/13	11/05/13 10:42	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 10:55
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBU-TB07-11	SDG No.:	E4336
Lab Sample ID:	E4336-08	Matrix:	SOIL
		% Solid:	91.9

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	11.35	H	1	0	0	0	pH	11/05/13	11/05/13 10:43	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 13:19
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FS-02	SDG No.:	E4336
Lab Sample ID:	E4336-09	Matrix:	SOIL
		% Solid:	92

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	9.22	H	1	0	0	0	pH	11/05/13	11/05/13 10:44	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
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H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 14:25
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-BS-04	SDG No.:	E4336
Lab Sample ID:	E4336-10	Matrix:	SOIL
		% Solid:	84.4

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	8.6	H	1	0	0	0	pH	11/05/13	11/05/13 10:46	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 15:09
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBS-06	SDG No.:	E4336
Lab Sample ID:	E4336-11	Matrix:	SOIL
		% Solid:	90.9

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	8.59	H	1	0	0	0	pH	11/05/13	11/05/13 10:47	9045C

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution
Q = indicates LCS control criteria did not meet requirements
H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 15:40
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-BS-TB03-12	SDG No.:	E4336
Lab Sample ID:	E4336-12	Matrix:	SOIL
		% Solid:	85.3

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	10.85	H	1	0	0	0	pH	11/05/13	11/05/13 10:48	9045C

Comments:

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MDL = Method Detection Limit
LOD = Limit of Detection
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H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
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OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 15:36
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-BS-TB06-13	SDG No.:	E4336
Lab Sample ID:	E4336-13	Matrix:	SOIL
		% Solid:	86.9

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	11.52	H	1	0	0	0	pH	11/05/13	11/05/13 10:49	9045C

Comments:

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LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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J = Estimated Value
B = Analyte Found in Associated Method Blank
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E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 15:41
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FU-OSMPC10-TB02-16	SDG No.:	E4336
Lab Sample ID:	E4336-14	Matrix:	SOIL
		% Solid:	89.5

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	11.72	H	1	0	0	0	pH	11/05/13	11/05/13 10:50	9045C

Comments:

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MDL = Method Detection Limit
LOD = Limit of Detection
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H = Sample Analysis Out Of Hold Time
J = Estimated Value
B = Analyte Found in Associated Method Blank
* = indicates the duplicate analysis is not within control limits.
E = Indicates the reported value is estimated because of the presence of interference.
OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 15:43
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FU-OSMPC-15-17	SDG No.:	E4336
Lab Sample ID:	E4336-15	Matrix:	SOIL
		% Solid:	87.5

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	11.63	H	1	0	0	0	pH	11/05/13	11/05/13 10:51	9045C

Comments:

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LOD = Limit of Detection
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J = Estimated Value
B = Analyte Found in Associated Method Blank
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OR = Over Range
N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 15:46
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBS-TB03-14	SDG No.:	E4336
Lab Sample ID:	E4336-16	Matrix:	SOIL
		% Solid:	91.7

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	11.04	H	1	0	0	0	pH	11/05/13	11/05/13 10:52	9045C

Comments:

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LOD = Limit of Detection
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N =Spiked sample recovery not within control limits

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Report of Analysis

Client:	VIASANT, LLC	Date Collected:	11/01/13 15:48
Project:	AMEC ANG	Date Received:	11/02/13
Client Sample ID:	SAR-FIBS-TB06-15	SDG No.:	E4336
Lab Sample ID:	E4336-17	Matrix:	SOIL
		% Solid:	91.6

Parameter	Conc.	Qua.	DF	MDL	LOD	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
pH	11.49	H	1	0	0	0	pH	11/05/13	11/05/13 10:53	9045C

Comments:

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MDL = Method Detection Limit
LOD = Limit of Detection
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N =Spiked sample recovery not within control limits

QC RESULT SUMMARY

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Initial and Continuing Calibration Verification

Client: VIASANT, LLC **SDG No.:** E4336

Project: AMEC ANG **RunNo.:** LB68453

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	ICV1						
pH		pH	7.02	7.00	100	90-110	11/05/2013
Sample ID:	CCV1						
pH		pH	2.03	2.00	102	90-110	11/05/2013
Sample ID:	CCV2						
pH		pH	2.01	2.00	101	90-110	11/05/2013
Sample ID:	CCV3						
pH		pH	11.97	12.00	100	90-110	11/05/2013

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Duplicate Sample Summary

Client: VIASANT, LLC
SDG No.: E4336
Project: AMEC ANG
Sample ID: E4336-01
Client ID: SAR-FU-01D
Percent Solids for Spike Sample: 92.6

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	9.07		9.050		1	0.2		11/05/2013

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Duplicate Sample Summary

Client: VIASANT, LLC
SDG No.: E4336
Project: AMEC ANG
Sample ID: E4336-17
Client ID: SAR-FIBS-TB06-15D
Percent Solids for Spike Sample: 91.6

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
pH	pH	+/-20	11.49		11.500		1	0.1		11/05/2013

CHEMTECH 284 Sheffield Street, Mountainside, NJ 07092 Phone: 908 789 8900 Fax: 908 789 8922

Method Detection Limits

Client: VIASANT, LLC **SDG No.:** E4336

Project: AMEC ANG

Analyte	Units	MDL	RDL
Method: 9045C pH		**MDL Date:** 01/15/2006	
Matrix Category: LIQUID			
pH	pH	0.00	0.00
Matrix Category: SOLIDS			
pH	pH	0.00	0.00

SHIPPING DOCUMENTS

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

revised COC recieved via email 11-11-13

CHEMTECH PROJECT NO. E4336
QUOTE NO. —
COC Number 030779

7.1

CLIENT INFORMATION
REPORT TO BE SENT TO:
COMPANY: VIASANT
ADDRESS: 1606 E Baltimore PK FL3
CITY: Media STATE: PA ZIP: 19063
ATTENTION: Robin White
PHONE: 484-427-2960 FAX: 484-444-0703

CLIENT PROJECT INFORMATION
PROJECT NAME: AMEC ANG
PROJECT NO: VPR-12104 LOCATION: Syracuse, NY
PROJECT MANAGER: Mark Lewis
e-mail: rwhite@viasant.com
PHONE: SAME FAX: 484-4440703

CLIENT BILLING INFORMATION
BILL TO: VIASANT PO#: VPR-12104
ADDRESS: 854 E. Algonquin Rd Ste 110
CITY: Schaumburg STATE: IL ZIP: 60173
ATTENTION: H. Shah PHONE:

DATA TURNAROUND INFORMATION
FAX: 5 DAYS*
HARD COPY: DAYS*
EDD: DAYS*
PREAPPROVED TAT: ☒ YES ☐ NO
* STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION
☐ LEVEL 1: Results only ☐ Others
☒ LEVEL 2: Results + QC
☐ LEVEL 3: Results (plus results raw data) + QC
☐ LEVEL 4: Results + QC (all raw data)
☒ EDD Format: EQuIS NYSDEC

ANALYSIS: 1 TCLP Pb; 2 pH; 3 % solids; 4; 5; 6; 7; 8; 9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1 (E)	2 (E)	3 (E)	4	5	6	7	8	9	COMMENTS
1.	SAR-FBu-01	S	X		11/1/13	10:39	1	X	X	X							
2.	SAR-Bu-03	S	X		11/1/13	10:40	1	X	X	X							
3.	SAR-FBu-05	S	X		11/1/13	10:42	1	X	X	X							
4.	SAR-FBu-07	S	X		11/1/13	10:44	1	X	X	X							
5.	SAR-FBu-TB05-08	S	X		11/1/13	10:46	1	X	X	X							
6.	SAR-FBu-TB05-09	S	X		11/1/13	10:49	1	X	X	X							
7.	SAR-FBu-TB07-10	S	X		11/1/13	10:53	1	X	X	X							
8.	SAR-FBu-TB07-11	S	X		11/1/13	10:55	1	X	X	X							
9.	SAR-FS-02	S	X		11/1/13	13:19	1	X	X	X							
10.	SAR-FS-04	S	X		11/1/13	14:25	1	X	X	X							

← Specify Preservatives: A–HCl B–HNO_3 C–H_2SO_4 D–NaOH E–ICE F–Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY
1. Robin White (SAMPLER)	11/1/13 17:30	1. FedEx
2.		2.
3. [signature]	11/2/13 11:20	3. [signature] (FOR LAB)

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant Cooler Temp. ____
MeOH extraction requires an additional 4 oz jar for percent solid. Ice in Cooler?: ____
Comments:

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT
Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

7.1

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO. —
COC Number 031043

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: VIASANT
ADDRESS: 666 E Balt PK Fl3
CITY: Media STATE: PA ZIP: 19063
ATTENTION: Robin White
PHONE: 484 427-2960 FAX: 484-444-0763

CLIENT PROJECT INFORMATION

PROJECT NAME: AMEC ANG
PROJECT NO.: VPR-12164 LOCATION: Syracuse, NY
PROJECT MANAGER: Mark Lewis
e-mail: rwhite@viasant.com
PHONE: — FAX: SAME

CLIENT BILLING INFORMATION

BILL TO: VIASANT PO#: VPR-12164
ADDRESS: 854 Algonquin Rd Ste 110
CITY: Schaumburg STATE: ZIP: 60173
ATTENTION: H. Shah PHONE:

DATA TURNAROUND INFORMATION

FAX: 5 DAYS *
HARD COPY: ______ DAYS *
EDD: ______ DAYS *
PREAPPROVED TAT: ☒ YES ☐ NO
* STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ LEVEL 1: Results only ☐ Others______
☒ LEVEL 2: Results + QC
☐ LEVEL 3: Results (plus results raw data) + QC
☐ LEVEL 4: Results + QC (all raw data)
☒ EDD Format: EQuIS NYSDEC

ANALYSIS

1: TCLP Pb; 2: pH; 3: % Solids; 4–9: (blank)

PRESERVATIVES: 1: E; 2: E; 3: E

COMMENTS: ← Specify Preservatives: A-HCl, B-HNO_3, C-H_2SO_4, D-NaOH, E-ICE, F-Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	COMP	GRAB	DATE	TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	SAR-FIBS-06	S	X		11/1/13	15:09	1	X	X	X							
2.	SAR-BS-TB03-12	S	X		11/1/13	15:40	1	X	X	X							
3.	SAR-BS-TB06-13	S	X		11/1/13	15:36	1	X	X	X							
4.	SAR-FH-OSMPC10+TB02-16	S	X		11/1/13	15:41	1	X	X	X							
5.	SAR-FH-OSMPC15-17	S	X		11/1/13	15:43	1	X	X	X							
6.	SAR-FIBS-TB03-14	S	X		11/1/13	15:46	1	X	X	X							
7.	SAR-FIBS-TB06-15	S	X		11/1/13	15:48	1	X	X	X							
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY	DATE/TIME	RECEIVED BY
RELINQUISHED BY SAMPLER: 1. Robin White	11/1/13 1730	RECEIVED BY: 1. FedEx
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 11/2/13 11:20	RECEIVED FOR LAB BY: 3. [signature]

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
Cooler Temp. ______
MeOH extraction requires an additional 4 oz jar for percent solid.
Ice in Cooler?: ______
Comments:

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT
Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. E4336
QUOTE NO.
COC Number 030779

7.1

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: VIASANT
ADDRESS: 1001 E Baltimore PK FL3
CITY: Media STATE: PA ZIP: 19063
ATTENTION: Robin White
PHONE: 484-427-2960 FAX: 484-444-0703

CLIENT PROJECT INFORMATION

PROJECT NAME: AMEC ANG
PROJECT NO.: VPR-12104 LOCATION: Syracuse, NY
PROJECT MANAGER: Mark Lewis
e-mail: rwhite@viasant.com
PHONE: SAME FAX: 484-4440703

