NIAGARA FALLS WATER BOARD

REQUEST FOR BIDS
BID #W2015-02

Bids on items as specified herein will be accepted at City Hall until 12:00 P.M., and opened at 12:00 P.M. on April 13, 2015.

Bidders must state when delivery can be made.

All bids are subject to delivery as stated herein.

If a bid is submitted on an article intended as a substitute for a grade or brand specified, the bidder must state the grade or brand of the substitution, otherwise it will be assumed that the bid is based on the grade or brand specified.

The Board reserves the right to accept this bid by items, or as a whole, or to reject any or all bids or waive informalities.

Bids are to be shown NET. Cash discounts are to be stated, if any.

All bids must be accompanied by the requisite bid bond IF SO STATED IN THE SPECIFICATIONS.

Provision of any required performance bond is the responsibility of the bidder. Successful bidder shall, within ten (10) days after the receipt of the Notice of Award, furnish the City of Niagara Falls with a performance bond in a penal sum equal to the amount of the contract based on bid price.

Prices must be filled in with typewriter or ink on this form.

THE ENVELOPE CONTAINING THE BID MUST BE SEALED AND CLEARLY MARKED WITH THE BID NUMBER.

Any and all bids and contracts made or awarded by the Niagara Falls Water Board or any official thereof for work or services performed or to be performed, or goods purchased or sold or to be purchased or sold are made subject to the provisions of Chapter 861 of the Laws of New York, 1953, as amended by Chapter 751 of the Laws of New York, and as now contained or as may hereafter be amended. The provisions of the New York State General Municipal Law and 103a and 103b are applicable to this bid.

BIDDER'S ATTENTION IS REQUESTED REGARDING THE FOLLOWING CONDITIONS AND REGULATIONS. BIDS NOT IN COMPLIANCE WITH THE FOREGOING CONDITIONS AND REGULATIONS WILL NOT BE CONSIDERED.

NON-COLLUSIVE BIDDING CERTIFICATION
(PURSUANT TO CHAPTER 751 OF LAWS OF NEW YORK, 1965)

By submission of this bid or proposal, the bidder certifies that:

a) This bid or proposal has been independently arrived at without collusion with any other bidder or with any competitor or potential competitor;
b) This bid or proposal has not been knowingly disclosed and will not be knowingly disclosed, prior to the opening of bids or proposals for this project, to any other bidder, competitor or potential competitor;
c) No attempt has been or will be made to induce any other person, partnership or corporation to submit or not to submit a bid or proposal;
d) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties of perjury, affirms the truth thereof, such penalties being applicable to the bidders as well as to the person signing on it's behalf;
e) That attached hereto (if a corporate bidder) is a certified copy or resolution authorizing the execution of this certificate by the signature of this bid or proposal on behalf of the corporate bidder.

(see reverse side for additional information)

COMPANY NAME:

_____

_____

ADDRESS:

_____

_____

_____

_____

TOTAL NET PRICE	DELIVERY PROMISED
CONTACT PERSON FOR QUESTIONS REGARDING BID	**TELEPHONE NUMBER**
AUTHORIZED SIGNATURE	**DATE**
TITLE	

MAIL BIDS TO:
NIAGARA FALLS WATER BOARD
C/O PURCHASING DIVISION ROOM 17
PO BOX 69
NIAGARA FALLS, NY 14302-0069

DELIVER BIDS TO:
NIAGARA FALLS WATER BOARD
C/O CITY HALL ROOM 17
745 MAIN STREET
NIAGARA FALLS, NY 14302-0069

BIDS SUBMITTED BY FACSIMILE ARE UNACCEPTABLE

BID #W2015-02 GRANULAR ACTIVATED CARBON SUPPLY & REMOVAL PAGE NO 3						
QNTY	**UNIT**	**DESCRIPTION**	**UNIT PRICE**		**NET TOTAL**	
		Sealed bid proposals will be received by the City				
		Purchasing Division in their offices at City Hall for the				
		purchase of the following:				
		More or less, granular activated carbon (GAC) for the				
		Niagara Falls Water Board per the attached specifications:				
70	TONS	Standard make-up grade				
70	TONS	Inventory renewal grade				
600	TONS	Recycled, reactivated grade				
		More or less, removal and disposal/reuse of spent granular				
		activated carbon (GAC) currently in use at the treatment				
		facility :				
700	TONS	Spent GAC removal				
		The Water Board reserves the right to award to multiple				
		bidders depending upon the low bid prices for each grade				
		of GAC.				
		Specifications for the product you are bidding must				
		be submitted with your bid.				
		All bid prices are to be firm through December 31, 2015.				
		If mutually agreeable, the bid may be extended one				
		additional year, under the same terms, conditions and				
		specifications through December 31, 2016.				
		A ten (10) pound minimum sample must be submitted to				
		the City by the date and time of the bid opening.				
		The sample may be included with the bid or the sample				
		may be sent directly to the Wastewater Treatment Plant				
		to the attention of Joseph Lagamba.				

