

**HAZARDOUS WASTE SECTION - COMPLIANCE BRANCH
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Author(s) of Document: David Kerschner

Inspector Name: N/A

Suborganization:

County (if not on report): Guilford



March 18, 2014

Julie Woosley
Chief, Hazardous Waste Section
Division of Waste Management
North Carolina DENR
1646 Mail Service Center
Raleigh, NC 27699-1646

Subject: Letter Report – RCRA Subpart W Drip Pad Soil Sampling and Analysis
Fortress Wood Products
Greensboro, North Carolina
ID NO. NCD981920648

Dear Ms. Woosley:

On behalf of Fortress Wood Products, Inc. (FWP), I am submitting this Letter Report describing the results of soil sampling performed beneath and adjacent to the RCRA Subpart W Drip Pad at the subject facility. This sampling was requested in the Department's letter of December 17, 2013, in order to allow the Department to move forward with approval of the Subpart W Drip Pad closure and redevelopment of the FWP property. Pursuant to that letter request, FWP submitted a Sampling and Analysis Plan (SAP) on January 8, 2014, and the Department verbally approved that plan on January 17, 2014.

There was no evidence that a release of hazardous waste had occurred from the Subpart W Drip Pad. However, as discussed in the RCRA Subpart W Closure Plan and Closure Report, because wood preserving operations occurred at the property well in advance of the enactment of the Subpart W requirements, there is a potential that historical (pre-Subpart W) soil quality impacts exist. It is FWP's intent to ensure that any historical soil quality impacts that may be present at the site are addressed during site redevelopment under the North Carolina Brownfields program, in a manner that is protective of human health and the environment.

FWP appreciates the Department's agreement that the Brownfields program is the appropriate mechanism to address any such historical soil quality impacts.

Soil Sampling Methodology

As part of the activities associated with the permanent closure and redevelopment of the wood preserving facility, FWP requested the Department to terminate the facility's storm water discharge permit. In response to that request, a Department representative visited the facility, and subsequently requested FWP to take measures to prevent the accumulation of standing water on the decontaminated former Drip Pad surface. Because the low point in the former Drip Pad is at the interior of the concrete slab, FWP removed concrete that had been used to fill a former sump in the low point, cut a narrow trench in the concrete slab leading from the sump to the edge of the slab, and installed a drainage pipe to route storm water from the sump to the slab perimeter.

The construction of the drainage pipe trench involved removal of the concrete slab, and therefore provided access for sampling subsoil in the former Drip Pad area. Because this trench extends across the concrete slab, soil samples collected from this trench area are representative of soil quality conditions beneath the pad.

Pursuant to the approved SAP, sub-slab soil samples were collected from four locations along the pipe trench, as shown on Figure 1. An approximate six-inch layer of aggregate base material was removed to provide access to underlying soil, and soil samples were collected from the upper six-inch soil interval using a trowel.

In addition to the sub-slab soil samples, soil samples were collected from five locations around the perimeter of the former Drip Pad, at a distance of two feet from the edge of the Drip Pad. These sampling locations are also shown on Figure 1. A shallow excavation was initially installed at each location using a hydraulic excavator. The surficial gravel layer that ranged between 16 and 24 inches in thickness was removed, and samples were then collected from the upper six inches of the underlying soil using a trowel.

The soil samples were placed in laboratory-provided jars and submitted to the TestAmerica Laboratories, Inc. Pittsburgh, Pennsylvania facility for analysis of chromium, arsenic, and copper. The laboratory was instructed to archive hold all excess sample volume pending receipt and review of the analytical results, for potential toxicity characteristic leaching procedure (TCLP) sample extraction, with analysis for chromium and arsenic.

Photographs showing the trench installation and soil sampling activities are included as Attachment A.

Summary of Results

Soil encountered during the sampling program was predominantly red to red-brown clay to silty clay. At perimeter sampling location FW-08, the soil encountered was brown silt and sand with small gravel. At perimeter sampling location FW-09 a dark brown clayey silt was encountered. There was no visible evidence of potential soil quality impacts, although some evidence of buried debris (likely from the scrapyards operations previously conducted at the property) was observed at the Drip Pad perimeter during installation of the drainage pipe.

The soil quality results are summarized on Table 1, and the laboratory analytical report is included in Attachment B. No notably elevated arsenic concentrations were noted in any of the soil samples. Elevated (relative to the entire dataset) chromium concentrations were noted in sub-slab sampling locations FW-01 (190 mg/kg) and FW-04 (140 mg/kg), and perimeter sampling location FW-05 (100 mg/kg). An elevated copper concentration was noted in perimeter sampling location FW-07 (470 mg/kg).

To provide further evaluation of the results, the remaining sample aliquot from sampling location FW-01, which exhibited the highest chromium concentration, was submitted for TCLP extraction and chromium analysis. The result was non-detect (<0.5 mg/L, with a method detection limit (MDL) of 0.0057 mg/L), demonstrating that the chromium present in soil is not leachable. The laboratory analytical report for this analysis is also included in Attachment B.

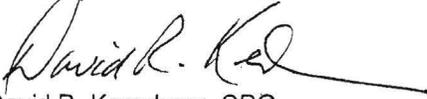
The analytical results are not indicative of the presence of a release of wood preservatives to the subsurface. A release of CCA wood preservative would be expected to result in the co-occurrence of elevated concentrations of chromium, copper, and arsenic. In the samples collected from beneath and around the Subpart W Drip Pad, there were no occurrences of elevated arsenic concentrations, and no co-occurrences of elevated copper and chromium concentrations.

In summary, the consistency of the arsenic concentrations beneath and around the Drip Pad slab suggests that these concentrations are not associated with a CCA release, and are likely reflective of natural conditions. Based on the historical use of the property as a scrapyard, and the presence of buried scrapyard-type debris noted adjacent to the Drip Pad, it is likely that the elevated chromium and copper concentrations are associated with the former scrapyard operations.



Please let us know if there are any questions or comments regarding this plan.