CLIENT BILLING INFORMATION

BILL TO: VIASANT PO#: VPR-12104
ADDRESS: 854 E. Algonquin Rd Ste 110
CITY: Schaumburg STATE: IL ZIP: 60173
ATTENTION: H. Shah PHONE:

DATA TURNAROUND INFORMATION

FAX: 5 DAYS *
HARD COPY: DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☒ YES ☐ NO
* STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ LEVEL 1: Results only ☐ Others
☒ LEVEL 2: Results + QC
☐ LEVEL 3: Results (plus results raw data) + QC
☐ LEVEL 4: Results + QC (all raw data)
☒ EDD Format: EQuIS NYSDEC

ANALYSIS

1 TCLP Pb, 2 pH, 3 % Solids, 4, 5, 6, 7, 8, 9

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1. 18	SAR-Fu-01	S	X		11/1/13	10:39	1	X	X	X							
2. 19	SAR-Bu-03	S	X		11/1/13	10:40	1	X	X	X							
3. 20	SAR-FBu-05	S	X		11/1/13	10:42	1	X	X	X							
4. 21	SAR-SIBu-07	S	X		11/1/13	10:44	1	X	X	X							
5. 22	SAR-FBu-TB05-08	S	X		11/1/13	10:46	1	X	X	X							
6. 23	SAR-SIBu-TB05-09	S	X		11/1/13	10:49	1	X	X	X							
7. 24	SAR-FBu-TB07-10	S	X		11/1/13	10:53	1	X	X	X							
8. 25	SAR-SIBu-TB07-11	S	X		11/1/13	10:55	1	X	X	X							
9. 26	SAR-Fs-02	S	X		11/1/13	13:19	1	X	X	X							
10. 27	SAR-Bs-04	S	X		11/1/13	14:25	1	X	X	X							

PRESERVATIVES

COMMENTS

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. Robin White	11/1/13 17:30	1. FedEx
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3. FedEx	11/2/13 1120	3. PS

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 5 °C
Ice in Cooler?: Y

Page 1 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. E4336
QUOTE NO. —
COC Number 031043

7.1

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: VIASANT
ADDRESS: 606 E Balt. Pk Rd
CITY: Media STATE: PA ZIP: 19063
ATTENTION: Robin White
PHONE: 484-427-2960 FAX: 484-444-0703

CLIENT PROJECT INFORMATION

PROJECT NAME: AMEC ANG
PROJECT NO.: VPR-12104 LOCATION: Syracuse, NY
PROJECT MANAGER: Mark Lewis
e-mail: rwhite@viasant.com
PHONE: — FAX: SAME

CLIENT BILLING INFORMATION

BILL TO: VIASANT PO#: VPR-12164
ADDRESS: 854 Algonquin Rd Ste 110
CITY: Schaumburg STATE: ZIP: 60173
ATTENTION: H. Shah PHONE:

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☐ LEVEL 3: Results (plus results raw data) + QC
☐ LEVEL 4: Results + QC (all raw data)
☒ EDD Format: EQuIS NYSDEC

ANALYSIS

TCLP Pb
pH
% Solids

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9
1. 11, 28	SAR-SIBs-06	S	X		11/1/13	15:09	1	X	X	X						
2. 12, 29	SAR-Bs-TB03-12	S	X		11/1/13	15:40	1	X	X	X						
3. 13, 30	SAR-Bs-TB06-13	S	X		11/1/13	15:36	1	X	X	X						
4. 14, 31	SAR-FU-OSMPC1D+TB02-16	S	X		11/1/13	15:41	1	X	X	X						
5. 15, 32	SAR-FU-OSMPC 15-17	S	X		11/1/13	15:43	1	X	X	X						
6. 16, 33	SAR-SIBs-TB03-14	S	X		11/1/13	15:46	1	X	X	X						
7. 17, 34	SAR-SIBs-TB06-15	S	X		11/1/13	15:48	1	X	X	X						
8.																
9.																
10.																

COMMENTS

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. Robin White	11/1/13 17:30	1. Fedex
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3. Fedex	11/2/13 1120	3. PC

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 5 °C
Ice in Cooler?: Y

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

FedEx Express **NEW** Package US Airbill

FedEx Tracking Number 8037 1125 8693

Form ID No. 0200

1 From

Date 11/1/13

Sender's Name Robin White Phone [redacted]443-309-9084

Company VIASANT

Address 1040 E. Baltimore Pike F13 Dept./Floor/Suite/Room

City Media State PA ZIP 19063

2 Your Internal Billing Reference VPR-12104

3 To

Recipient's Name Chuntech Phone 908 789-8900

Company Chris Wolski

Address 284 Sheffield St Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City Mountainside State NJ ZIP 07092

☐ HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

☐ HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

PS 11/2/13 1120

8037 1125 8693

4 Express Package Service * To most locations.

NOTE: Service order has changed. Please select carefully.

Package For packages over FedEx Expre

Next Business Day

☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

☐ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.

☐ FedEx 2Day — Second business afternoon.* Thursday shi will be delivered on Monday unless SATUR Delivery is selected.

☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube

6 Special Handling and Delivery Signature Options

☒ SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required — Package may be left without obtaining a signature for delivery.

☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.

☐ Indirect Sig If no one is availa address, someon address may sig residential delive

Does this shipment contain dangerous goods? One box must be checked.

☒ No ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required. ☐ Dry Ice Dry Ice, 9, UN 1845 ____

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft

7 Payment *Bill to:* Ot

Enter FedEx Acct. No. or Credit Card No. below.

☒ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card

[redacted] [redacted] Credit Card Auth.

Total Packages 1 Total Weight 40 lbs.

†Our liability is limited to US$100 unless you declare a higher value. See the current FedEx Service Guide for details.

Rev. Date 1/12 • Part #167002 • ©2012 FedEx • PRINTED IN U.S.A. SRF

fedex.com 1.800.GoFedEx 1.800.463.3339

Copy

Original Documents are included in CSF E4335

PS

Signature

11/2/13

Date

From: Robin White <rwhite@viasant.com>
Sent: Wednesday, November 06, 2013 10:41 AM
To: 'Chris Wolski'
Subject: VPR-12104 AMEC ANG - Sample IDs
Attachments: E4336-LoginSummaryReport.pdf

Chris – Below is a summary of the ID changes we discussed. All "SIB" segments should be renamed to "FIB". Sorry again for the inconvenience.

#	Sample ID	Client ID	Revised Client ID Nomenclature
1	E4336-04	SAR-SIBu-07	SAR-FIBu-07
2	E4336-06	SAR-SIBu-TB05-09	SAR-FIBu-TB05-09
3	E4336-08	SAR-SIBu-TB07-11	SAR-FIBu-TB07-11
4	E4336-11	SAR-SIBs-06	SAR-FIBs-06
5	E4336-16	SAR-SIBs-TB03-14	SAR-FIBs-TB03-14
6	E4336-17	SAR-SIBs-TB06-15	SAR-FIBs-TB06-15
7	E4336-21	SAR-SIBu-07	SAR-FIBu-07
8	E4336-23	SAR-SIBu-TB05-09	SAR-FIBu-TB05-09
9	E4336-25	SAR-SIBU-TB07-11	SAR-FIBU-TB07-11
10	E4336-28	SAR-SIBs-06	SAR-FIBs-06
11	E4336-33	SAR-SIBs-TB03-14	SAR-FIBs-TB03-14
12	E4336-34	SAR-SIBs-TB06-15	SAR-FIBs-TB06-15

Robin White
VIASANT LLC
606 E. Baltimore Pike, FL 3
Media, PA 19063
Direct: 484.427.2960
Cell: 443.309.9084
Fax: 484.443.0703
www.viasant.com

From: Robin White <rwhite@viasant.com>
Sent: Monday, November 04, 2013 3:55 PM
To: 'Chris Wolski'
Subject: RE: COC vs jar discrpency

Please use SIB to match the COC. Thanks

Robin White
p 484.427.2960
c 443.309.9084

From: Chris Wolski [mailto:c.wolski@chemtech.net]
Sent: Monday, November 04, 2013 3:56 PM
To: rwhite@viasant.com
Subject: COC vs jar discrpency

SAR-SIBU-07 on COC while jar says "FIBU". Please confirm which one is correct.

Regards,

Chris Wolski

Phone: 908-728-3149

Fax: 908-789-8514 or 908-789-8922

CHEMTECH 284 Sheffield Street Mountainside NJ 07092 Tel. 908-7898900

Laboratory Certification

State	License No.
New Jersey	20012
New York	11376
Connecticut	PH-0649
Florida	E87935
Louisiana	5035
Maryland	296
Massachusetts	M-NJ503
Pennsylvania	68-548
Rhode Island	LAO00259
Virginia	460220
Texas	T10470448-10-1

Other :

DOD ELAP Certified (L-A-B Accredited), ISO/IEC 17025	L2219
Soil Permit	P330-11-00012
CLP Inorganic Contract	EPW09038
CLP Organic Contract	EPW11030

QA Control Code: A2070148

Attachment IV

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TerraBond-FBA
(Proprietary Alkaline Mixture)

Description

Terra Materials, LLC provides a full line of additives for heavy metal treatment. Products include reactive sulfides, buffered sulfur salts, pH controlling additives, and carbonate chemistries.

TerraBond-FBA is a light brow to creamy white granular material with slow release pH controlling characteristics. TerraBond-FBA adjusts pH to the ideal range to minimize leaching while reacting with and precipitating heavy metals to form salts that are highly stable at the target pH.

Uses

For treatment of heavy metals including lead, cadmium, barium and arsenic in soils and sludges. TerraBond-FBA is also an effective drying agent.

Formula: Alkaline Mixture Formula Weight: NA

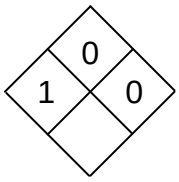
Specifications

CaO	45%-55%
pH	11.5-12.5
Density	95-105 lbs per cu. ft.
Appearance	Brownish to creamy white
Physical Properties	Granular material with minimal dust
Solubility	Slightly soluble in Water

Domestic Shipping Information

DOT Proper Shipping Name	Non-hazardous, Non-regulated Solid
DOT Hazard Class	Not Regulated
DOT ID Number	Not Regulated
Shipping Description	TerraBond-FBA (Non-hazardous, Non-regulated Solid)
Shipment Options	DOT Approved Tank Cars or Trucks

11711 N. College Ave. Suite 170
Carmel, IN 46032
317-660-6868



NFPA Ratings

TerraBond FBA

11711 N. College Ave.
Suite 170
Carmel, IN 46032
Phone (317) 660-6868

Material Safety Data Sheet

Section 1. PRODUCT INFORMATION

PRODUCT NAME:	**TerraBond FBA**
CHEMICAL DESCRIPTION:	Alkaline Mixture
CHEMICAL NAME:	Calcium Compound

Section 2. INFORMATION ON INGREDIENTS

Chemical Name	CAS Number	% by Weight	OSHA PEL (mg/M^3)	ACGIH TLV (mg/M^3)
Calcium Oxide	1305-78-8	45-55	1-	None Established
Proprietary Blend	N/A	35-38	.1	None Established
Aluminum Oxide	1344-28-1	1-3	10	0.3
Ferric Oxide	1309-37-1	2-4	10	None Established
Magnesium Oxide	1309-48-4	1-3	15	None Established
Silica Oxide	606-76-86-0	1-3	0.1	None Established

Section 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION! – Prolonged contact with the skin may cause irritation.

Eye contact could cause irritation or burning sensation.

Inhalation of dust may irritate the throat or lungs.

Primary Routes of Entry: Eye and skin contact. Inhalation of dust.

Target Organs: Eyes, skin, mucous membranes, lungs.

Medical Conditions (Aggravated by Exposure): Individuals with pre-existing conditions of emphysema or asthma may experience respiratory irritation from breathing dust. Skin conditions or dermatitis may be aggravated by contact with this material.