QNTY	UNIT	DESCRIPTION	UNIT PRICE		NET TOTAL	
		The quantities listed are only an estimate as to how much				
		will be purchased during the term of the contract.				
		Granular activated carbon will be ordered and disposed of				
		as needed.				
		Weigh bills must be provided for all deliveries before an				
		invoice will be paid.				
		Deliveries are to be made within ten (10) calendar days				
		after receipt of the order Monday through Friday				
		unless otherwise directed.				
		A current MSDS must accompany each shipment.				
		The successful bidder(s) must submit a certificate of				
		insurance which meets all the requirements as outlined in				
		the attached “Instructions for Niagara Falls Water Board				
		Standard Insurance Certificate.” Failure to do so will				
		cause termination of the contract.				
		Do not submit a certificate with your bid. You will be				
		contacted if one is required.				
		All services provided under this contract shall be to the				
		satisfaction of the Niagara Falls Water Board who reserves				
		the right to confirm quality, acceptability and fitness of the				
		services which are to be paid for hereunder and shall				
		decide any questions which may arise as to the fulfillment				
		of this contract. The determination of the Niagara Falls				
		Water Board in these matters shall be final and conclusive.				
		For further information please contact Shirley A. Bernat				
		at (716) 286-4371.				

NIAGARA FALLS WATER BOARD
BID SPECIFICATIONS

GRANULAR ACTIVATED CARBON

1. Bidding Requirements

Bid price is to be F.O.B. Destination, freight prepaid to:

Niagara Falls Water Board
Wastewater Treatment Plant
1200 Buffalo Avenue
Niagara Falls, New York 14303

Bids are to be accompanied by a sealed, 10 pound (minimum) container of the candidate granular activated carbon (GAC) bid. The sample will undergo testing by the treatment plant's laboratory to determine specification conformance.

Bids are also to be accompanied by a list of no less than three references, comprised of wastewater and/or water treatment facilities currently using the carbon being bid. The facilities may be municipal or industrial in nature. References shall be provided on the attached forms, which must be completed in full.

2. Carbon Quality

All virgin GAC supplied under this procurement shall be manufactured from select grades of bituminous coals, crushed and reagglomerated to produce the desired performance characteristics. The GAC shall be supplied from a single factory to ensure consistent quality and contain no soluble inorganic material or organic substances capable of producing deleterious effects. Information on the production facility (name, location, years of operation, annual production and ISO certification) supplying GAC under this bid shall be provided at the time of bidding. The facility shall have a minimum of 10 years experience in supplying GAC to treatment facilities. The carbon shall meet or exceed the following standards:

Carbon Quality Parameter	Standard Make-up Grade Carbon	Inventory Renewal Grade Carbon	Recycled Reactivated Carbon
Iodine Number, mg/g	900 (min)	920 (min)	750 (min)
Apparent Density (dry)	0.55 (max)	0.63 (max)	0.53 (max)
Percent Ash	11% (max)	11% (max)	----
Percent Moisture (by wt.)	2% (max)	2% max)	2% (max)
Abrasion Number	75 (min)	80 (min)	70 (min)
Uniformity Coefficient	2.1 (max)	1.5 (max)	---
Sieve Analysis:			
Smaller than #30	4%	---	4% (max)
Smaller than #20	---	5% (max)	---
Larger than #8	15% (max)	15% (max)	15% (max)

The Water Board intends to purchase varying quantities of each carbon grade depending upon treatment facility demands and bid prices.

The contractor shall submit an analysis for these parameters with each truckload delivered. This analysis shall be performed by a laboratory certified to do such analysis. These analyses shall be performed at no additional cost to the Water Board. The contractor shall not interfere with the Water Board or the Water Board's designated representative in collecting any additional carbon samples for supplemental analysis.

Measurement and testing procedures shall be as specified in accordance with the latest edition of the following references or sources:

Standard Methods for the Examination of Water and Wastewater
ANSI/NSF Standard 61
AWWA Standard B604
American Society for Testing and Materials Volume 15.01

Also attached is a copy of the wastewater treatment plant's laboratory procedure WWPC-9 for determining iodine number. This procedure shall be used to verify the iodine number of candidate carbon, within a three percent margin of error.