Sincerely,



David R. Kerschner, CPG
Principal
dkerschner@kuresources.com

cc: Scott Fulcher -- FWP
Doug Roberts -- DENR

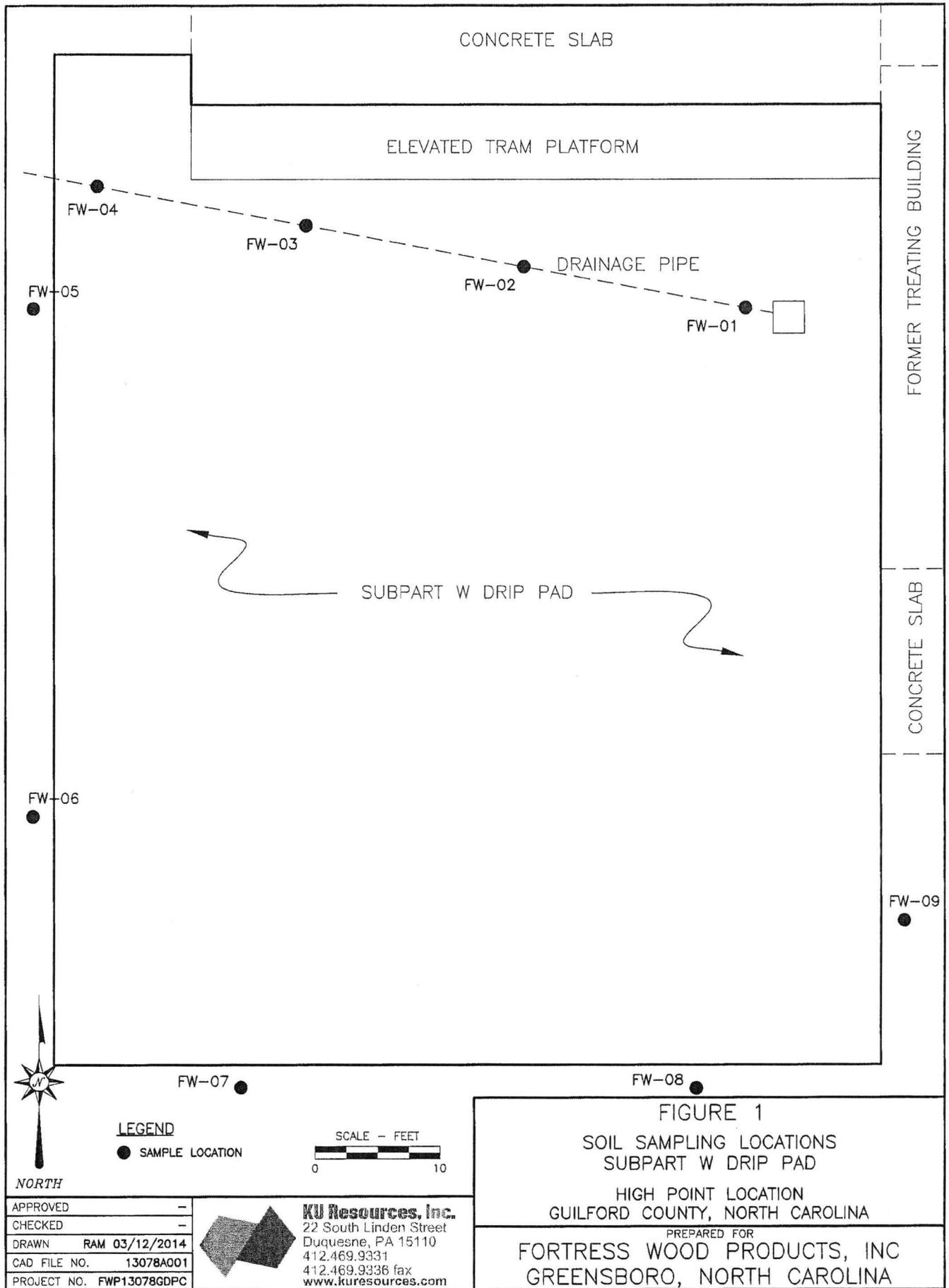


TABLE 1
SOIL QUALITY SUMMARY
Fortress Wood Products, Inc.
Greensboro, North Carolina

<i>SUB-SLAB SAMPLING LOCATIONS</i>					
	UNITS	FW-01	FW-02	FW-03	FW-04
Arsenic	mg/kg	5.2	7.7	9.1	7.4
Chromium	mg/kg	190	18	18	140
Copper	mg/kg	53	69	74	65

<i>SLAB PERIMETER SAMPLING LOCATIONS</i>						
	UNITS	FW-05	FW-06	FW-07	FW-08	FW-09
Arsenic	mg/kg	9.5	5.9	5.8	1.7	5.8
Chromium	mg/kg	100	52	48	4.9	33
Copper	mg/kg	62	40	470	9.6	190