Section 3. HAZARDS IDENTIFICATION (Continued)

POTENTIAL HEALTH EFFECTS:

Eye Contact: Contact with eyes may cause irritation or abrasive injury.

Skin Contact: Prolonged contact may result in minor irritation or skin rash.

Ingestion: Ingestion of this product may cause irritation of the mucous membranes of the mouth, throat, esophagus and stomach.

Inhalation: Dust may cause respiratory irritation or fibrosing alveolitis (growth of fibrous tissue in the lung).

CARCINOGENICITY: NTP: No IARC: No OSHA: No

Section 4. FIRST AID MEASURES

Eye Contact: In case of contact, flush eyes for 15 minutes. Seek medical aid to ensure foreign matter is removed.

Skin Contact: Wash off promptly when exposure ceases. Do not allow dried sludge to remain on skin for prolonged periods as this may cause skin rash/irritation.

Inhalation: Move victim to a clean, dust-free environment.

Ingestion: Do not induce vomiting. Consult a physician.

Section 5. FIRE FIGHTING MEASURES

Flash Point: None.

Lower Flammable Limit: None.

Auto-Ignition Temperature: None.

Extinguishing Media: None required; not combustible.

Fire-Fighting Instructions: None required

Fire & Explosion Hazards: None

Decomposition Products: Oxides of sulfur (SO_x), Magnesium (MgO), chlorine, and other irritating gases.

NFPA RATINGS: Health = 1 Flammability = 0 Reactivity = 0 Special Hazard = None
Scale: 0 = Normal material 1 = Slightly hazardous 2 = Hazardous 3 = Extremely dangerous 4 = Deadly

Section 6. ACCIDENTAL RELEASE MEASURES

Steps To Be Taken If Material Is Spilled Or Released: Contain the spill. Dispose of as conventional waste suitable for a municipal landfill.

Section 7. HANDLING AND STORAGE

Handling: Handle material wet rather than dry whenever possible.

Storage: No special requirements; material is chemically and thermally stable.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Personal Protection Equipment:

Eye/Face Protection: Use safety glasses when handling sludge or safety goggles if handling dry powder.

Skin Protection: None required under anticipated handling that requires minimal contact. If gross skin contamination is expected, cover exposed skin to prevent prolonged contact with material.

Repiratory Protection: Dust mask for handling dry powder when airborne dust exceeds 10 mg/M^3.

Engineering Controls: None required.

Work Practices: Keep material wet to minimize dust generation.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: Not available.

Vapor Pressure: Negligible.

Vapor Density: Not applicable.

% Volatile by Weight: None.

Solubility in Water: Slightly soluble.

Density: 105 pounds per cuft.

pH: alkaline 11.5-12.5

Freezing Point: Not available.

Appearance and Odor: White to grey chalky powder.

Section 10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal temperature and pressures.

Conditions to Avoid: Incompatible materials, strong oxidizers, heat in the presence of aluminum or phosphorus.

Hazardous Polymerization: Will not occur.

Incompatibility: Oxidizing agents, aluminum, phosphorus.

Decomposition Products: Stable, dries to powder.

Section 11. TOXICOLOGICAL INFORMATION

On Product: Only minor irritation has been observed when skin has had prolonged contact.

On Ingredients:

Chemical Name	Oral LD_{50} (rat)	Dermal LD_{50} (rat)	Inhalation LD_{50} (rat)
Proprietary Formulation	not available	not available	not available

Section 12. ECOLOGICAL INFORMATION

Aquatic Toxicity: No data found. **Environmental Fate:** No data found. **Environmental Toxicity:** No data found.

Section 13. DISPOSAL CONSIDERATIONS

RCRA Status: This material is not a RCRA listed hazardous waste nor does it exhibit any hazardous waste characteristics.

Disposal: Dispose of in a manner consistent with federal, state, or local laws and regulations.

Section 14. TRANSPORT INFORMATION

D.O.T. **Classification**: Not applicable; not a D.O.T. hazardous material.

Section 15. REGULATORY INFORMATION

TSCA: Calcium carbonate is listed on the TSCA inventory.

CERCLA: Not applicable - contains no hazardous substances at or above de minimis concentrations.

SARA TITLE III:

Section 302 Extremely Hazardous Substances: None at or above de minimis concentrations.

Section 311/312 Health and Physical Hazards: Delayed (chronic) health hazard from long-term inhalation of dust.

Section 313 Toxic Chemicals: None at or above de minimis concentrations.

Section 16. OTHER INFORMATION

HMIS Ratings: Health = 1 Flammability = 0 Reactivity = 0 Personal Protection = B = Safety glasses + gloves

Hazard rating scale: 0 = Minimal
1 = Slight
2 = Moderate
3 = Serious
4 = Severe

PORTLAND CEMENT

PRODUCT NO. 1124-31, -47, -94

DIVISION **3**

Cement
03 05 00

PRODUCT DESCRIPTION

QUIKRETE® Portland Cement is a high quality Portland cement meeting ASTM C 150 Type I.

PRODUCT USE

QUIKRETE® Portland Cement is used for making high strength repair mortars, concrete and for any other applications requiring Type I Portland cement. In many locations the product also meets ASTM C 150 Type II. Consult your supplying plant to confirm compliance with ASTM C 150 Type II.

SIZES

• QUIKRETE® Portland Cement
- 31 lb (14 kg) bags
- 47 lb (21.3 kg) bags
- 94 lb (42.6 kg) bags
- 40 kg (88 lb) bags
- 42 kg (93 lb) bags

YIELD

• Yield depends on application. For concrete mixes: Five to six 94 lb (42.6 kg) bags of QUIKRETE® Portland Cement is typically used with appropriate proportions of sand and gravel to produce 1 cu. yd. (0.8 m3) of concrete.

TECHNICAL DATA

QUIKRETE® Portland Cement complies with ASTM C 150 Type I and in many locations also complies with ASTM C 150 Type II. The product is used in a variety of construction materials. Typical mix designs for some applications are listed below:

Concrete Mix
1 Part QUIKRETE® Portland Cement
2 Parts QUIKRETE® All-Purpose Sand (ASTM C-33)
3 Parts QUIKRETE® All-Purpose Gravel (ASTM C-33)

Mortar Mix (Type S, per ASTM C-270)
1 Part QUIKRETE® Portland Cement
1/2 Part QUIKRETE® Hydrated Lime -Type S
3-1/2 to 4-1/2 Parts QUIKRETE® Masonry Sand (ASTM C-144)

Scratch and Brown Coat Stucco Mix (per ASTM C-926)
1 Part QUIKRETE® Portland Cement
1/2 Part QUIKRETE® Hydrated Lime (Type S)
4-1/2 to 6 Parts QUIKRETE® Washed Plaster Sand (ASTM C-897)

INSTALLATION

Installation methods are specific for each type of product.

PRECAUTIONS

The following points apply to all products made from Portland cement:
• Protect from freezing for at least 24-48 hr.
• Use the minimum amount of water necessary to achieve the desired consistency. Adding too much water will weaken the product.
• Keep the product damp for several days to obtain proper curing.

WARRANTY

The QUIKRETE® Companies warrant this product to be of merchantable quality when used or applied in accordance with the instructions herein. The product is not warranted as suitable for any purpose or use other than the general purpose for which it is intended. Liability under this warranty is limited to the replacement of its product (as purchased) found to be defective, or at the shipping companies' option, to refund the purchase price. In the event of a claim under this warranty, notice must be given to The QUIKRETE® Companies in writing. This limited warranty is issued and accepted in lieu of all other express warranties and expressly excludes liability for consequential damages.

The QUIKRETE® Companies
One Securities Centre
3490 Piedmont Rd., NE, Suite 1300, Atlanta, GA 30305
(404) 634-9100 • Fax: (404) 842-1425

** Refer to www.quikrete.com for the most current technical data, MSDS, and guide specifications*

QUIKRETE®
CEMENT & CONCRETE PRODUCTS™

Cements

MATERIAL SAFETY DATA SHEET
(Complies with OSHA 29 CFR 1910.1200)

SECTION I: PRODUCT IDENTIFICATION

The QUIKRETE® Companies
One Securities Centre
3490 Piedmont Road, Suite 1300
Atlanta, GA 30329

Emergency Telephone Number
(770) 216-9580

Information Telephone Number
(770) 216-9580

MSDS K1
Revision: Jul-12

QUIKRETE® Product Name	Code #
QUIKRETE® PORTLAND CEMENT	1124
PORTLAND/POZZOLAN CEMENT	1118-35
QUIKRETE® PORTLAND T-I AND T-III CEMENT	2126-53
QUIKRETE® PORTLAND T-10 AND T-30 CEMENT	
QUIKRETE® PORTLAND T-III W FLY ASH	1125-22
ALL-STAR PORTLAND CEMENT TYPE-I	1121-94
ZIA PORTLAND CEMENT	2124-97

PRODUCT USE: HYDRAULIC CEMENTS FOR GENERAL CONSTRUCTION AND REPAIR

SECTION II - HAZARD IDENTIFICATION

Route(s) of Entry: Inhalation, Skin, Ingestion
Acute Exposure: Product becomes alkaline when exposed to moisture. Exposure can dry the skin, cause alkali burns and affect the mucous membranes. Dust can irritate the eyes and upper respiratory system. Toxic effects noted in animals include, for acute exposures, alveolar damage with pulmonary edema.
Chronic Exposure: Dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis.
Carcinogenicity: Since Portland cement and blended cements are manufactured from raw materials mined from the earth (limestone, marl, sand, shale, etc.) and process heat is provided by burning fossil fuels, trace, but detectable, amounts of naturally occurring, and possibly harmful, elements may be found during chemical analysis. Under ASTM standards, Portland cement may contain 0.75 % insoluble residue. A fraction of these residues may be free crystalline silica. Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs and possibly cancer. There is evidence that exposure to respirable silica or the disease silicosis is associated with an increased incidence of Scleroderma, tuberculosis and kidney disorders.

Carcinogenicity Listings:

NTP:	Known carcinogen
OSHA:	Not listed as a carcinogen
IARC Monographs:	Group 1 Carcinogen
California Proposition 65:	Known carcinogen

NTP: The National Toxicology Program, in its "Ninth Report on Carcinogens" (released May 15, 2000) concluded that "Respirable crystalline silica (RCS), primarily quartz dusts occurring in industrial and occupational settings, is *known to be a human carcinogen*, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to RCS and increased lung cancer rates in workers exposed to crystalline silica dust (reviewed in IAC, 1997; Brown *et al*., 1997; Hind *et al*., 1997)

IARC: The International Agency for Research on Cancer ("IARC") concluded that there was "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz or cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans (*Group 1)." The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstances or studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates." (1997)

Signs and Symptoms of Exposure: Symptoms of excessive exposure to the dust include shortness of breath and reduced pulmonary function. Excessive exposure to skin and eyes especially when mixed with water can cause caustic burns as severe as third degree.

Medical Conditions Generally Aggravated by Exposure: Individuals with sensitive skin and with pulmonary and/or respiratory disease, including, but not limited to, asthma and bronchitis, or subject to eye irritation, should be precluded from exposure. Exposure to crystalline silica or the disease silicosis is associated with increased incidence of scleroderma, Tuberculosis and possibly increased incidence of kidney lesions.

Chronic Exposure: Dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop an allergic dermatitis. (May contain trace (<0.05 %) amounts of chromium salts or compounds including hexavalent chromium, or other metals found to be hazardous or toxic in some chemical forms. These metals are mostly present as trace substitutions within the principal minerals)

Medical Conditions Generally Aggravated by Exposure: Individuals with sensitive skin and with pulmonary and/or respiratory disease, including, but not limited to, asthma and bronchitis, or subject to eye irritation, should be precluded from exposure.