3. Carbon Delivery and Removal

The frequency of truckload deliveries will depend on the quantity delivered per truckload and the rate of replacement/transport. Typically, carbon is replaced during the spring, summer or fall. The relative quantities of carbon grades are subject to change depending upon the needs of the facility. Tank trucks shall be used to transport GAC to the treatment facility. The contractor is responsible for the proper preparation and offloading of carbon into the Wastewater Treatment Plant's storage tank(s). Damaged or floating carbon shall be removed and replaced at the contractor's expense.

In order to accept replacement carbon, spent carbon currently in use at the facility must be removed. This carbon has been online for a long period of time, in some instances over 1500 days. A recent laboratory analysis is attached to this bid. Disposition is left to the contractors discretion, as to whether this carbon may be salvageable for reuse elsewhere by regeneration, or if it is to be disposed by landfilling. Landfilling is to be accomplished in accordance with all applicable laws, rules and regulations. Transporting trucks shall be equipped with a bottom drain valve to allow carbon motive water to drain from the trailer as it is being filled.

4. Use of Facilities and Utilities

The contractor shall be responsible for supplying eductors, booster pumps, hose and any other equipment of materials necessary to off-load carbon into the Water Board's storage tanks or carbon filter beds as well as to accept spent carbon from the facility into hauling vehicles. The Water Board will allow reasonable access to plant water/hydrant connections and will operate in-plant carbon transfer systems. The Water Board will allow reasonable access to plant electricity as well. All labor, equipment and appurtenances necessary for the contractor to gain access to site utilities shall be provided by the contractor at no additional expense to the Water Board. The contractor, in gaining access to any site utility, shall not adversely affect any process or other activity required by the Water Board to perform any of the Water Board's routine or planned activities. The Water Board will assist in coordinating GAC loading/unloading with grit and screenings removal in the same vicinity.

5. Measurement and Payment

The contractor shall include in his bid price, the cost of all labor, materials, equipment and appurtenances to perform the work, including the transport of fresh carbon and unloading at the Water Board's facilities. The bid price for spent carbon removal shall include the cost of all labor, materials, equipment and appurtenances to perform the work, including the removal, transport and reuse/disposal of carbon from the Water Board's facilities. The contractor shall also be responsible for the removal of unacceptable (off spec) GAC from the facility at no additional cost.

Payments for GAC delivered and accepted shall be made monthly. Measurement of all carbon quantities for payment shall be on a per pound, dry weight basis. There shall be a weight ticket of the empty truck and trailer (tare weight) and a weight ticket of the truck and trailer loaded with GAC. Net weight is the difference between the two. The net weight shall be corrected for moisture content as determined by representative sampling of each truck load and subsequent analysis for moisture as given by AWWA Standard B604. The dry weight of carbon will be the basis for payment. All billings shall be priced and rounded to the nearest pound of carbon.

The contractor shall be responsible for supplying all certified truck load weights and for the laboratory testing required to determine dry weights of GAC. Each shipment shall be sampled by the contractor and divided into three equal portions. One portion is to be analyzed by the contractor, one portion is to be submitted to the Water Board, and the third portion is to be retained by the contractor for submission to a referee laboratory, if required.

The Water Board reserves the right, at the Water Board's expense, to require all or any fewer number of carbon shipments to be independently weighed in and out at a local certified truck weighing facility. The Water Board also reserves the right to sample and test each shipment for carbon quality parameters.

6. Alternate Carbon Purchase

The Water Board reserves the right to secure GAC from other public utilities or agencies as circumstances permit.

NIAGARA FALLS WATER BOARD

VIRGIN GRANULAR ACTIVATED CARBON PURCHASE

TREATMENT FACILITY REFERENCE FORM

1. NAME OF FACILITY	
2. LOCATION	
3. TYPE OF APPLICATION	
4. MUNICIPAL OR INDUSTRIAL	
5. CONTACT NAME	
6. CONTACT TITLE	
7. CONTACT TELEPHONE NUMBER	
8. CARBON PRODUCT CURRENTLY IN USE	
9. DATE(S) OF MOST RECENT DELIVERY & QUANTITY	

NIAGARA FALLS WASTEWATER FACILITIES

Laboratory Procedure No.: WWPC-9
Title: Granular Activated Carbon

9.7 IODINE NUMBER

Discussion: The iodine number is defined as the milligrams of iodine adsorbed by one gram of carbon when the iodine concentration of the residual filtrate is 0.02 normal. This test provides a measure of the adsorptive capacity of the carbon.