Attachment A
Project Photographs



Attachment A - Project Photographs

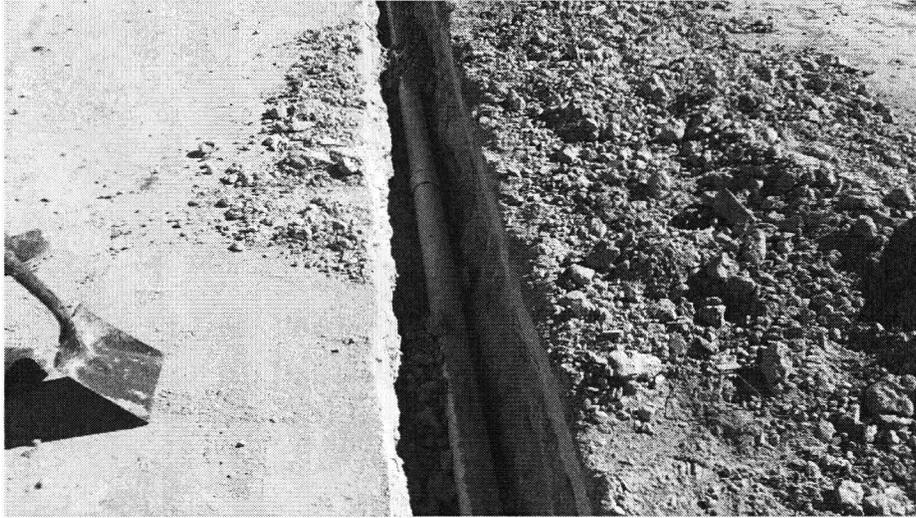


Trench for drainage pipe installed through Drip Pad



Sub-slab soil sampling location

Attachment A - Project Photographs

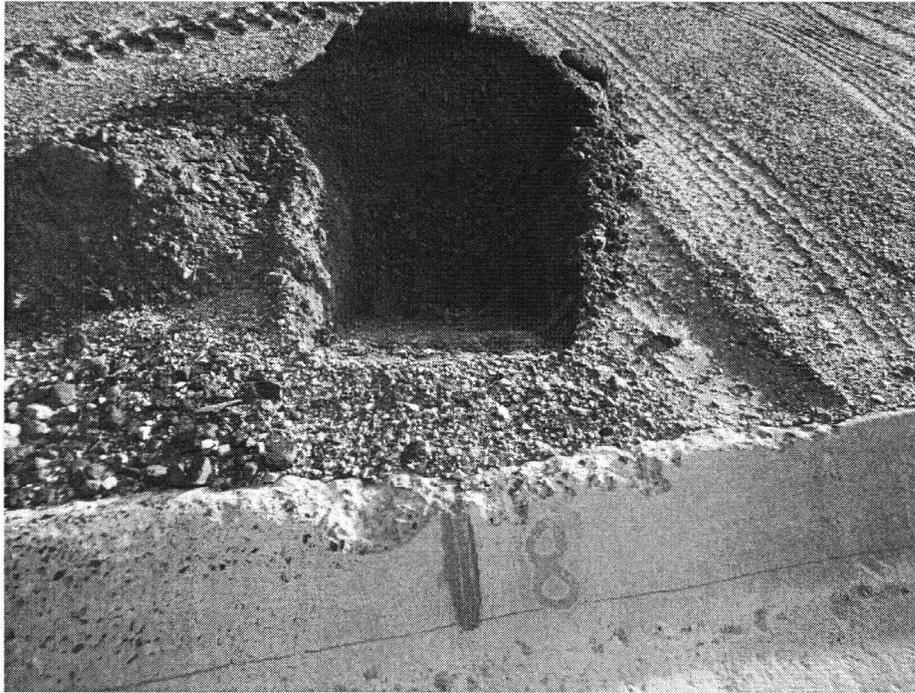


Drainage pipe installed in trench following soil sampling



Drainage pipe outfall, with repaired Drip Pad slab also visible

Attachment A - Project Photographs



Slab perimeter soil sampling location (FW-08)



General view of Drip Pad/project area

Attachment B
Laboratory Analytical Reports



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

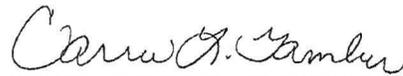
ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-29650-1
Client Project/Site: Fortress Greensboro Drip Pad Closure

For:
KU Resources Inc
22 South Linden Street
Duquesne, Pennsylvania 15110

Attn: Dave Kerschner



Authorized for release by:
2/21/2014 11:46:15 AM

Carrie Gamber, Senior Project Manager
(412)963-2428
carrie.gamber@testamericainc.com

LINKS

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results through
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The
Expert**

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Job ID: 180-29650-1

Laboratory: TestAmerica Pittsburgh

Narrative

CASE NARRATIVE

Client: KU Resources Inc

Project: Fortress Greensboro Drip Pad Closure

Report Number: 180-29650-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 02/07/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.6 C.

METALS (ICP)

The following samples were diluted due to the presence of iron, which interferes with arsenic and chromium: FW-02 (180-29650-2), FW-03 (180-29650-3), FW-05 (180-29650-5). Elevated reporting limits (RLs) are provided.

Arsenic failed the recovery criteria low for the MS/MSD of sample FW-01 (180-29650-1) in batch 180-97349. Chromium failed the recovery criteria high. The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

PERCENT SOLIDS

No difficulties were encountered during the percent solids analysis.

Definitions/Glossary

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD Recovery exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Laboratory: TestAmerica Pittsburgh

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-14
California	NELAP	9	4224CA	03-31-14
Connecticut	State Program	1	PH-0688	09-30-14
Florida	NELAP	4	E871008	06-30-14
Illinois	NELAP	5	002602	06-30-14
Kansas	NELAP	7	E-10350	04-01-14 *
L-A-B	DoD ELAP		L2314	07-16-16
Louisiana	NELAP	6	04041	06-30-14
New Hampshire	NELAP	1	203011	04-05-14
New Jersey	NELAP	2	PA005	06-30-14
New York	NELAP	2	11182	04-01-14
North Carolina DENR	State Program	4	434	12-31-14
Pennsylvania	NELAP	3	02-00416	04-30-14
South Carolina	State Program	4	89014	04-30-14
US Fish & Wildlife	Federal		LE94312A-1	11-30-14
USDA	Federal		P330-10-00139	05-23-16
Utah	NELAP	8	STLP	04-30-14
Virginia	NELAP	3	460189	09-14-14
West Virginia DEP	State Program	3	142	03-31-14 *
Wisconsin	State Program	5	998027800	08-31-14

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* Expired certification is currently pending renewal and is considered valid.

Sample Summary

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-29650-1	FW-01	Solid	01/24/14 10:30	02/07/14 17:00
180-29650-2	FW-02	Solid	01/24/14 10:37	02/07/14 17:00
180-29650-3	FW-03	Solid	01/24/14 10:41	02/07/14 17:00
180-29650-4	FW-04	Solid	01/24/14 10:47	02/07/14 17:00
180-29650-5	FW-05	Solid	01/25/14 16:15	02/07/14 17:00
180-29650-6	FW-06	Solid	01/25/14 16:21	02/07/14 17:00
180-29650-7	FW-07	Solid	01/25/14 16:32	02/07/14 17:00
180-29650-8	FW-08	Solid	01/25/14 16:40	02/07/14 17:00
180-29650-9	FW-09	Solid	01/25/14 16:59	02/07/14 17:00

TestAmerica Pittsburgh

Method Summary

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL PIT
2540G	SM 2540G	SM22	TAL PIT

Protocol References:

SM22 = SM22

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Client Sample ID: FW-01

Lab Sample ID: 180-29650-1

Date Collected: 01/24/14 10:30

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 66.4

Prep Type	Batch Type	Batch Method	Run	DII Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			00001.01 g	100 mL	97159	02/13/14 10:24	CEH	TAL PIT
Total/NA	Analysis	6010C		1	00001.01 g	100 mL	97287	02/14/14 09:07	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	6010C		1	00001.01 g	100 mL	97349	02/14/14 14:51	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	2540G		1			96865	02/10/14 17:07	ALF	TAL PIT
		Instrument ID: NOEQUIP								