SECTION III - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components	CAS No.	PEL (OSHA)	TLV (ACGIH)

		mg/M^3	mg/M^3
Portland Cement	65997-15-1	5	5
May contain:			
Silica Sand, crystalline	14808-60-7	$\frac{10}{\%SiO_2+2}$	0.05 (respirable)
Pulverized Limestone	01317-65-3	5	5
Fly Ash	68131-74-8	5	5
Gypsum	10101-41-4	5	5
Lime	01305-62-0	5	5

Although these products contain no intentionally added Silica, they may contain small amounts of silica occurring as natural impurities in the other raw materials.

Other Limits: National Institute for Occupational Safety and Health (NIOSH). Recommended standard maximum permissible concentration=0.05 mg/M^3 (respirable free silica) as determined by a full-shift sample up to 10-hour working day, 40-hour work week. See NIOSH Criteria for a Recommended Standard Occupational Exposure to Crystalline Silica.

SECTION IV – First Aid Measures

Eyes: Immediately flush eye thoroughly with water. Continue flushing eye for at least 15 minutes, including under lids, to remove all particles. Call physician immediately.
Skin: Wash skin with cool water and pH-neutral soap or a mild detergent. Seek medical treatment if irritation or inflammation develops or persists. Seek immediate medical treatment in the event of burns.
Inhalation: Remove person to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration. Seek medical help if coughing and other symptoms do not subside. Inhalations of large amounts of Portland cement require immediate medical attention.
Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

SECTION V - FIRE AND EXPLOSION HAZARD DATA

Flammability: Noncombustible and not explosive.
Auto-ignition Temperature: Not Applicable
Flash Points: Not Applicable

SECTION VI – ACCIDENTAL RELEASE MEASURES

If spilled, use dustless methods (vacuum) and place into covered container for disposal (if not contaminated or wet). Use adequate ventilation to keep exposure to airborne contaminants below the exposure limit.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND STORAGE

Do not allow water to contact the product until time of use. DO NOT BREATHE DUST. In dusty environments, the use of an OSHA, MSHA or NIOSH approved respirator and tight fitting goggles is recommended.

SECTION VIII – EXPOSURE CONTROL MEASURES

Engineering Controls: Local exhaust can be used, if necessary, to control airborne dust levels.

Personal Protection: The use of barrier creams or impervious gloves, boots and clothing to protect the skin from contact is recommended. Following work, workers should shower with soap and water. Precautions must be observed because burns occur with little warning -- little heat is sensed.

WARN EMPLOYEES AND/OR CUSTOMERS OF THE HAZARDS AND REQUIRED OSHA PRECAUTIONS ASSOCIATED WITH THE USE OF THIS PRODUCT.

Exposure Limits: Consult local authorities for acceptable exposure limits

SECTION IX - PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance: Gray to gray-brown colored powder. Some products available in white and other colors.

Specific Gravity:	2.6 to 3.15	**Melting Point:**	>2700^{o}F
Boiling Point:	>2700^{o}F	**Vapor Pressure:**	Not Applicable
Vapor Density:	Not Applicable	**Evaporation Rate:**	Not Applicable
Solubility in Water:	Slight	**Odor:**	Not Applicable

SECTION X - REACTIVITY DATA

Stability: Stable.
Incompatibility (Materials to Avoid): Material when mixed with water will react with Aluminum and other alkali and alkaline earth elements liberating hydrogen gas.
Hazardous Decomposition or By-products: None
Hazardous Polymerization: Will Not Occur.
Condition to Avoid: Keep dry until used to preserve product utility.

SECTION XI – TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, Ingestion
Toxicity to Animals:
LD50: Not Available
LC50: Not Available
Chronic Effects on Humans: Conditions aggravated by exposure include eye disease, skin disorders and Chronic Respiratory conditions.
Special Remarks on Toxicity: Not Available

SECTION XII – ECOLOGICAL INFORMATION

Ecotoxicity: Not Available
BOD5 and COD: Not Available
Products of Biodegradation: Not available
Toxicity of the Products of Biodegradation: Not available
Special Remarks on the Products of Biodegradation: Not available

SECTION XIII – DISPOSAL CONSIDERATIONS

Waste Disposal Method: The packaging and material may be land filled; however, material should be covered to minimize generation of airborne dust. This product is not classified as a hazardous waste under the authority of the RCRA (40CFR 261) or CERCLA (40CFR 117&302).

SECTION XIV – TRANSPORT INFORMATION

DOT/UN Shipping Name: Non-regulated
DOT Hazard Class: Non-regulated
Shipping Name: Non-regulated
Non-Hazardous under U.S. DOT and TDG Regulations

SECTION XV – OTHER REGULATORY INFORMATION

US OSHA 29CFR 1910.1200: Considered hazardous under this regulation and should be included in the employers hazard communication program
SARA (Title III) Sections 311 & 312: Qualifies as a hazardous substance with delayed health effects
SARA (Title III) Section 313: Not subject to reporting requirements
TSCA (May 1997): All components are on the TSCA inventory list
Federal Hazardous Substances Act: Is a hazardous substance subject to statues promulgated under the subject act
California Regulation: WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.
Canadian Environmental Protection Act: Not listed
Canadian WHMIS Classification: Considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class D2A, E- Corrosive Material) and subject to the requirements of Health Canada's Workplace Hazardous Material Information (WHMIS). This product has been classified according to the hazard criteria of the Controlled Products Regulation (CPR). This document complies with the WHMIS requirements of the Hazardous Products Act (HPA) and the CPR.

SECTION XVI – OTHER INFORMATION

HMIS-III: Health – 0 = No significant health risk
1 = Irritation or minor reversible injury possible

2 = Temporary or minor injury possible
3 = Major injury possible unless prompt action is taken
4 = Life threatening, major or permanent damage possible

Flammability- 0 = Material will not burn
1 = Material must be preheated before ignition will occur
2 = Material must be exposed to high temperatures before ignition
3 = Material capable of ignition under normal temperatures
4 = Flammable gases or very volatile liquids; may ignite spontaneously

Physical Hazard- 0 = Material is normally stable, even under fire conditions
1 = Material normally stable but may become unstable at high temps
2 = Materials that are unstable and may undergo react at room temp
3 = Materials that may form explosive mixtures with water
4 = Materials that are readily capable of explosive water reaction

Abbreviations:

ACGIH	American Conference of Government Industrial Hygienists
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
CFR	Code of Federal Regulations
CPR	Controlled Products Regulations (Canada)
DOT	Department of Transportation
IARC	International Agency for Research
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicity Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TWA	Time-weighted Average
WHMIS	Workplace Hazardous Material Information System

Last Updated: July 25, 2012

NOTE: The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to silica contained in our products. END OF MSDS.

Attachment V

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NEW YORK
state department of
HEALTH

Nirav R. Shah, M.D., M.P.H.
Commissioner

Sue Kelly
Executive Deputy Commissioner

LAB ID: 11376

April 01, 2013

MR. DIVYAJIT MEHTA
CHEMTECH
284 SHEFFIELD STREET
MOUNTAINSIDE, NJ 07092

Certificate Expiration Date:
April 01, 2014

Dear Mr. Mehta,

Enclosed are Certificate(s) of Approval issued to your environmental laboratory for the current permit year. The Certificate(s) supersede(s) any previously issued one(s) and is(are) in effect through the expiration date listed. Please carefully examine the Certificate(s) to insure that the categories, subcategories, analytes, and methods for which your laboratory is approved are correct. In addition, verify that your laboratory's name, address, lead technical director, and identification number are accurate.

Pursuant to NYCRR Subpart 55-2.2, original certificates must be posted conspicuously in the laboratory and copies shall be made available to any client of the laboratory upon request.

Pursuant to NYCRR Subpart 55-2.6, any misrepresentation of the Fields of Accreditation (Matrix - Method - Analyte) for which your laboratory is approved may result in denial, suspension, or revocation of your certification. Any use of the Environmental Laboratory Approval Program (ELAP) or National Environmental Laboratory Accreditation Program (NELAP) name, reference to the laboratory's approval status, and/or using the NELAP logo in any catalogs, advertising, business solicitations, proposals, quotations, laboratory analytical reports, or other materials must include the laboratory's ELAP identification number and distinguish between testing for which the laboratory is approved and testing for which the laboratory is not approved.

If you have any questions, please contact ELAP at the New York State Department of Health (NYS DOH), Wadsworth Center, PO Box 509, Albany NY, 12201-0509; by phone at (518) 485-5570; by facsimile at (518) 485-5568; and by email at elap@health.state.ny.us.

Sincerely,

Stephanie E. Ostrowski

STEPHANIE OSTROWSKI, PH.D.
Program Director
Environmental Laboratory Approval Program

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DIVYAJIT MEHTA
CHEMTECH
284 SHEFFIELD STREET
MOUNTAINSIDE, NJ 07092

NY Lab Id No: 11376

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Disinfection By-products	
Chlorate	EPA 300.0 Rev. 2.1
Drinking Water Metals I	
Arsenic, Total	EPA 200.8 Rev. 5.4
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Iron, Total	EPA 200.7 Rev. 4.4
	SM 18-21 3120B (99)
Lead, Total	EPA 200.8 Rev. 5.4
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Mercury, Total	EPA 245.1 Rev. 3.0
Selenium, Total	EPA 200.8 Rev. 5.4
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	SM 18-21 3120B (99)
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	SM 18-21 3120B (99)
Drinking Water Metals II	
Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	SM 18-21 3120B (99)
Antimony, Total	EPA 200.8 Rev. 5.4
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
Thallium, Total	EPA 200.8 Rev. 5.4
Drinking Water Metals III	
Calcium, Total	EPA 200.7 Rev. 4.4
	SM 18-21 3120B (99)
Magnesium, Total	EPA 200.7 Rev. 4.4
Sodium, Total	EPA 200.7 Rev. 4.4
Drinking Water Miscellaneous	
Odor	SM 18-20 2150B (97)
Organic Carbon, Total	SM 18-21 5310B (00)
Surfactant (MBAS)	SM 18-21 5540C (00)
Turbidity	EPA 180.1 Rev. 2.0
	SM 18-21 2130 B (01)
Drinking Water Non-Metals	
Alkalinity	SM 18-21 2320B (97)
Calcium Hardness	EPA 200.7 Rev. 4.4
Chloride	EPA 300.0 Rev. 2.1

Serial No.: 48606

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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All approved analytes are listed below:

Drinking Water Non-Metals

Color	SM 18-21 2120B (01)
Fluoride, Total	EPA 300.0 Rev. 2.1
Nitrate (as N)	EPA 300.0 Rev. 2.1
Nitrite (as N)	EPA 300.0 Rev. 2.1
Orthophosphate (as P)	EPA 300.0 Rev. 2.1
	SM 18-21 4500-P E
Solids, Total Dissolved	SM 18-21 2540C (97)
Specific Conductance	SM 18-21 2510B (97)
Sulfate (as SO4)	EPA 300.0 Rev. 2.1
	SM 18-21 4500-SO4 E (97)

Drinking Water Trihalomethanes

Bromodichloromethane	EPA 524.2
Bromoform	EPA 524.2
Chloroform	EPA 524.2
Dibromochloromethane	EPA 524.2
Total Trihalomethanes	EPA 524.2

Fuel Additives

Methyl tert-butyl ether	EPA 524.2
Naphthalene	EPA 524.2

Volatile Aromatics

1,2,3-Trichlorobenzene	EPA 524.2
1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2

Volatile Aromatics

1,3,5-Trimethylbenzene	EPA 524.2
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2
4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Chlorobenzene	EPA 524.2
Ethyl benzene	EPA 524.2
Hexachlorobutadiene	EPA 524.2
Isopropylbenzene	EPA 524.2
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2
tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2

Volatile Halocarbons

1,1,1,2-Tetrachloroethane	EPA 524.2
1,1,1-Trichloroethane	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2

Serial No.: 48606

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify the laboratory's accreditation status.