Sample Preparation: Grind a sample of dry carbon to 324 mesh using a SPEX 8000 mixer/mill or similar. Three (3) 0.52 inch steel projection balls (25g) are used to promote grinding. Place the pulverized sample in a glass Petri dish and write the sample identification on the dish.

REAGENTS:

1. Hydrochloric Acid, 5% wt.: Add 70 ml of reagent grade concentrated hydrochloric acid to 550 ml of distilled water.

2. Sodium Thiosulfate, 0.1 N: Dilute the "certified" commercial concentrate in accordance with instructions on the ampule.

3. Iodine Solution, 0.1 N: Weigh 12.700g of resublimed iodine crystals and 19.100g of potassium iodide (KI) into a beaker.
   NOTE: The potassium iodide to iodine ratio MUST be 1.5 to 1.
   Add small increments of distilled water while stirring until the volume is 50 to 60 ml. Allow solution to stand a minimum of 4 hours to ensure crystals are thoroughly dissolved. Occasional stirring will aid in dissolution. Quantitatively transfer to a one liter volumetric flask and fill to the mark with distilled water. Mix thoroughly. Standardize the solution using a "certified" 0.1000N sodium thiosulfate solution.

4. Starch Indicator Solution: Transfer 2.5 grams of soluble starch to a mortar and add a little cold water. Grind to a thin paste and pour into one liter of boiled distilled water. Stir and then allow to settle. Use the clear supernate.

PROCEDURE:

1. Mix the pulverized carbon sample in the Petri dish using a small spatula. Using the analytical balance, weigh out an amount of carbon as indicated below:

   Virgin C: 1.000 – 1.100 g

   Regenerated C: 1.500 – 1.700 g

   Spent C: 2.000 – 2.500 g

   Record the total weight of carbon and weighing paper, to the nearest 0.1 mg, in the notebook. Transfer the carbon to a 250 ml Erlenmeyer of iodine flak. Reweigh the paper and subtract the tare weight from the total weight to obtain the weight of sample used.

2. Add a few glass boiling beads to the flask. Add 10 ml of 5% HC1 (1) and place the flask on a hot plate. Bring the contents to a boil and allow to boil for 30 seconds.

3. Remove the flask from the hotplate and cool to room temperature. This can be accelerated by placing the flask in a cold water bath.

4. Using a volumetric pipet, add 100 ml of 0.1 N iodine (3) to the flask. Immediately stopper the flask and shake vigorously for 30 seconds. Remove the stopper and filter by gravity through Whatman 2V filter paper. Discard the first 25 ml of filtrate and collect the remainder in a clean beaker. Do not wash the residue on the filter paper.

5. Mix the filtrate in the beaker with a stirring rod and pipet 50.0 ml of the filtrate into a 250 ml Erlenmeyer flask. Titrate with 0.1 N Sodium Thiosulfate (2) until the yellow color has almost disappeared. Add about 1 ml of starch indicator (4) and continue titration until the blue color just disappears. Record the volume of Sodium Thiosulfate Solution used.

6. Calculate the residual filtrate normality (C) using the formula:

$$C = \frac{N2 \times E}{50}$$

   where E = ml of sodium thiosulfate used.
   N2 = normality of standard thiosulfate solution

   If it is not within the range of 0.008 – 0.035, repeat the test using a different weight of sample. A residual filtrate normality greater than 0.035 indicates the carbon is not removing a sufficient amount of iodine. In this case, use a greater weight of sample. Obtain correction factor (d) from Table b-1 based on calculation of residual filtrate normality (C).

7. CALCULATIONS:

N_1 = Normality of standard iodine solution

N_2 = Normality of standard sodium thiosulfate solution

$A = N_1 \times 12693$

$B = N_2 \times 126.93$

V = Volume of $Na_2S_2O_3$ used for sample

C = Filtrate normality = $\frac{V \times N_2}{50.0}$

$\frac{x}{m} = \frac{A - (2.2\ B \times V)}{\text{Sple. wt. (grams)}}$

D = Correction factor (from graph)

$$\text{Iodine Number} = \frac{x}{m} \times D \quad (mg/g)$$

8. REFERENCES:

US EPA Process Design Manual for Carbon Adsorption
EPA 625/1-71-002a October 1973