Client Sample ID: FW-02

Lab Sample ID: 180-29650-2

Date Collected: 01/24/14 10:37

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 68.0

Prep Type	Batch Type	Batch Method	Run	DII Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	00001.02 g	100 mL	97287	02/14/14 09:34	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Prep	3050B			00001.02 g	100 mL	97159	02/13/14 10:24	CEH	TAL PIT
Total/NA	Analysis	6010C		2	00001.02 g	100 mL	97287	02/14/14 11:14	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	6010C		2	00001.02 g	100 mL	97559	02/18/14 10:48	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	2540G		1			96865	02/10/14 17:07	ALF	TAL PIT
		Instrument ID: NOEQUIP								

Client Sample ID: FW-03

Lab Sample ID: 180-29650-3

Date Collected: 01/24/14 10:41

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 69.6

Prep Type	Batch Type	Batch Method	Run	DII Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			00001.00 g	100 mL	97159	02/13/14 10:24	CEH	TAL PIT
Total/NA	Analysis	6010C		1	00001.00 g	100 mL	97287	02/14/14 09:39	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	6010C		2	00001.00 g	100 mL	97287	02/14/14 11:19	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	6010C		2	00001.00 g	100 mL	97559	02/18/14 10:53	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	2540G		1			96865	02/10/14 17:07	ALF	TAL PIT
		Instrument ID: NOEQUIP								

TestAmerica Pittsburgh

Lab Chronicle

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Client Sample ID: FW-04

Lab Sample ID: 180-29650-4

Date Collected: 01/24/14 10:47

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 63.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			00001.00 g	100 mL	97159	02/13/14 10:24	CEH	TAL PIT
Total/NA	Analysis	6010C		1	00001.00 g	100 mL	97287	02/14/14 09:55	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	6010C		1	00001.00 g	100 mL	97559	02/18/14 10:59	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	2540G		1			96865	02/10/14 17:07	ALF	TAL PIT
		Instrument ID: NOEQUIP								

Client Sample ID: FW-05

Lab Sample ID: 180-29650-5

Date Collected: 01/25/14 16:15

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 67.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			00001.02 g	100 mL	97159	02/13/14 10:24	CEH	TAL PIT
Total/NA	Analysis	6010C		1	00001.02 g	100 mL	97287	02/14/14 10:00	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	6010C		2	00001.02 g	100 mL	97287	02/14/14 11:25	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	6010C		2	00001.02 g	100 mL	97559	02/18/14 11:04	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	2540G		1			96865	02/10/14 17:07	ALF	TAL PIT
		Instrument ID: NOEQUIP								

Client Sample ID: FW-06

Lab Sample ID: 180-29650-6

Date Collected: 01/25/14 16:21

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 72.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			00001.03 g	100 mL	97159	02/13/14 10:24	CEH	TAL PIT
Total/NA	Analysis	6010C		1	00001.03 g	100 mL	97287	02/14/14 10:05	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	6010C		1	00001.03 g	100 mL	97559	02/18/14 11:09	RJG	TAL PIT
		Instrument ID: Q								
Total/NA	Analysis	2540G		1			96865	02/10/14 17:07	ALF	TAL PIT
		Instrument ID: NOEQUIP								

Client Sample ID: FW-07

Lab Sample ID: 180-29650-7

Date Collected: 01/25/14 16:32

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 86.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			00001.06 g	100 mL	97159	02/13/14 10:24	CEH	TAL PIT

TestAmerica Pittsburgh

Lab Chronicle

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Client Sample ID: FW-07

Lab Sample ID: 180-29650-7

Date Collected: 01/25/14 16:32

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 86.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	00001.06 g	100 mL	97287	02/14/14 10:11	RJG	TAL PIT
	Instrument ID: Q									
Total/NA	Analysis	6010C		1	00001.06 g	100 mL	97559	02/18/14 11:15	RJG	TAL PIT
	Instrument ID: Q									
Total/NA	Analysis	2540G		1			96865	02/10/14 17:07	ALF	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: FW-08

Lab Sample ID: 180-29650-8

Date Collected: 01/25/14 16:40

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 94.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			00001.03 g	100 mL	97159	02/13/14 10:24	CEH	TAL PIT
Total/NA	Analysis	6010C		1	00001.03 g	100 mL	97287	02/14/14 10:16	RJG	TAL PIT
	Instrument ID: Q									
Total/NA	Analysis	6010C		1	00001.03 g	100 mL	97559	02/18/14 11:25	RJG	TAL PIT
	Instrument ID: Q									
Total/NA	Analysis	2540G		1			96865	02/10/14 17:07	ALF	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: FW-09

Lab Sample ID: 180-29650-9

Date Collected: 01/25/14 16:59

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 84.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			00001.01 g	100 mL	97159	02/13/14 10:24	CEH	TAL PIT
Total/NA	Analysis	6010C		1	00001.01 g	100 mL	97287	02/14/14 10:21	RJG	TAL PIT
	Instrument ID: Q									
Total/NA	Analysis	6010C		1	00001.01 g	100 mL	97559	02/18/14 11:20	RJG	TAL PIT
	Instrument ID: Q									
Total/NA	Analysis	2540G		1			96865	02/10/14 17:07	ALF	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

CEH = Caitlyn Haluck

Batch Type: Analysis

ALF = Ato Foulland

RJG = Rob Good

TestAmerica Pittsburgh

Client Sample Results

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Client Sample ID: FW-01

Lab Sample ID: 180-29650-1

Date Collected: 01/24/14 10:30

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 66.4

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.2		1.5	0.33	mg/Kg	✱	02/13/14 10:24	02/14/14 14:51	1
Chromium	190		0.75	0.13	mg/Kg	✱	02/13/14 10:24	02/14/14 09:07	1
Copper	53		3.7	0.51	mg/Kg	✱	02/13/14 10:24	02/14/14 09:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	34		0.10	0.10	%			02/10/14 17:07	1