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

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All approved analytes are listed below:

Volatile Halocarbons

1,1-Dichloroethene	EPA 524.2
1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2
2,2-Dichloropropane	EPA 524.2
Bromochloromethane	EPA 524.2
Bromomethane	EPA 524.2
Carbon tetrachloride	EPA 524.2
Chloroethane	EPA 524.2
Chloromethane	EPA 524.2
cis-1,2-Dichloroethene	EPA 524.2
cis-1,3-Dichloropropene	EPA 524.2
Dibromomethane	EPA 524.2
Dichlorodifluoromethane	EPA 524.2
Methylene chloride	EPA 524.2
Tetrachloroethene	EPA 524.2
trans-1,2-Dichloroethene	EPA 524.2
trans-1,3-Dichloropropene	EPA 524.2
Trichloroethene	EPA 524.2
Trichlorofluoromethane	EPA 524.2
Vinyl chloride	EPA 524.2

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All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8015B
	EPA 8260B
	EPA 8260C
Acrylonitrile	EPA 8260B
	EPA 8260C
Amines	
2-Nitroaniline	EPA 8270C
	EPA 8270D
3-Nitroaniline	EPA 8270C
	EPA 8270D
4-Chloroaniline	EPA 8270C
	EPA 8270D
4-Nitroaniline	EPA 8270C
	EPA 8270D
Aniline	EPA 8270C
	EPA 8270D
Carbazole	EPA 8270C
	EPA 8270D
Diphenylamine	EPA 8270C
	EPA 8270D
Propionitrile	EPA 8015B
Pyridine	EPA 625
	EPA 8270C
	EPA 8270D

Benzidines	
3,3'-Dichlorobenzidine	EPA 625
	EPA 8270C
	EPA 8270D
Benzidine	EPA 625
	EPA 8270C
	EPA 8270D
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 608
	EPA 8081A
	EPA 8081B
4,4'-DDE	EPA 608
	EPA 8081A
	EPA 8081B
4,4'-DDT	EPA 608
	EPA 8081A
	EPA 8081B
Aldrin	EPA 608
	EPA 8081A
	EPA 8081B
alpha-BHC	EPA 608
	EPA 8081A
	EPA 8081B
alpha-Chlordane	EPA 8081A
	EPA 8081B
beta-BHC	EPA 608

Serial No.: 48607

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WADSWORTH CENTER

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Chlorinated Hydrocarbon Pesticides	
beta-BHC	EPA 8081A
	EPA 8081B
Chlordane Total	EPA 608
	EPA 8081A
	EPA 8081B
delta-BHC	EPA 608
	EPA 8081A
	EPA 8081B
Dieldrin	EPA 608
	EPA 8081A
	EPA 8081B
Endosulfan I	EPA 608
	EPA 8081A
	EPA 8081B
Endosulfan II	EPA 608
	EPA 8081A
	EPA 8081B
Endosulfan sulfate	EPA 608
	EPA 8081A
	EPA 8081B
Endrin	EPA 608
	EPA 8081A
	EPA 8081B
Endrin aldehyde	EPA 608
	EPA 8081A
	EPA 8081B

Chlorinated Hydrocarbon Pesticides	
Endrin Ketone	EPA 8081A
	EPA 8081B
gamma-Chlordane	EPA 8081A
	EPA 8081B
Heptachlor	EPA 608
	EPA 8081A
	EPA 8081B
Heptachlor epoxide	EPA 608
	EPA 8081A
	EPA 8081B
Lindane	EPA 608
	EPA 8081A
	EPA 8081B
Methoxychlor	EPA 608
	EPA 8081A
	EPA 8081B
Toxaphene	EPA 608
	EPA 8081A
	EPA 8081B
Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA 625
	EPA 8270C
	EPA 8270D
2-Chloronaphthalene	EPA 625
	EPA 8270C

Serial No.: 48607

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DIVYAJIT MEHTA
CHEMTECH
284 SHEFFIELD STREET
MOUNTAINSIDE, NJ 07092

NY Lab Id No: 11376

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Chlorinated Hydrocarbons	
2-Chloronaphthalene	EPA 8270D
Hexachlorobenzene	EPA 625
	EPA 8270C
	EPA 8270D
Hexachlorobutadiene	EPA 625
	EPA 8270C
	EPA 8270D
Hexachlorocyclopentadiene	EPA 625
	EPA 8270C
	EPA 8270D
Hexachloroethane	EPA 625
	EPA 8270C
	EPA 8270D
Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A
Dinoseb	EPA 8151A
Demand	
Biochemical Oxygen Demand	SM 18-21 5210B (01)
Carbonaceous BOD	SM 18-21 5210B (01)
Chemical Oxygen Demand	SM 18-21 5220D (97)

Fuel Oxygenates	
Methyl tert-butyl ether	EPA 8260B
	EPA 8260C
tert-butyl alcohol	EPA 8015B
	EPA 8260B
	EPA 8260C
Haloethers	
4-Bromophenylphenyl ether	EPA 625
	EPA 8270C
	EPA 8270D
4-Chlorophenylphenyl ether	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-chloroethyl)ether	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-chloroisopropyl) ether	EPA 625
	EPA 8270C
	EPA 8270D
Mineral	
Acidity	ASTM D1067-92, 02 & 06
	SM 18-21 2310B.4a (97)
Alkalinity	SM 18-21 2320B (97)

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Mineral	
Chloride	EPA 300.0 Rev. 2.1
	EPA 9056A
	SM 18-20 4500-Cl- C
Fluoride, Total	EPA 300.0 Rev. 2.1
	EPA 9056A
Hardness, Total	EPA 200.7 Rev. 4.4
Sulfate (as SO4)	EPA 300.0 Rev. 2.1
	EPA 9056A
	SM 15 426 C
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8330
	EPA 8330A
1,3-Dinitrobenzene	EPA 8330
	EPA 8330A
2,4,6-Trinitrotoluene	EPA 8330
	EPA 8330A
2,4-Dinitrotoluene	EPA 625
	EPA 8270C
	EPA 8270D
	EPA 8330
	EPA 8330A
2,6-Dinitrotoluene	EPA 625
	EPA 8270C
	EPA 8270D
	EPA 8330
Nitroaromatics and Isophorone	
2,6-Dinitrotoluene	EPA 8330A
2-Amino-4,6-dinitrotoluene	EPA 8330
	EPA 8330A
2-Nitrotoluene	EPA 8330
	EPA 8330A
3-Nitrotoluene	EPA 8330
	EPA 8330A
4-Amino-2,6-dinitrotoluene	EPA 8330
	EPA 8330A
4-Nitrotoluene	EPA 8330
	EPA 8330A
Hexahydro-1,3,5-trinitro-1,3,5-triazine	EPA 8330
	EPA 8330A
Isophorone	EPA 625
	EPA 8270C
	EPA 8270D
Methyl-2,4,6-trinitrophenylnitramine	EPA 8330
	EPA 8330A
Nitrobenzene	EPA 625
	EPA 8270C
	EPA 8270D
	EPA 8330
	EPA 8330A
Nitrosoamines	
N-Nitrosodimethylamine	EPA 625

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Nitrosoamines	
N-Nitrosodi-n-butylamine	EPA 8015B
N-Nitrosodi-n-propylamine	EPA 625
	EPA 8270C
	EPA 8270D
N-Nitrosodiphenylamine	EPA 625
	EPA 8270C
	EPA 8270D
Nutrient	
Nitrate (as N)	EPA 300.0 Rev. 2.1
	EPA 9056A
Nitrite (as N)	EPA 300.0 Rev. 2.1
	EPA 9056A
	SM 18-21 4500-NO2 B (00)
Orthophosphate (as P)	EPA 300.0 Rev. 2.1
	EPA 9056A
	SM 18-21 4500-P E
Phosphorus, Total	EPA 365.3 Rev. 1978
Phthalate Esters	
Benzyl butyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Diethyl phthalate	EPA 625

Phthalate Esters	
Diethyl phthalate	EPA 8270C
	EPA 8270D
Dimethyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Di-n-butyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Di-n-octyl phthalate	EPA 625
	EPA 8270C
	EPA 8270D
Polychlorinated Biphenyls	
PCB-1016	EPA 608
	EPA 8082
	EPA 8082A
PCB-1221	EPA 608
	EPA 8082
	EPA 8082A
PCB-1232	EPA 608
	EPA 8082
	EPA 8082A
PCB-1242	EPA 608
	EPA 8082
	EPA 8082A
PCB-1248	EPA 608

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Polychlorinated Biphenyls	
PCB-1248	EPA 8082
	EPA 8082A
PCB-1254	EPA 608
	EPA 8082
	EPA 8082A
PCB-1260	EPA 608
	EPA 8082
	EPA 8082A
Polynuclear Aromatics	
Acenaphthene	EPA 625
	EPA 8270C
	EPA 8270D
Acenaphthylene	EPA 625
	EPA 8270C
	EPA 8270D
Anthracene	EPA 625
	EPA 8270C
	EPA 8270D
Benzo(a)anthracene	EPA 625
	EPA 8270C
	EPA 8270D
Benzo(a)pyrene	EPA 625
	EPA 8270C
	EPA 8270D
Benzo(b)fluoranthene	EPA 625

Polynuclear Aromatics	
Benzo(b)fluoranthene	EPA 8270C
	EPA 8270D
Benzo(ghi)perylene	EPA 625
	EPA 8270C
	EPA 8270D
Benzo(k)fluoranthene	EPA 625
	EPA 8270C
	EPA 8270D
Chrysene	EPA 625
	EPA 8270C
	EPA 8270D
Dibenzo(a,h)anthracene	EPA 625
	EPA 8270C
	EPA 8270D
Fluoranthene	EPA 625
	EPA 8270C
	EPA 8270D
Fluorene	EPA 625
	EPA 8270C
	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 625
	EPA 8270C
	EPA 8270D
Naphthalene	EPA 625
	EPA 8270C
	EPA 8270D

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Polynuclear Aromatics	
Phenanthrene	EPA 625
	EPA 8270C
	EPA 8270D
Pyrene	EPA 625
	EPA 8270C
	EPA 8270D
Priority Pollutant Phenols	
2,4,5-Trichlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4,6-Trichlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4-Dichlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4-Dimethylphenol	EPA 625
	EPA 8270C
	EPA 8270D
2,4-Dinitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
2-Chlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
Priority Pollutant Phenols	
2-Methyl-4,6-dinitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
2-Methylphenol	EPA 8270C
	EPA 8270D
2-Nitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
3-Methylphenol	EPA 8270C
	EPA 8270D
4-Chloro-3-methylphenol	EPA 625
	EPA 8270C
	EPA 8270D
4-Methylphenol	EPA 8270C
	EPA 8270D
4-Nitrophenol	EPA 625
	EPA 8270C
	EPA 8270D
Pentachlorophenol	EPA 625
	EPA 8270C
	EPA 8270D
Phenol	EPA 625
	EPA 8270C
	EPA 8270D

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Residue	
Settleable Solids	SM 18-21 2540 F (97)
Solids, Total	SM 18-21 2540B (97)
Solids, Total Dissolved	SM 18-21 2540C (97)
Solids, Total Suspended	SM 18-21 2540D (97)
Semi-Volatile Organics	
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
2-Methylnaphthalene	EPA 8270C
	EPA 8270D
Dibenzofuran	EPA 8270C
	EPA 8270D
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260B
	EPA 8260C
1,2-Dichlorobenzene	EPA 624
	EPA 8260B
	EPA 8260C
1,3-Dichlorobenzene	EPA 624
	EPA 8260B
	EPA 8260C
1,4-Dichlorobenzene	EPA 624
Volatile Aromatics	
1,4-Dichlorobenzene	EPA 8260B
	EPA 8260C
Benzene	EPA 624
	EPA 8260B
	EPA 8260C
Chlorobenzene	EPA 624
	EPA 8260B
	EPA 8260C
Ethyl benzene	EPA 624
	EPA 8260B
	EPA 8260C
Naphthalene, Volatile	EPA 8260B
	EPA 8260C
Styrene	EPA 624
	EPA 8260B
	EPA 8260C
Toluene	EPA 624
	EPA 8260B
	EPA 8260C
Total Xylenes	EPA 624
	EPA 8260B
	EPA 8260C
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B
	EPA 8260C