Calgon Carbon Corporation: Determination of the Iodine Number of Activated Carbon TM-4

ASTMD – 4607 Volume 15.01, 1989

TABLE B-1
IODINE CORRECTION FACTOR (D)

RESIDUAL FILTRATE NORMALITY (C)	.0000	.0001	.0002	.0003	.0004	.0005	.0006	.0007	.0008	.0009
.0080	1.1625	1.1613	1.1600	1.1575	1.1550	1.1538	1.1513	1.1500	1.1475	1.1463
.0090	1.1438	1.1425	1.1400	1.1375	1.1363	1.1350	1.1325	1.1300	1.1288	1.1275
.0100	1.1250	1.1238	1.1225	1.1213	1.1200	1.1175	1.1163	1.1150	1.1138	1.1113
.0110	1.1100	1.1088	1.1075	1.1063	1.1038	1.1025	1.1000	1.0988	1.0975	1.0963
.0120	1.0950	1.0938	1.0925	1.0900	1.0888	1.0875	1.0863	1.0850	1.0838	1.0825
.0130	1.0800	1.0788	1.0775	1.0763	1.0750	1.0738	1.0725	1.0713	1.0700	1.0688
.0140	1.0675	1.0663	1.0650	1.0625	1.0613	1.0600	1.0588	1.0575	1.0563	1.0550
.0150	1.0538	1.0525	1.0513	1.0500	1.0488	1.0475	1.0463	1.0450	1.0438	1.0425
.0160	1.0413	1.0400	1.0388	1.0375	1.0375	1.0363	1.0350	1.0333	1.0325	1.0313
.0170	1.0300	1.0288	1.0275	1.0263	1.0250	1.0245	1.0238	1.0225	1.0208	1.0200
.0180	1.0200	1.0188	1.0175	1.0163	1.0150	1.0144	1.0138	1.0125	1.0125	1.0113
.0190	1.0100	1.0088	1.0075	1.0075	1.0063	1.0050	1.0050	1.0038	1.0025	1.0025
.0200	1.0013	1.0000	1.0000	.09988	0.9975	0.9975	0.9963	0.9950	0.9950	0.9938
.0210	0.9938	0.9925	0.9925	0.9913	0.9900	0.9900	0.9888	0.9875	0.9875	0.9863
.0220	0.9863	0.9850	0.9850	0.9838	0.9825	0.9825	0.9813	0.9813	0.9800	0.9788
.0230	0.9788	0.9775	0.9775	0.9763	0.9763	0.9750	0.9750	0.9738	0.9738	0.9725
.0240	0.9725	0.9708	0.9700	0.9700	0.9688	0.9688	0.9675	0.9675	0.9663	0.9663
.0250	0.9650	0.9650	0.9638	0.9638	0.9625	0.9625	0.9613	0.9613	0.9606	0.9600
.0260	0.9600	0.9588	0.9588	0.9575	0.9575	0.9563	0.9563	0.9550	0.9550	0.9538
.0270	0.9538	0.9525	0.9525	0.9519	0.9513	0.9513	0.9506	0.9500	0.9500	0.9488
.0280	0.9488	0.9475	0.9475	0.9463	0.9463	0.9463	0.9450	0.9450	0.9438	0.9438
.0290	0.9425	0.9425	0.9425	0.9413	0.9413	0.9400	0.9400	0.9394	0.9388	0.9388
.0300	0.9375	0.9375	0.9375	0.9363	0.9363	0.9363	0.9363	0.9350	0.9350	0.9346
.0310	0.9333	0.9333	0.9325	0.9325	0.9325	0.9319	0.9313	0.9313	0.9300	0.9300
.0320	0.9300	0.9294	0.9288	0.9288	0.9280	0.9275	0.9275	0.9275	0.9270	0.9270
.0330	0.9263	0.9263	0.9257	0.9250	0.9250					

NIAGARA FALLS
WATER BOARD

INSURANCE: Standard Insurance Requirements apply to the following classifications:

- Construction and Maintenance
- Purchase of, or lease of merchandise or equipment
- Professional Services
- Property Leased to others or Use of Facilities or grounds
- Concessionaire Services
- Livery Services
- All purpose Public Entity Contracts

The Provider of any of the above classifications shall obtain, at his own costs and expense, the following insurance coverage with insurance companies licensed in the State of New York with a Best Rating of at least A- and shall provide a Certificate of Insurance and binder of Insurance Coverage, or a Certificate of Insurance and Policy Endorsement as evidence of such coverage to the Niagara Falls Water Board before commencement of work and/or lease or delivery of merchandise or equipment.