Client Sample ID: FW-02

Lab Sample ID: 180-29650-2

Date Collected: 01/24/14 10:37

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 68.0

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.7		2.9	0.64	mg/Kg	✱	02/13/14 10:24	02/18/14 10:48	2
Chromium	18		1.4	0.25	mg/Kg	✱	02/13/14 10:24	02/14/14 11:14	2
Copper	69		3.6	0.49	mg/Kg	✱	02/13/14 10:24	02/14/14 09:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	32		0.10	0.10	%			02/10/14 17:07	1

Client Sample ID: FW-03

Lab Sample ID: 180-29650-3

Date Collected: 01/24/14 10:41

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 69.6

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.1		2.9	0.64	mg/Kg	✱	02/13/14 10:24	02/18/14 10:53	2
Chromium	18		1.4	0.24	mg/Kg	✱	02/13/14 10:24	02/14/14 11:19	2
Copper	74		3.6	0.49	mg/Kg	✱	02/13/14 10:24	02/14/14 09:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	30		0.10	0.10	%			02/10/14 17:07	1

Client Sample ID: FW-04

Lab Sample ID: 180-29650-4

Date Collected: 01/24/14 10:47

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 63.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.4		1.6	0.35	mg/Kg	✱	02/13/14 10:24	02/18/14 10:59	1
Chromium	140		0.79	0.13	mg/Kg	✱	02/13/14 10:24	02/14/14 09:55	1
Copper	65		4.0	0.54	mg/Kg	✱	02/13/14 10:24	02/14/14 09:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	37		0.10	0.10	%			02/10/14 17:07	1

TestAmerica Pittsburgh

Client Sample Results

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Client Sample ID: FW-05

Lab Sample ID: 180-29650-5

Date Collected: 01/25/14 16:15

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 67.8

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.5		2.9	0.65	mg/Kg	⊛	02/13/14 10:24	02/18/14 11:04	2
Chromium	100		1.4	0.25	mg/Kg	⊛	02/13/14 10:24	02/14/14 11:25	2
Copper	62		3.6	0.49	mg/Kg	⊛	02/13/14 10:24	02/14/14 10:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	32		0.10	0.10	%			02/10/14 17:07	1

Client Sample ID: FW-06

Lab Sample ID: 180-29650-6

Date Collected: 01/25/14 16:21

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 72.9

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.9		1.3	0.30	mg/Kg	⊛	02/13/14 10:24	02/18/14 11:09	1
Chromium	52		0.67	0.11	mg/Kg	⊛	02/13/14 10:24	02/14/14 10:05	1
Copper	40		3.3	0.46	mg/Kg	⊛	02/13/14 10:24	02/14/14 10:05	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	27		0.10	0.10	%			02/10/14 17:07	1

Client Sample ID: FW-07

Lab Sample ID: 180-29650-7

Date Collected: 01/25/14 16:32

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 86.4

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.8		1.1	0.24	mg/Kg	⊛	02/13/14 10:24	02/18/14 11:15	1
Chromium	48		0.55	0.093	mg/Kg	⊛	02/13/14 10:24	02/14/14 10:11	1
Copper	470		2.7	0.37	mg/Kg	⊛	02/13/14 10:24	02/14/14 10:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14		0.10	0.10	%			02/10/14 17:07	1

Client Sample ID: FW-08

Lab Sample ID: 180-29650-8

Date Collected: 01/25/14 16:40

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 94.2

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.7		1.0	0.23	mg/Kg	⊛	02/13/14 10:24	02/18/14 11:25	1
Chromium	4.9		0.52	0.088	mg/Kg	⊛	02/13/14 10:24	02/14/14 10:16	1
Copper	9.6		2.6	0.35	mg/Kg	⊛	02/13/14 10:24	02/14/14 10:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.8		0.10	0.10	%			02/10/14 17:07	1

TestAmerica Pittsburgh

Client Sample Results

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Client Sample ID: FW-09

Lab Sample ID: 180-29650-9

Date Collected: 01/25/14 16:59

Matrix: Solid

Date Received: 02/07/14 17:00

Percent Solids: 84.0

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.8		1.2	0.26	mg/Kg	☒	02/13/14 10:24	02/18/14 11:20	1
Chromium	33		0.59	0.10	mg/Kg	☒	02/13/14 10:24	02/14/14 10:21	1
Copper	190		2.9	0.40	mg/Kg	☒	02/13/14 10:24	02/14/14 10:21	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16		0.10	0.10	%			02/10/14 17:07	1

QC Sample Results

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-97159/1-A							Client Sample ID: Method Blank			
Matrix: Solid							Prep Type: Total/NA			
Analysis Batch: 97287							Prep Batch: 97159			
Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
	Result	Qualifier								
Chromium	ND		0.48	0.081	mg/Kg		02/13/14 10:24	02/14/14 08:51	1	
Copper	ND		2.4	0.33	mg/Kg		02/13/14 10:24	02/14/14 08:51	1	

Lab Sample ID: MB 180-97159/1-A							Client Sample ID: Method Blank			
Matrix: Solid							Prep Type: Total/NA			
Analysis Batch: 97349							Prep Batch: 97159			
Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
	Result	Qualifier								
Arsenic	ND		0.95	0.21	mg/Kg		02/13/14 10:24	02/14/14 14:30	1	

Lab Sample ID: LCS 180-97159/2-A							Client Sample ID: Lab Control Sample			
Matrix: Solid							Prep Type: Total/NA			
Analysis Batch: 97287							Prep Batch: 97159			
Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	Limits		
	Added	Result	Qualifier							
Chromium	17.5	16.7		mg/Kg		95		80 - 120		
Copper	21.9	21.7		mg/Kg		99		80 - 120		

Lab Sample ID: LCS 180-97159/2-A							Client Sample ID: Lab Control Sample			
Matrix: Solid							Prep Type: Total/NA			
Analysis Batch: 97349							Prep Batch: 97159			
Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	Limits		
	Added	Result	Qualifier							
Arsenic	43.9	41.7		mg/Kg		95		80 - 120		

Lab Sample ID: 180-29650-1 MS							Client Sample ID: FW-01			
Matrix: Solid							Prep Type: Total/NA			
Analysis Batch: 97287							Prep Batch: 97159			
Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Chromium	190		29.8	244	4	mg/Kg	✱	186		75 - 125
Copper	53		37.3	96.9		mg/Kg	✱	117		75 - 125