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Volatile Halocarbons	
1,1,1-Trichloroethane	EPA 624
	EPA 8260B
	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 624
	EPA 8260B
	EPA 8260C
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
	EPA 8260C
1,1,2-Trichloroethane	EPA 624
	EPA 8260B
	EPA 8260C
1,1-Dichloroethane	EPA 624
	EPA 8260B
	EPA 8260C
1,1-Dichloroethene	EPA 624
	EPA 8260B
	EPA 8260C
1,2,3-Trichloropropane	EPA 8260B
	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260B
	EPA 8260C
1,2-Dibromoethane	EPA 8260B
	EPA 8260C
1,2-Dichloroethane	EPA 624
	EPA 8260B
	EPA 8260C

Volatile Halocarbons	
1,2-Dichloropropane	EPA 624
	EPA 8260B
	EPA 8260C
2-Chloroethylvinyl ether	EPA 624
	EPA 8260B
	EPA 8260C
Bromodichloromethane	EPA 624
	EPA 8260B
	EPA 8260C
Bromoform	EPA 624
	EPA 8260B
	EPA 8260C
Bromomethane	EPA 624
	EPA 8260B
	EPA 8260C
Carbon tetrachloride	EPA 624
	EPA 8260B
	EPA 8260C
Chloroethane	EPA 624
	EPA 8260B
	EPA 8260C
Chloroform	EPA 624
	EPA 8260B
	EPA 8260C
Chloromethane	EPA 624
	EPA 8260B

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Volatile Halocarbons	
Chloromethane	EPA 8260C
cis-1,2-Dichloroethene	EPA 624
	EPA 8260B
	EPA 8260C
cis-1,3-Dichloropropene	EPA 624
	EPA 8260B
	EPA 8260C
Dibromochloromethane	EPA 624
	EPA 8260B
	EPA 8260C
Dichlorodifluoromethane	EPA 8260B
	EPA 8260C
Hexachlorobutadiene, Volatile	EPA 8260B
	EPA 8260C
Methyl iodide	EPA 8260B
	EPA 8260C
Methylene chloride	EPA 624
	EPA 8260B
	EPA 8260C
Tetrachloroethene	EPA 624
	EPA 8260B
	EPA 8260C
trans-1,2-Dichloroethene	EPA 624
	EPA 8260B
	EPA 8260C
trans-1,3-Dichloropropene	EPA 624

Volatile Halocarbons	
trans-1,3-Dichloropropene	EPA 8260B
	EPA 8260C
Trichloroethene	EPA 624
	EPA 8260B
	EPA 8260C
Trichlorofluoromethane	EPA 624
	EPA 8260B
	EPA 8260C
Vinyl chloride	EPA 624
	EPA 8260B
	EPA 8260C
Volatiles Organics	
2-Butanone (Methylethyl ketone)	EPA 8015B
	EPA 8260B
	EPA 8260C
2-Hexanone	EPA 8260B
	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260B
	EPA 8260C
Acetone	EPA 8015B
	EPA 8260B
	EPA 8260C
Acetonitrile	EPA 8015B
Carbon Disulfide	EPA 8260B
	EPA 8260C

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Volatiles Organics	
o-Toluidine	EPA 8015B
Vinyl acetate	EPA 8260B
	EPA 8260C
Wastewater Metals I	
Barium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Cadmium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Calcium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Chromium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Copper, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
Wastewater Metals I	
Copper, Total	SM 18-21 3120B (99)
Iron, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
	SM 18-21 3120B (99)
Lead, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Magnesium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Manganese, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Nickel, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Potassium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
	SM 18-21 3120B (99)
Silver, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4

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Wastewater Metals I

Silver, Total	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Sodium, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
	SM 18-21 3120B (99)

Wastewater Metals II

Aluminum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Antimony, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Arsenic, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Beryllium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B

Wastewater Metals II

Beryllium, Total	EPA 6020
	SM 18-21 3120B (99)
Chromium VI	EPA 7196A
Mercury, Total	EPA 245.1 Rev. 3.0
	EPA 7470A
	SM 18-21 3112B (99 & 09)
Selenium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Vanadium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Zinc, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)

Wastewater Metals III

Cobalt, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B

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is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Wastewater Metals III

Cobalt, Total	EPA 6020
	SM 18-21 3120B (99)
Molybdenum, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	SM 18-21 3120B (99)
Thallium, Total	EPA 200.7 Rev. 4.4
	EPA 200.8 Rev. 5.4
	EPA 6010B
	EPA 6020
	SM 18-21 3120B (99)
Tin, Total	EPA 200.7 Rev. 4.4
	EPA 6010B

Wastewater Miscellaneous

Boron, Total	EPA 200.7 Rev. 4.4
	EPA 6010B
Bromide	EPA 300.0 Rev. 2.1
	EPA 9056A
Color	SM 18-21 2120B (01)
Cyanide, Total	EPA 9012B
	SM 18-21 4500-CN E (99)
Oil and Grease Total Recoverable (HEM	EPA 1664A
Organic Carbon, Total	EPA 9060
	SM 18-21 5310B (00)
Phenols	EPA 420.1 Rev. 1978

Wastewater Miscellaneous

Phenols	EPA 9065
Silica, Dissolved	EPA 200.7 Rev. 4.4
	SM 18-21 3120B (99)
Specific Conductance	EPA 120.1 Rev. 1982
	SM 18-21 2510B (97)
Sulfide (as S)	EPA 9034
Surfactant (MBAS)	SM 18-21 5540C (00)
Turbidity	EPA 180.1 Rev. 2.0
	SM 18-21 2130 B (01)

Sample Preparation Methods

EPA 3005A
EPA 3010A
EPA 3510C
EPA 3520C
EPA 5030B
EPA 9010C
EPA 9030B
SM 18-20 4500-CN C
SM 18-21 4500-N Org B or C (97)
SM 18-21 4500-NH3 B (97)

Serial No.: 48607

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DIVYAJIT MEHTA
CHEMTECH
284 SHEFFIELD STREET
MOUNTAINSIDE, NJ 07092

NY Lab Id No: 11376

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Acrylates	
Acrolein (Propenal)	EPA 8260B
	EPA 8260C
Acrylonitrile	EPA 8260B
	EPA 8260C
Amines	
2-Nitroaniline	EPA 8270C
	EPA 8270D
3-Nitroaniline	EPA 8270C
	EPA 8270D
4-Chloroaniline	EPA 8270C
	EPA 8270D
4-Nitroaniline	EPA 8270C
	EPA 8270D
Aniline	EPA 8270C
	EPA 8270D
Carbazole	EPA 8270C
	EPA 8270D
Diphenylamine	EPA 8270C
	EPA 8270D
Benzidines	
3,3'-Dichlorobenzidine	EPA 8270C
	EPA 8270D
Benzidine	EPA 8270C
	EPA 8270D

Characteristic Testing	
Free Liquids	EPA 9095B
Ignitability	EPA 1030
Synthetic Precipitation Leaching Proc.	EPA 1312
TCLP	EPA 1311
Chlorinated Hydrocarbon Pesticides	
4,4'-DDD	EPA 8081A
	EPA 8081B
4,4'-DDE	EPA 8081A
	EPA 8081B
4,4'-DDT	EPA 8081A
	EPA 8081B
Aldrin	EPA 8081A
	EPA 8081B
alpha-BHC	EPA 8081A
	EPA 8081B
alpha-Chlordane	EPA 8081A
	EPA 8081B
beta-BHC	EPA 8081A
	EPA 8081B
Chlordane Total	EPA 8081A
	EPA 8081B
delta-BHC	EPA 8081A
	EPA 8081B
Dieldrin	EPA 8081A
	EPA 8081B

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Chlorinated Hydrocarbon Pesticides	
Endosulfan I	EPA 8081A
	EPA 8081B
Endosulfan II	EPA 8081A
	EPA 8081B
Endosulfan sulfate	EPA 8081A
	EPA 8081B
Endrin	EPA 8081A
	EPA 8081B
Endrin aldehyde	EPA 8081A
	EPA 8081B
Endrin Ketone	EPA 8081A
	EPA 8081B
gamma-Chlordane	EPA 8081A
	EPA 8081B
Heptachlor	EPA 8081A
	EPA 8081B
Heptachlor epoxide	EPA 8081A
	EPA 8081B
Lindane	EPA 8081A
	EPA 8081B
Methoxychlor	EPA 8081A
	EPA 8081B
Toxaphene	EPA 8081A
	EPA 8081B

Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA 8270C
	EPA 8270D
2-Chloronaphthalene	EPA 8270C
	EPA 8270D
Hexachlorobenzene	EPA 8270C
	EPA 8270D
Hexachlorobutadiene	EPA 8270C
	EPA 8270D
Hexachlorocyclopentadiene	EPA 8270C
	EPA 8270D
Hexachloroethane	EPA 8270C
	EPA 8270D

Chlorophenoxy Acid Pesticides	
2,4,5-T	EPA 8151A
2,4,5-TP (Silvex)	EPA 8151A
2,4-D	EPA 8151A
Dalapon	EPA 8151A
Dicamba	EPA 8151A
Dinoseb	EPA 8151A

Haloethers	
4-Bromophenylphenyl ether	EPA 8270C
	EPA 8270D
4-Chlorophenylphenyl ether	EPA 8270C
	EPA 8270D
Bis(2-chloroethoxy)methane	EPA 8270C

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Haloethers	
Bis(2-chloroethoxy)methane	EPA 8270D
Bis(2-chloroethyl)ether	EPA 8270C
	EPA 8270D
Bis(2-chloroisopropyl) ether	EPA 8270C
	EPA 8270D
Metals I	
Barium, Total	EPA 6010B
	EPA 6020
Cadmium, Total	EPA 6010B
	EPA 6020
Calcium, Total	EPA 6010B
Chromium, Total	EPA 6010B
	EPA 6020
Copper, Total	EPA 6010B
	EPA 6020
Iron, Total	EPA 6010B
Lead, Total	EPA 6010B
	EPA 6020
Magnesium, Total	EPA 6010B
Manganese, Total	EPA 6010B
Nickel, Total	EPA 6010B
	EPA 6020
Potassium, Total	EPA 6010B
Silver, Total	EPA 6010B
	EPA 6020
Metals I	
Sodium, Total	EPA 6010B
Metals II	
Aluminum, Total	EPA 6010B
	EPA 6020
Antimony, Total	EPA 6010B
	EPA 6020
Arsenic, Total	EPA 6010B
	EPA 6020
Beryllium, Total	EPA 6010B
	EPA 6020
Chromium VI	EPA 7196A
Mercury, Total	EPA 7471A
	EPA 7471B
Selenium, Total	EPA 6010B
	EPA 6020
Vanadium, Total	EPA 6010B
	EPA 6020
Zinc, Total	EPA 6010B
	EPA 6020
Metals III	
Cobalt, Total	EPA 6010B
	EPA 6020
Molybdenum, Total	EPA 6010B
Thallium, Total	EPA 6010B
	EPA 6020

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Metals III	
Tin, Total	EPA 6010B
Minerals	
Bromide	EPA 9056A
Chloride	EPA 9056A
Fluoride, Total	EPA 9056A
Sulfate (as SO4)	EPA 9056A
Miscellaneous	
Boron, Total	EPA 6010B
Cyanide, Total	EPA 9012B
Organic Carbon, Total	EPA 9060
Phenols	EPA 9065
Sulfide (as S)	EPA 9031
	EPA 9034
Nitroaromatics and Isophorone	
1,3,5-Trinitrobenzene	EPA 8330
	EPA 8330A
1,3-Dinitrobenzene	EPA 8330
	EPA 8330A
2,4,6-Trinitrotoluene	EPA 8330
	EPA 8330A
2,4-Dinitrotoluene	EPA 8270C
	EPA 8270D
	EPA 8330
	EPA 8330A