Certificates should be made to the Niagara Falls Water Board, 5815 Buffalo Avenue, Niagara Falls, N.Y. and should reference the project.

Prior to non-renewal, cancellation of insurance policies, or material change, at least 30 days advance written notice shall be given to the Certificate Holder and Binder Holder.

All Certificates of Insurance, Binders of Insurance Coverage, and Endorsements shall be approved prior to the inception of any work.

Minimum coverage with limits and provisions are as follows:

A. **Comprehensive General Liability**

With a minimum combined single limit of liability for Bodily Injury and Property Damage of $1,500,000 per occurrence and 3,000,000 annual aggregate. The coverage shall include:

- Premises and Operations
- Products and Completed Operations
- No exclusion for X C U coverages (explosion, collapse and underground)
- Independent Contractors
- Broad Form Property Damage
- Contractual Liability
- Fire Legal Liability
- Personal Injury Liability (Coverage A, B and C)
- Liquor Liability (if alcoholic beverages are to be dispensed under NYS License)

The Niagara Falls Water Board, the Niagara Falls Public Water Authority and the City of Niagara Falls shall be named as an Additional Insureds on the General Liability Policy with the following provisions:

1. The insurance company or companies issuing the policies shall have no recourse against the Niagara Falls Water Board or the Niagara Falls Public Water Authority for payment of any premiums or for assessments under any form of policy.

2. The insurance shall apply separately to each insured (except with respect to the limit of liability).

B. **Auto Liability**: (if licensed vehicles are to be used in the operation)

With a combined single limit for Bodily Injury and Property Damage of $1,000,000 each occurrence, the coverage shall include Owned, Hired and Non-owned autos (Symbol 1 should be designed for Liability Coverage on Business Auto Policy).

C. **Excess Umbrella Liability**:

If General Liability and/or limits are lower than required in the above sections, Umbrella Liability or Excess Liability to the required limit is acceptable.

D. **Owners Protective Liability**: (on contracts for construction which exceed a cost of $100,000).

With a minimum limit of $1,500,000 each occurrence and 3,000,000 aggregate. Named insured shall be the Niagara Falls Water Board and the Niagara Falls Public Water Authority.

E. **Professional Liability**:

If the contract includes professional services (engineers, architects, etc.), contractor will carry professional liability insurance with a minimum limit of one million dollars ($1,000,000).

F. **Property Insurance**: (if applicable)

Contractor shall purchase and maintain property insurance upon the work at or off the site to 100% of the contract completed value. This insurance shall include the interest of the Owner, Contractor and Subcontractors in the work; shall insure against the perils of fire and extended coverage; shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage. All such insurance required by this paragraph shall remain in effect until the work is completed and accepted by the Owner.

G. **Statutory Workers' Compensation and Employers Liability**:

All contractors doing business with or vendors entering upon Niagara Falls Water Board property shall carry the above insurance, in compliance with the Workers' Compensation Law of the State of New York.

H. **Performance and Payment Bond**: **(where applicable)**

A performance and payment bond shall be issued by a Surety company who is licensed by the Insurance Department of the State of New York in favor of the Niagara Falls Water Board in the amount of not less than (100) percent of the total amount and shall be delivered before commencement of lease or assumption of operations under contract.

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: 180-37165-1
Client Project/Site: Carbon Acceptance, 20140955.1
Revision: 1

For:
Calgon Carbon Corporation
PO BOX 717
Pittsburgh, Pennsylvania 15230

Attn: Rene Kotyk

Authorized for release by:
10/21/2014 2:43:59 PM

David Dunlap, Senior Project Manager
(412)963-2432
dave.dunlap@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: 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: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Job ID: 180-37165-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-37165-1

This is a revised report. Due to mis-entry of a preparatory volume into the LIMS, the calculated results and reporting limits for the volatiles analysis were two-times too high.

Definitions/Glossary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

GC/MS VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
N	Presumptive evidence of material.
T	Result is a tentatively identified compound (TIC) and an estimated value.