Lab Sample ID: 180-29650-1 MS							Client Sample ID: FW-01			
Matrix: Solid							Prep Type: Total/NA			
Analysis Batch: 97349							Prep Batch: 97159			
Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Arsenic	5.2		74.6	54.1	F1	mg/Kg	✱	66		75 - 125

Lab Sample ID: 180-29650-1 MSD							Client Sample ID: FW-01					
Matrix: Solid							Prep Type: Total/NA					
Analysis Batch: 97287							Prep Batch: 97159					
Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Chromium	190		30.1	250	4	mg/Kg	✱	204		75 - 125	2	20
Copper	53		37.7	98.4		mg/Kg	✱	119		75 - 125	2	20

TestAmerica Pittsburgh

QC Sample Results

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 180-29650-1 MSD
 Matrix: Solid
 Analysis Batch: 97349

Client Sample ID: FW-01
 Prep Type: Total/NA
 Prep Batch: 97159

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Arsenic	5.2		75.3	56.0	F1	mg/Kg	✱	67	75 - 125	3	20

QC Association Summary

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

Metals

Prep Batch: 97159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-29650-1	FW-01	Total/NA	Solid	3050B	
180-29650-1 MS	FW-01	Total/NA	Solid	3050B	
180-29650-1 MSD	FW-01	Total/NA	Solid	3050B	
180-29650-2	FW-02	Total/NA	Solid	3050B	
180-29650-3	FW-03	Total/NA	Solid	3050B	
180-29650-4	FW-04	Total/NA	Solid	3050B	
180-29650-5	FW-05	Total/NA	Solid	3050B	
180-29650-6	FW-06	Total/NA	Solid	3050B	
180-29650-7	FW-07	Total/NA	Solid	3050B	
180-29650-8	FW-08	Total/NA	Solid	3050B	
180-29650-9	FW-09	Total/NA	Solid	3050B	
LCS 180-97159/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 180-97159/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 97287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-29650-1	FW-01	Total/NA	Solid	6010C	97159
180-29650-1 MS	FW-01	Total/NA	Solid	6010C	97159
180-29650-1 MSD	FW-01	Total/NA	Solid	6010C	97159
180-29650-2	FW-02	Total/NA	Solid	6010C	97159
180-29650-2	FW-02	Total/NA	Solid	6010C	97159
180-29650-3	FW-03	Total/NA	Solid	6010C	97159
180-29650-3	FW-03	Total/NA	Solid	6010C	97159
180-29650-4	FW-04	Total/NA	Solid	6010C	97159
180-29650-5	FW-05	Total/NA	Solid	6010C	97159
180-29650-5	FW-05	Total/NA	Solid	6010C	97159
180-29650-6	FW-06	Total/NA	Solid	6010C	97159
180-29650-7	FW-07	Total/NA	Solid	6010C	97159
180-29650-8	FW-08	Total/NA	Solid	6010C	97159
180-29650-9	FW-09	Total/NA	Solid	6010C	97159
LCS 180-97159/2-A	Lab Control Sample	Total/NA	Solid	6010C	97159
MB 180-97159/1-A	Method Blank	Total/NA	Solid	6010C	97159

Analysis Batch: 97349

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-29650-1	FW-01	Total/NA	Solid	6010C	97159
180-29650-1 MS	FW-01	Total/NA	Solid	6010C	97159
180-29650-1 MSD	FW-01	Total/NA	Solid	6010C	97159
LCS 180-97159/2-A	Lab Control Sample	Total/NA	Solid	6010C	97159
MB 180-97159/1-A	Method Blank	Total/NA	Solid	6010C	97159

Analysis Batch: 97559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-29650-2	FW-02	Total/NA	Solid	6010C	97159
180-29650-3	FW-03	Total/NA	Solid	6010C	97159
180-29650-4	FW-04	Total/NA	Solid	6010C	97159
180-29650-5	FW-05	Total/NA	Solid	6010C	97159
180-29650-6	FW-06	Total/NA	Solid	6010C	97159
180-29650-7	FW-07	Total/NA	Solid	6010C	97159
180-29650-8	FW-08	Total/NA	Solid	6010C	97159
180-29650-9	FW-09	Total/NA	Solid	6010C	97159

TestAmerica Pittsburgh

QC Association Summary

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-29650-1

General Chemistry

Analysis Batch: 96865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-29650-1	FW-01	Total/NA	Solid	2540G	
180-29650-2	FW-02	Total/NA	Solid	2540G	
180-29650-3	FW-03	Total/NA	Solid	2540G	
180-29650-4	FW-04	Total/NA	Solid	2540G	
180-29650-5	FW-05	Total/NA	Solid	2540G	
180-29650-6	FW-06	Total/NA	Solid	2540G	
180-29650-7	FW-07	Total/NA	Solid	2540G	
180-29650-8	FW-08	Total/NA	Solid	2540G	
180-29650-9	FW-09	Total/NA	Solid	2540G	

TestAmerica Pittsburgh

301 Alpha Drive
 WIBC Park
 Pittsburgh, PA 15238
 Phone: 412.963.7058 Fax:

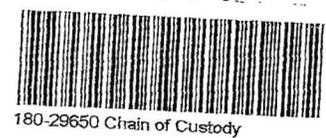
Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING
 TestAmerica Laboratories, Inc.