Nitroaromatics and Isophorone	
2,6-Dinitrotoluene	EPA 8270C
	EPA 8270D
	EPA 8330
	EPA 8330A
2-Amino-4,6-dinitrotoluene	EPA 8330
	EPA 8330A
2-Nitrotoluene	EPA 8330
	EPA 8330A
3-Nitrotoluene	EPA 8330
	EPA 8330A
4-Amino-2,6-dinitrotoluene	EPA 8330
	EPA 8330A
4-Nitrotoluene	EPA 8330
	EPA 8330A
Hexahydro-1,3,5-trinitro-1,3,5-triazine	EPA 8330
	EPA 8330A
Isophorone	EPA 8270C
	EPA 8270D
Methyl-2,4,6-trinitrophenylnitramine	EPA 8330
	EPA 8330A
Nitrobenzene	EPA 8270C
	EPA 8270D
	EPA 8330
	EPA 8330A
Pyridine	EPA 8270C
	EPA 8270D

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Nitrosoamines	
N-Nitrosodi-n-propylamine	EPA 8270C
	EPA 8270D
N-Nitrosodiphenylamine	EPA 8270C
	EPA 8270D
Nutrients	
Nitrate (as N)	EPA 9056A
Nitrite (as N)	EPA 9056A
Orthophosphate (as P)	EPA 9056A
Petroleum Hydrocarbons	
Diesel Range Organics	EPA 8015B
Gasoline Range Organics	EPA 8015B
Oil and Grease Total Recoverable (HEM	EPA 9071B (Solvent:Hexane)
Phthalate Esters	
Benzyl butyl phthalate	EPA 8270C
	EPA 8270D
Bis(2-ethylhexyl) phthalate	EPA 8270C
	EPA 8270D
Diethyl phthalate	EPA 8270C
	EPA 8270D
Dimethyl phthalate	EPA 8270C
	EPA 8270D
Di-n-butyl phthalate	EPA 8270C
	EPA 8270D
Di-n-octyl phthalate	EPA 8270C
Phthalate Esters	
Di-n-octyl phthalate	EPA 8270D
Polychlorinated Biphenyls	
PCB-1016	EPA 8082
	EPA 8082A
PCB-1221	EPA 8082
	EPA 8082A
PCB-1232	EPA 8082
	EPA 8082A
PCB-1242	EPA 8082
	EPA 8082A
PCB-1248	EPA 8082
	EPA 8082A
PCB-1254	EPA 8082
	EPA 8082A
PCB-1260	EPA 8082
	EPA 8082A
Polynuclear Aromatic Hydrocarbons	
Acenaphthene	EPA 8270C
	EPA 8270D
Acenaphthylene	EPA 8270C
	EPA 8270D
Anthracene	EPA 8270C
	EPA 8270D
Benzo(a)anthracene	EPA 8270C
	EPA 8270D

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Polynuclear Aromatic Hydrocarbons	
Benzo(a)pyrene	EPA 8270C
	EPA 8270D
Benzo(b)fluoranthene	EPA 8270C
	EPA 8270D
Benzo(ghi)perylene	EPA 8270C
	EPA 8270D
Benzo(k)fluoranthene	EPA 8270C
	EPA 8270D
Chrysene	EPA 8270C
	EPA 8270D
Dibenzo(a,h)anthracene	EPA 8270C
	EPA 8270D
Fluoranthene	EPA 8270C
	EPA 8270D
Fluorene	EPA 8270C
	EPA 8270D
Indeno(1,2,3-cd)pyrene	EPA 8270C
	EPA 8270D
Naphthalene	EPA 8270C
	EPA 8270D
Phenanthrene	EPA 8270C
	EPA 8270D
Pyrene	EPA 8270C
	EPA 8270D

Priority Pollutant Phenols	
2,4,5-Trichlorophenol	EPA 8270C
	EPA 8270D
2,4,6-Trichlorophenol	EPA 8270C
	EPA 8270D
2,4-Dichlorophenol	EPA 8270C
	EPA 8270D
2,4-Dimethylphenol	EPA 8270C
	EPA 8270D
2,4-Dinitrophenol	EPA 8270C
	EPA 8270D
2-Chlorophenol	EPA 8270C
	EPA 8270D
2-Methyl-4,6-dinitrophenol	EPA 8270C
	EPA 8270D
2-Methylphenol	EPA 8270C
	EPA 8270D
2-Nitrophenol	EPA 8270C
	EPA 8270D
3-Methylphenol	EPA 8270C
	EPA 8270D
4-Chloro-3-methylphenol	EPA 8270C
	EPA 8270D
4-Methylphenol	EPA 8270C
	EPA 8270D
4-Nitrophenol	EPA 8270C
	EPA 8270D

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Priority Pollutant Phenols	
Pentachlorophenol	EPA 8270C
	EPA 8270D
Phenol	EPA 8270C
	EPA 8270D
Semi-Volatile Organics	
1,2-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,3-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
1,4-Dichlorobenzene, Semi-volatile	EPA 8270C
	EPA 8270D
2-Methylnaphthalene	EPA 8270C
	EPA 8270D
Dibenzofuran	EPA 8270C
	EPA 8270D
Volatile Aromatics	
1,2,4-Trichlorobenzene, Volatile	EPA 8260C
1,2-Dichlorobenzene	EPA 8260B
	EPA 8260C
1,3-Dichlorobenzene	EPA 8260B
	EPA 8260C
1,4-Dichlorobenzene	EPA 8260B
	EPA 8260C
Benzene	EPA 8260B
	EPA 8260C

Volatile Aromatics	
Chlorobenzene	EPA 8260B
	EPA 8260C
Ethyl benzene	EPA 8260B
	EPA 8260C
Naphthalene, Volatile	EPA 8260B
	EPA 8260C
Styrene	EPA 8260B
	EPA 8260C
Toluene	EPA 8260B
	EPA 8260C
Total Xylenes	EPA 8260B
	EPA 8260C
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 8260B
	EPA 8260C
1,1,1-Trichloroethane	EPA 8260B
	EPA 8260C
1,1,2,2-Tetrachloroethane	EPA 8260B
	EPA 8260C
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA 8260B
	EPA 8260C
1,1,2-Trichloroethane	EPA 8260B
	EPA 8260C
1,1-Dichloroethane	EPA 8260B
	EPA 8260C

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Volatile Halocarbons	
1,1-Dichloroethene	EPA 8260B
	EPA 8260C
1,2,3-Trichloropropane	EPA 8260B
	EPA 8260C
1,2-Dibromo-3-chloropropane	EPA 8260B
	EPA 8260C
1,2-Dibromoethane	EPA 8260B
	EPA 8260C
1,2-Dichloroethane	EPA 8260B
	EPA 8260C
1,2-Dichloropropane	EPA 8260B
	EPA 8260C
2-Chloroethylvinyl ether	EPA 8260B
	EPA 8260C
Bromodichloromethane	EPA 8260B
	EPA 8260C
Bromoform	EPA 8260B
	EPA 8260C
Bromomethane	EPA 8260B
	EPA 8260C
Carbon tetrachloride	EPA 8260B
	EPA 8260C
Chloroethane	EPA 8260B
	EPA 8260C
Chloroform	EPA 8260B
	EPA 8260C

Volatile Halocarbons	
Chloromethane	EPA 8260B
	EPA 8260C
cis-1,2-Dichloroethene	EPA 8260B
	EPA 8260C
cis-1,3-Dichloropropene	EPA 8260B
	EPA 8260C
Dibromochloromethane	EPA 8260B
	EPA 8260C
Dichlorodifluoromethane	EPA 8260B
	EPA 8260C
Hexachlorobutadiene, Volatile	EPA 8260B
	EPA 8260C
Methyl iodide	EPA 8260B
	EPA 8260C
Methylene chloride	EPA 8260B
	EPA 8260C
Tetrachloroethene	EPA 8260B
	EPA 8260C
trans-1,2-Dichloroethene	EPA 8260B
	EPA 8260C
trans-1,3-Dichloropropene	EPA 8260B
	EPA 8260C
Trichloroethene	EPA 8260B
	EPA 8260C
Trichlorofluoromethane	EPA 8260B
	EPA 8260C

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Volatile Halocarbons	
Vinyl chloride	EPA 8260B
	EPA 8260C
Volatile Organics	
2-Butanone (Methylethyl ketone)	EPA 8015B
	EPA 8260B
	EPA 8260C
2-Hexanone	EPA 8260B
	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260B
	EPA 8260C
Acetone	EPA 8015B
	EPA 8260B
	EPA 8260C
Carbon Disulfide	EPA 8260B
	EPA 8260C
Methyl tert-butyl ether	EPA 8260B
	EPA 8260C
tert-butyl alcohol	EPA 8260B
	EPA 8260C
Vinyl acetate	EPA 8260B
	EPA 8260C
Sample Preparation Methods	
	EPA 3050B
	EPA 3060A
	EPA 3541
Sample Preparation Methods	
	EPA 3545
	EPA 3550B
	EPA 9010C
	EPA 9030B

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All approved analytes are listed below:

Acrylates	
Acetonitrile	EPA TO-15
Acrylonitrile	EPA TO-15
Ethyl acrylate	EPA TO-15
Methyl methacrylate	EPA TO-15
Chlorinated Hydrocarbons	
1,2,4-Trichlorobenzene	EPA TO-15
Hexachlorobutadiene	EPA TO-15
Hexachloroethane	EPA TO-15
Polynuclear Aromatics	
Naphthalene	EPA TO-15
Purgeable Aromatics	
1,2,4-Trimethylbenzene	EPA TO-15
1,2-Dichlorobenzene	EPA TO-15
1,3,5-Trimethylbenzene	EPA TO-15
1,3-Dichlorobenzene	EPA TO-15
1,4-Dichlorobenzene	EPA TO-15
2-Chlorotoluene	EPA TO-15
Benzene	EPA TO-15
Chlorobenzene	EPA TO-15
Ethyl benzene	EPA TO-15
Isopropylbenzene	EPA TO-15
m/p-Xylenes	EPA TO-15
o-Xylene	EPA TO-15
Styrene	EPA TO-15

Purgeable Aromatics	
Toluene	EPA TO-15
Total Xylenes	EPA TO-15
Purgeable Halocarbons	
1,1,1-Trichloroethane	EPA TO-15
1,1,2,2-Tetrachloroethane	EPA TO-15
1,1,2-Trichloro-1,2,2-Trifluoroethane	EPA TO-15
1,1,2-Trichloroethane	EPA TO-15
1,1-Dichloroethane	EPA TO-15
1,1-Dichloroethene	EPA TO-15
1,2-Dibromo-3-chloropropane	EPA TO-15
1,2-Dibromoethane	EPA TO-15
1,2-Dichloroethane	EPA TO-15
1,2-Dichloropropane	EPA TO-15
Bromodichloromethane	EPA TO-15
Bromoform	EPA TO-15
Bromomethane	EPA TO-15
Carbon tetrachloride	EPA TO-15
Chloroethane	EPA TO-15
Chloroform	EPA TO-15
Chloromethane	EPA TO-15
cis-1,2-Dichloroethene	EPA TO-15
cis-1,3-Dichloropropene	EPA TO-15
Dibromochloromethane	EPA TO-15
Dichlorodifluoromethane	EPA TO-15
Methylene chloride	EPA TO-15

Serial No.: 48609

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2014
Issued April 01, 2013

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DIVYAJIT MEHTA
CHEMTECH
284 SHEFFIELD STREET
MOUNTAINSIDE, NJ 07092

NY Lab Id No: 11376

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved analytes are listed below:

Purgeable Halocarbons	
Tetrachloroethene	EPA TO-15
trans-1,2-Dichloroethene	EPA TO-15
trans-1,3-Dichloropropene	EPA TO-15
Trichloroethene	EPA TO-15
Trichlorofluoromethane	EPA TO-15
Vinyl bromide	EPA TO-15
Vinyl chloride	EPA TO-15
Volatile Chlorinated Organics	
Benzyl chloride	EPA TO-15
Epichlorohydrin	EPA TO-15
Volatile Organics	
1,2-Dichlorotetrafluoroethane	EPA TO-15
1,3-Butadiene	EPA TO-15
1,4-Dioxane	EPA TO-15
2,2,4-Trimethylpentane	EPA TO-15
2-Butanone (Methylethyl ketone)	EPA TO-15
4-Methyl-2-Pentanone	EPA TO-15
Acetaldehyde	EPA TO-15
Acetone	EPA TO-15
Carbon Disulfide	EPA TO-15
Cyclohexane	EPA TO-15
Hexane	EPA TO-15
Isopropanol	EPA TO-15
Methanol	EPA TO-15
Methyl iodide	EPA TO-15
Volatile Organics	
Methyl tert-butyl ether	EPA TO-15
n-Heptane	EPA TO-15
Nitrobenzene	EPA TO-15
tert-butyl alcohol	EPA TO-15
Vinyl acetate	EPA TO-15

Serial No.: 48609

Property of the New York State Department of Health. Certificates are valid only at the address shown, must be conspicuously posted, and are printed on secure paper. Continued accreditation depends on successful ongoing participation in the Program. Consumers are urged to call (518) 485-5570 to verify the laboratory's accreditation status.