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

GC/MS Semi VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
T	Result is a tentatively identified compound (TIC) and an estimated value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

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	06-27-15
California	State Program	9	2891	03-31-15
Connecticut	State Program	1	PH-0688	09-30-14 *
Florida	NELAP	4	E871008	06-30-15
Illinois	NELAP	5	002602	06-30-15
Kansas	NELAP	7	E-10350	01-31-15
Louisiana	NELAP	6	04041	06-30-15
New Hampshire	NELAP	1	203011	04-04-15
New Jersey	NELAP	2	PA005	06-30-15
New York	NELAP	2	11182	03-31-15
North Carolina (WW/SW)	State Program	4	434	12-31-14
Pennsylvania	NELAP	3	02-00416	04-30-15
South Carolina	State Program	4	89014	04-30-15
Texas	NELAP	6	T104704528	03-31-15
US Fish & Wildlife	Federal		LE94312A-1	11-30-14
USDA	Federal		P330-10-00139	05-23-16
Utah	NELAP	8	STLP	05-31-15
Virginia	NELAP	3	460189	09-14-15
West Virginia DEP	State Program	3	142	01-31-15

* Certification renewal pending - certification considered valid.

Sample Summary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-37165-1	20140955.1	Solid	09/30/14 11:17	09/30/14 12:00

Method Summary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL PIT
6010B	Metals (ICP)	SW846	TAL PIT
7471A	Mercury (CVAA)	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: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Client Sample ID: 20140955.1
Date Collected: 09/30/14 11:17
Date Received: 09/30/14 12:00

Lab Sample ID: 180-37165-1
Matrix: Solid
Percent Solids: 68.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			4.0000 g	10 mL	120257	10/03/14 08:49	PJJ	TAL PIT
Total/NA	Analysis	8260B		1	4.0000 g	10 mL	120221	10/03/14 13:00	PJJ	TAL PIT
	Instrument ID: CHHP7									
Total/NA	Prep	3550B			2.0 g	20.0 mL	119903	10/01/14 08:47	JPM	TAL PIT
Total/NA	Analysis	8270C		1	2.0 g	20.0 mL	120075	10/02/14 14:58	VVP	TAL PIT
	Instrument ID: CH733									
Total/NA	Prep	3050B			00000.99 g	100 mL	120111	10/02/14 11:20	RJR	TAL PIT
Total/NA	Analysis	6010B		1	00000.99 g	100 mL	120553	10/06/14 16:45	RJR	TAL PIT
	Instrument ID: C									
Total/NA	Prep	7471A			0.66 g	100 mL	119929	10/01/14 09:56	LEM	TAL PIT
Total/NA	Analysis	7471A		1	0.66 g	100 mL	119979	10/01/14 13:09	LEM	TAL PIT
	Instrument ID: K									
Total/NA	Analysis	2540G		1			120010	10/01/14 16:51	AB1	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
JPM = Jeremy Merriman
LEM = Lauren McGrath
PJJ = Patrick Joumet
RJR = Ron Rosenbaum
Batch Type: Analysis
AB1 = Ashwin Balkadi
LEM = Lauren McGrath
PJJ = Patrick Joumet
RJR = Ron Rosenbaum
VVP = Vincent Piccolino

Client Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Client Sample ID: 20140955.1
Date Collected: 09/30/14 11:17
Date Received: 09/30/14 12:00

Lab Sample ID: 180-37165-1
Matrix: Solid
Percent Solids: 68.5

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		3700	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Benzene	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Bromodichloromethane	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Bromoform	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Bromomethane	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
2-Butanone	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Carbon disulfide	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Carbon tetrachloride	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Chlorobenzene	**2000**		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Chloroethane	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Chloroform	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Chloromethane	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
cis-1,3-Dichloropropene	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Dibromochloromethane	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
1,2-Dibromo-3-Chloropropane	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
1,1-Dichloroethane	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
1,2-Dichloroethane	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
1,1-Dichloroethene	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
1,2-Dichloroethene, Total	**9600**		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
1,2-Dichloropropane	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Ethylbenzene	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
2-Hexanone	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Methylene Chloride	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
4-Methyl-2-pentanone	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Styrene	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
1,1,2,2-Tetrachloroethane	**1400**		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Tetrachloroethene	**2900**		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Toluene	**2600**		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
trans-1,3-Dichloropropene	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
1,1,1-Trichloroethane	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
1,1,2-Trichloroethane	ND		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Trichloroethene	**7500**		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Vinyl chloride	**1400**		910	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1
Xylenes, Total	ND		2700	ug/Kg	☼	10/03/14 08:49	10/03/14 13:00	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*26000*	*T J*	*ug/Kg*	☼	*1.81*		*10/03/14 08:49*	*10/03/14 13:00*	*1*
Unknown Substituted Benzene	*3000*	*T J*	*ug/Kg*	☼	*11.98*		*10/03/14 08:49*	*10/03/14 13:00*	*1*
Unknown Substituted Benzene	*1300*	*T J*	*ug/Kg*	☼	*12.09*		*10/03/14 08:49*	*10/03/14 13:00*	*1*
D-Limonene	*2800*	*T J N*	*ug/Kg*	☼	*12.71*	*5989-27-5*	*10/03/14 08:49*	*10/03/14 13:00*	*1*
Benzene, 1,4-dichloro-	*1300*	*T J N*	*ug/Kg*	☼	*13.19*	*106-46-7*	*10/03/14 08:49*	*10/03/14 13:00*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*		*63 - 120*	*10/03/14 08:49*	*10/03/14 13:00*	*1*
Dibromofluoromethane (Surr)	*82*		*68 - 121*	*10/03/14 08:49*	*10/03/14 13:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*80*		*52 - 124*	*10/03/14 08:49*	*10/03/14 13:00*	*1*
Toluene-d8 (Surr)	*71*	*X*	*72 - 127*	*10/03/14 08:49*	*10/03/14 13:00*	*1*