Form No. CA-C-WI-002, Rev. 4.2, dated 04/02/2013

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>D. KERSCHNER</u>		Site Contact:		Date:		COC No:																			
Company Name: <u>KO RESOURCES</u>		Tel/Fax:		Lab Contact:		Carrier:		1 of 1 COCs																			
Address: <u>22 S. LADEN ST.</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) <u>Chromium</u> <u>Arsenic</u> <u>Copper</u>				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:																			
City/State/Zip: <u>DUQUESNE PA 15110</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS																									
Phone:		TAT if different from Below																									
Fax:		<input type="checkbox"/> STD 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day																									
Project Name: <u>FORTRESS WOOD</u>		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.		Sample Specific Notes:																			
Site: <u>GREENSBORO NC</u>																											
P O #																											
Sample Identification		Sample Date		Sample Time																							
<u>FW-01</u>		<u>1/21/14</u>		<u>10:30</u>		<u>G S 1</u>																					
<u>FW-02</u>				<u>10:37</u>		<u>1</u>																					
<u>FW-03</u>				<u>10:41</u>		<u>1</u>																					
<u>FW-04</u>				<u>10:47</u>		<u>1</u>																					
<u>FW-05</u>		<u>1/25</u>		<u>16:15</u>		<u>1</u>																					
<u>FW-06</u>				<u>16:21</u>		<u>1</u>																					
<u>FW-07</u>				<u>16:32</u>		<u>1</u>																					
<u>FW-08</u>				<u>16:40</u>		<u>1</u>																					
<u>FW-09</u>				<u>16:59</u>		<u>1</u>																					
<p>Preservation Used: <input type="checkbox"/> Ice <input type="checkbox"/> HCl <input type="checkbox"/> H2SO4 <input type="checkbox"/> HNO3 <input type="checkbox"/> NaOH <input type="checkbox"/> Other:</p> <p>Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown</p> <p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) HOLD EXCESS SAMPLE VOLUMES FOR POSSIBLE ADDITIONAL ANALYSIS (METALS) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input checked="" type="checkbox"/> Archive for: _____ Months</p> <p>Special Instructions/QC Requirements & Comments: SEE NOTE RE HOLDING EXCESS SAMPLE VOLUME ↑</p> <p>Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.: _____ Cooler Temp. (°C): Obs'd: _____ Cor'd: _____ Therm ID No.: _____</p> <table border="1"> <tr> <td>Relinquished by: <u>J. HANCOCK</u></td> <td>Company: <u>FIG</u></td> <td>Date/Time: <u>02/06 1900</u></td> <td>Received by: <u>D. KERSCHNER</u></td> <td>Company: <u>KO Resources</u></td> <td>Date/Time: <u>02/06 1900</u></td> </tr> <tr> <td>Relinquished by: <u>D. KERSCHNER</u></td> <td>Company: <u>KO</u></td> <td>Date/Time:</td> <td>Received by: <u>[Signature]</u></td> <td>Company: <u>TAP, TX</u></td> <td>Date/Time: <u>1025 2/7/14</u></td> </tr> <tr> <td>Relinquished by: <u>[Signature]</u></td> <td>Company: <u>TA Pitt</u></td> <td>Date/Time: <u>2/7/14 1700</u></td> <td>Received in Laboratory by: <u>[Signature]</u></td> <td>Company: <u>TAP</u></td> <td>Date/Time: <u>2/7/14 1900</u></td> </tr> </table>										Relinquished by: <u>J. HANCOCK</u>	Company: <u>FIG</u>	Date/Time: <u>02/06 1900</u>	Received by: <u>D. KERSCHNER</u>	Company: <u>KO Resources</u>	Date/Time: <u>02/06 1900</u>	Relinquished by: <u>D. KERSCHNER</u>	Company: <u>KO</u>	Date/Time:	Received by: <u>[Signature]</u>	Company: <u>TAP, TX</u>	Date/Time: <u>1025 2/7/14</u>	Relinquished by: <u>[Signature]</u>	Company: <u>TA Pitt</u>	Date/Time: <u>2/7/14 1700</u>	Received in Laboratory by: <u>[Signature]</u>	Company: <u>TAP</u>	Date/Time: <u>2/7/14 1900</u>
Relinquished by: <u>J. HANCOCK</u>	Company: <u>FIG</u>	Date/Time: <u>02/06 1900</u>	Received by: <u>D. KERSCHNER</u>	Company: <u>KO Resources</u>	Date/Time: <u>02/06 1900</u>																						
Relinquished by: <u>D. KERSCHNER</u>	Company: <u>KO</u>	Date/Time:	Received by: <u>[Signature]</u>	Company: <u>TAP, TX</u>	Date/Time: <u>1025 2/7/14</u>																						
Relinquished by: <u>[Signature]</u>	Company: <u>TA Pitt</u>	Date/Time: <u>2/7/14 1700</u>	Received in Laboratory by: <u>[Signature]</u>	Company: <u>TAP</u>	Date/Time: <u>2/7/14 1900</u>																						



temp = 3.7 therm # 9 CF = 3.6

Login Sample Receipt Checklist

Client: KU Resources Inc

Job Number: 180-29650-1

Login Number: 29650

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Lonzo, Michael A

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ ($1/4''$).	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-30096-1
Client Project/Site: Fortress Greensboro Drip Pad Closure

For:
KU Resources Inc
22 South Linden Street
Duquesne, Pennsylvania 15110

Attn: Dave Kerschner



Authorized for release by:
2/28/2014 12:59:09 PM
Craig Addison, Project Management Assistant I
(412)963-7058
craig.addison@testamericainc.com
Designee for
Carrie Gamber, Senior Project Manager
(412)963-2428
carrie.gamber@testamericainc.com

LINKS

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results through
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Have a Question?

 **Ask
The
Expert**

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-30096-1

Job ID: 180-30096-1

Laboratory: TestAmerica Pittsburgh

Narrative

CASE NARRATIVE

Client: KU Resources Inc

Project: Fortress Greensboro Drip Pad Closure

Report Number: 180-30096-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

COMMENTS

TCLP chromium was requested for sample FW-01 by Dave Kerschner, on February, 21th 2014.

RECEIPT

The samples were received on 02/07/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 3.6 C.

TCLP METALS (ICP)

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-30096-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-30096-1

Laboratory: TestAmerica Pittsburgh

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-14
California	NELAP	9	4224CA	03-31-14 *
Connecticut	State Program	1	PH-0688	09-30-14
Florida	NELAP	4	E871008	06-30-14
Illinois	NELAP	5	002602	06-30-14
Kansas	NELAP	7	E-10350	04-01-14 *
L-A-B	DoD ELAP		L2314	07-16-16
Louisiana	NELAP	6	04041	06-30-14
New Hampshire	NELAP	1	203011	04-05-14
New Jersey	NELAP	2	PA005	06-30-14
New York	NELAP	2	11182	04-01-14 *
North Carolina DENR	State Program	4	434	12-31-14
Pennsylvania	NELAP	3	02-00416	04-30-14
South Carolina	State Program	4	89014	04-30-14
US Fish & Wildlife	Federal		LE94312A-1	11-30-14
USDA	Federal		P330-10-00139	05-23-16
Utah	NELAP	8	STLP	04-30-14
Virginia	NELAP	3	460189	09-14-14
West Virginia DEP	State Program	3	142	03-31-14 *
Wisconsin	State Program	5	998027800	08-31-14

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* Expired certification is currently pending renewal and is considered valid.