American Association of State Highway and Transportation Officials

AASHTO Accreditation Program - Certificate of Accreditation

This is to signify that

ATC Group Services, Inc.
dba Cardno ATC
Burlington, New Jersey

has demonstrated proficiency for the testing of construction materials
and has met the minimum requirements in AASHTO R18
set forth by the AASHTO Highway Subcommittee on Materials.

The scope of accreditation can be obtained by viewing
the AAP Directories of Accredited Laboratories (www.amrl.net)
or by contacting AMRL.

Executive Director

Chair, AASHTO Highway
Subcommittee on Materials

AAP®
AASHTO R18

ATC Group Services, Inc. dba Cardno ATC

Burlington, New Jersey

Show This Entry Only

William J. Carty
Three Terri Lane
Burlington, New Jersey 08016

Phone: (609) 386-8800
Fax:
bill.carty@cardno.com
http://www.atcassociates.com

Quality Systems - accredited since 4/17/2006
R18, C1077 (Aggregate), C1077 (Concrete), C1093 (Masonry), D3666 (Aggregate), D3666 (Hot Mix Asphalt), D3740 (Soil), E329 (Aggregate), E329 (Concrete), E329 (Hot Mix Asphalt), E329 (Soil)

Hot Mix Asphalt - accredited since 4/17/2006
T30, T166, T209, T269, T308, D2041, D2726, D3203, D5444, D6307

Soil - accredited since 4/17/2006
R58, T88, T89, T90, T99, T100, T180, T193, T265, T310, D421, D422, D698, D854, D1140, D1557, D1883, D2216, D2487, D4318, D6938

Aggregate - accredited since 4/17/2006
T11, T19, T21, T27, T84, T85, T112, T248, T255, C29, C40, C117, C127, C128, C136, C142, C566, C702

Portland Cement Concrete - accredited since 4/20/2006
C31 (Cylinders), C39, C42, C138, C143, C172, C173, C231, C511, C617 (7000 psi and below), C1064, C1202, C1231 (7000 psi and below)

Masonry - accredited since 4/20/2006
C140 (CMU: Absorption)
C140 (CMU: Compressive Strength)
C140 (CMU: Measurement)
C140 (CMU: Sampling)
C1019 (Sampling and Testing Grout)
C1314 (Compressive Strength of Masonry Prisms)
C1552 (Capping Concrete Masonry Units, Related Units and Masonry Prisms for Compression Testing)

Please note that our accreditations do not include an expiration date. An accreditation only expires when the laboratory fails to comply with our accreditation requirements.

* This information is only valid as of 11/8/2012. Please visit http://www.amrl.net for current accreditation status.

AMRL AASHTO Materials Reference Laboratory

DEKRA ISO 9001:2008 Certified

DEPARTMENT OF THE ARMY
ENGINEER RESEARCH AND DEVELOPMENT CENTER, CORPS OF ENGINEERS
GEOTECHNICAL AND STRUCTURES LABORATORY
WATERWAYS EXPERIMENT STATION, 3909 HALLS FERRY ROAD
VICKSBURG, MISSISSIPPI 39180-6199

May 2, 2013

Reply to the Attention of:
Concrete and Materials Branch

William J. Carty
ATC Group Services, Inc.
dba CARDNO ATC
Three Terri Lane
Burlington, NJ 08016

Dear Mr. Carty:

In reference to your check no. 2849, dated April 26, 2013, and audit agreement, dated May 1, 2013, an audit based on your AASHTO Accreditation was performed on documents submitted by your laboratory. We examined the AMRL On-site Assessment Report No. 924K, dated November 2, 2012, the CCRL Inspection Report No. C101, dated July 15, 2011 and the AASHTO accreditation certificate effective May 2, 2013.

Your Quality System meets the requirements of the U.S. Army Corps of Engineers. The material test methods that you are validated to perform for the U.S. Army Corps of Engineers were determined from the inspection reports from AASHTO and are as follows:

Aggregate Tests: ASTM C40, C117, C127, C128, C136, C29, C131, C142, C566, C702, C1077, D3666, D4791, and E329.

Bituminous Tests: ASTM D2041, D2726, D3203, D3666, D5444, D6307, and E329.

Concrete Tests: ASTM C31, C39, C138, C143, C172, C173, C231, C1064, C42, C511, C617, C1077, C1202, C1231, and E329.

Masonry, Mortar, & Grout Tests: ASTM C140, C1093, C1019, C1314, and C1552.

Soil Tests: ASTM D421, D422, D698, D854, D1140, D1557, D1883, D2216, D2487, D2974, D3740, D4318, D6938, and E329.

Sprayed Fire-Resistive Materials: ASTM E605, E736, and E329.

We will add your laboratory to the list of commercial laboratories qualified to conduct material tests for the U.S. Army Corps of Engineers; see the Materials Testing Center homepage at http://gsl.erdc.usace.army.mil/SL/MTC/. All Corps offices will be notified of this decision and will have the opportunity to use your services. ATC Group Services dba CARDNO ATC, Burlington, NJ will remain on our list of laboratories qualified to conduct material tests until **May 2, 2015** two (2) years from the date of the audit. In the event your AASHTO accreditation is suspended in whole or part, ATC Group Services dba CARDNO ATC, Burlington, NJ is to notify the Materials Testing Center immediately to perform a re-evaluation of your laboratory's validation. Failure to notify the Materials Testing Center will result in immediate suspension of your U.S. Army Corps of Engineers validation.

Sincerely,

Alfred B. Crawley, PE
Director, Materials Testing Center

Copy Furnished:
Peter Destefano / New York District

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ATTACHMENT C

FIGURES

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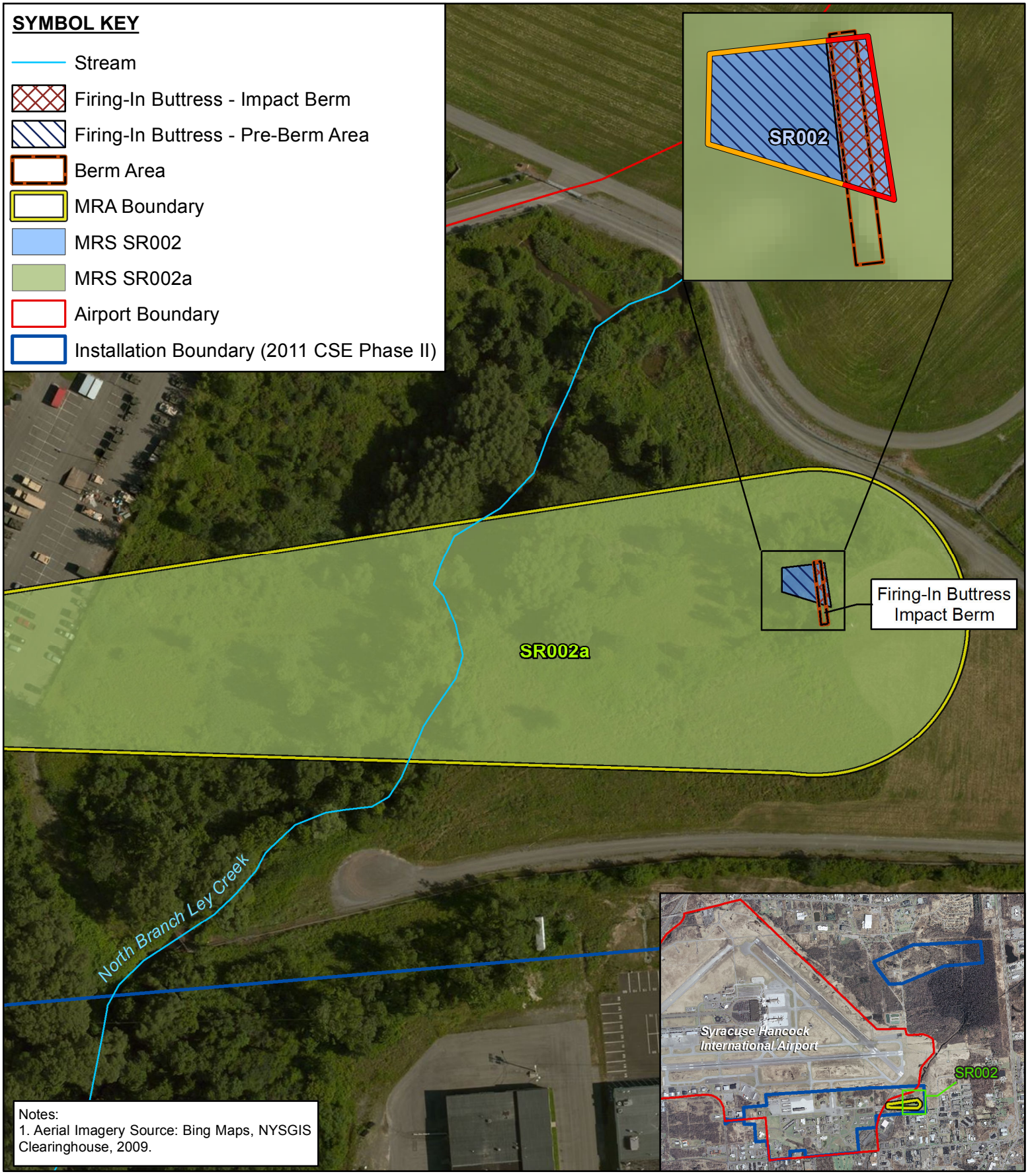
New York Air National Guard
Syracuse, New York

N

FIGURE 1
MRS SR001
Non-Time Critical Removal Action Work Plan Addendum
174th Attack Wing, Hancock Field Air National Guard Base - Syracuse, NY

0 50 100 200 300 400 Feet
0 25 50 75 100 Meters

01/02/2014	ANG_Hancock_Prop_WC_Sample_SR0001_NTCRA_Addendum.mxd	
PROJ: 912810001	Drawn: JBO	



New York Air National Guard
Syracuse, New York

N

FIGURE 2
MRS SR002
Non-Time Critical Removal Action Work Plan Addendum
174th Attack Wing, Hancock Field Air National Guard Base - Syracuse, NY

0 125 250 375 500 Feet
0 25 50 100 150 Meters

01/02/2014	File: ANG_Hancock_Prop_WC_Sample_SR0002_NTCRA_Addendum.mxd	
PROJ: 912810001	Drawn: JBO	