Sample Summary

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-30096-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-30096-1	FW-01	Solid	01/24/14 10:30	02/07/14 17:00



Method Summary

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-30096-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-30096-1

Client Sample ID: FW-01

Lab Sample ID: 180-30096-1

Date Collected: 01/24/14 10:30

Matrix: Solid

Date Received: 02/07/14 17:00

Prep Type	Batch Type	Batch Method	Run	DII Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			00100.95 g	2000 mL	98153	02/25/14 18:48	SWP	TAL PIT
TCLP	Prep	3010A			5 mL	50 mL	98330	02/27/14 10:27	CEH	TAL PIT
TCLP	Analysis	6010C		1	5 mL	50 mL	98423	02/28/14 08:29	RJG	TAL PIT

Instrument ID: Q

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Leach

SWP = Sean Payton

Batch Type: Prep

CEH = Caitlyn Haluck

Batch Type: Analysis

RJG = Rob Good

TestAmerica Pittsburgh

Client Sample Results

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-30096-1

Client Sample ID: FW-01

Lab Sample ID: 180-30096-1

Date Collected: 01/24/14 10:30

Matrix: Solid

Date Received: 02/07/14 17:00

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.50	0.0057	mg/L		02/27/14 10:27	02/28/14 08:29	1

QC Sample Results

Client: KU Resources Inc
 Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-30096-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 180-98330/1-A
 Matrix: Solid
 Analysis Batch: 98423

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 98330

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
	Result	Qualifier							
Chromium	ND		0.050	0.00057	mg/L		02/27/14 10:27	02/28/14 06:19	1

Lab Sample ID: LCS 180-98330/2-A
 Matrix: Solid
 Analysis Batch: 98423

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 98330

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Chromium	0.200	0.200		mg/L		100	80 - 120

Lab Sample ID: LB 180-98153/20-E
 Matrix: Solid
 Analysis Batch: 98423

Client Sample ID: Method Blank
 Prep Type: TCLP
 Prep Batch: 98330

Analyte	LB LB		RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
	Result	Qualifier							
Chromium	ND		0.50	0.0057	mg/L		02/27/14 10:27	02/28/14 06:25	1

QC Association Summary

Client: KU Resources Inc
Project/Site: Fortress Greensboro Drip Pad Closure

TestAmerica Job ID: 180-30096-1

Metals

Leach Batch: 98153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30096-1	FW-01	TCLP	Solid	1311	
LB 180-98153/20-E	Method Blank	TCLP	Solid	1311	

Prep Batch: 98330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30096-1	FW-01	TCLP	Solid	3010A	98153
LB 180-98153/20-E	Method Blank	TCLP	Solid	3010A	98153
LCS 180-98330/2-A	Lab Control Sample	Total/NA	Solid	3010A	
MB 180-98330/1-A	Method Blank	Total/NA	Solid	3010A	

Analysis Batch: 98423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-30096-1	FW-01	TCLP	Solid	6010C	98330
LB 180-98153/20-E	Method Blank	TCLP	Solid	6010C	98330
LCS 180-98330/2-A	Lab Control Sample	Total/NA	Solid	6010C	98330
MB 180-98330/1-A	Method Blank	Total/NA	Solid	6010C	98330

TestAmerica Pittsburgh

TestAmerica Pittsburgh

301 Alpha Drive
RIOC Park

Pittsburgh, PA 15238
Phone: 412.963.7858 Fax:

Chain of Custody Record

TestAmerica

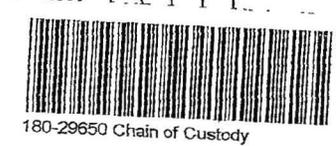
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.

Form No. CA-C-WI-002, Rev. 4.2, dated 04/02/2013

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>D. Kerschner</u>		Site Contact:		Date:		COC No:	
Company Name: <u>KO Resources</u>		Tel/Fax:		Lab Contact:		Carrier:		1 of 1 COCs	
Address: <u>22 S. LIADEN ST.</u>		Analysis Turnaround Time							
City/State/Zip: <u>DUQUESNE, PA 15110</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input type="checkbox"/> STD 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day							
Phone:		Filtered Sample (Y/N) <u>Chromium</u> <u>Arsenic</u> <u>Copper</u>							
Fax:									
Project Name: <u>FORTRESS WOOD</u>									
Site: <u>GREENSBORO NC</u>									
P O #		Perform MS / MSD (Y/N) Walk-In Client: <input type="checkbox"/> Lab Sampling: <input type="checkbox"/> Job / SDG No.: _____ Sample Specific Notes: _____							

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)
FW-01	1/21/14	10:30	G	S	1		XXX
FW-02		10:37			1		XXX
FW-03		10:41			1		XXX
FW-04		10:47			1		XXX
FW-05	1/25	16:15			1		XXX
FW-06		16:21			1		XXX
FW-07		16:32			1		XXX
FW-08		16:40			1		XXX
FW-09		16:59			1		XXX



Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

HOLD EXCESS SAMPLE VOLUMES FOR POSSIBLE ADDITIONAL ANALYSIS (METALS)

Return to Client Disposal by Lab Archive for _____ Months

Special Instructions/QC Requirements & Comments:
SEE NOTE RE HOLDING EXCESS SAMPLE VOLUME ↑

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by: <u>J. HAMMOND</u>	Company: <u>FMG</u>	Date/Time: <u>02/06 1900</u>	Received by: <u>D. Kerschner</u>	Company: <u>KO Resources</u>
Relinquished by: <u>D. Kerschner</u>	Company: <u>KO</u>	Date/Time:	Received by: <u>[Signature]</u>	Company: <u>TAP, TX</u>
Relinquished by: <u>[Signature]</u>	Company: <u>TA Pitt</u>	Date/Time: <u>2/7/14 1700</u>	Received in Laboratory by: <u>[Signature]</u>	Company: <u>TAP</u>

temp = 3.7 therm # 9 CF = 3.6

Login Sample Receipt Checklist

Client: KU Resources Inc

Job Number: 180-30096-1

Login Number: 30096

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Lonzo, Michael A

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ ($1/4"$).	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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