Client Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Client Sample ID: 20140955.1
Date Collected: 09/30/14 11:17
Date Received: 09/30/14 12:00

Lab Sample ID: 180-37165-1
Matrix: Solid
Percent Solids: 68.5

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Acenaphthylene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Anthracene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Benzo[a]anthracene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Benzo[a]pyrene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Benzo[b]fluoranthene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Benzo[g,h,i]perylene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Benzo[k]fluoranthene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Bis(2-chloroethoxy)methane	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Bis(2-chloroethyl)ether	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Bis(2-ethylhexyl) phthalate	ND		29000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
4-Bromophenyl phenyl ether	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Butyl benzyl phthalate	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Carbazole	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
4-Chloroaniline	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
4-Chloro-3-methylphenol	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2-Chloronaphthalene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2-Chlorophenol	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
4-Chlorophenyl phenyl ether	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Chrysene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Dibenz(a,h)anthracene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Dibenzofuran	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
1,2-Dichlorobenzene	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
1,3-Dichlorobenzene	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
1,4-Dichlorobenzene	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
3,3'-Dichlorobenzidine	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2,4-Dichlorophenol	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Diethyl phthalate	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2,4-Dimethylphenol	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Dimethyl phthalate	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Di-n-butyl phthalate	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
4,6-Dinitro-2-methylphenol	ND		73000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2,4-Dinitrophenol	ND		73000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2,4-Dinitrotoluene	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2,6-Dinitrotoluene	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Di-n-octyl phthalate	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Fluoranthene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Fluorene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Hexachlorobenzene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Hexachlorobutadiene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Hexachlorocyclopentadiene	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Hexachloroethane	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Indeno[1,2,3-cd]pyrene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Isophorone	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2-Methylnaphthalene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2-Methylphenol	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Naphthalene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2-Nitroaniline	ND		73000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
3-Nitroaniline	ND		73000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1

Client Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Client Sample ID: 20140955.1
Date Collected: 09/30/14 11:17
Date Received: 09/30/14 12:00

Lab Sample ID: 180-37165-1
Matrix: Solid
Percent Solids: 68.5

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	ND		73000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Nitrobenzene	ND		29000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2-Nitrophenol	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
4-Nitrophenol	ND		73000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
N-Nitrosodi-n-propylamine	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
N-Nitrosodiphenylamine	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2,2'-oxybis[1-chloropropane]	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Pentachlorophenol	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Phenanthrene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Phenol	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Pyrene	ND		2900	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
1,2,4-Trichlorobenzene	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2,4,5-Trichlorophenol	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
2,4,6-Trichlorophenol	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1
Methylphenol, 3 & 4	ND		15000	ug/Kg	☼	10/01/14 08:47	10/02/14 14:58	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*49000*	*T J*	*ug/Kg*	☼	*5.68*		*10/01/14 08:47*	*10/02/14 14:58*	*1*
Unknown	*10000*	*T J*	*ug/Kg*	☼	*5.82*		*10/01/14 08:47*	*10/02/14 14:58*	*1*
Unknown	*11000000*	*T J*	*ug/Kg*	☼	*6.44*		*10/01/14 08:47*	*10/02/14 14:58*	*1*
Unknown	*86000*	*T J*	*ug/Kg*	☼	*6.45*		*10/01/14 08:47*	*10/02/14 14:58*	*1*
Unknown	*120000*	*T J*	*ug/Kg*	☼	*6.52*		*10/01/14 08:47*	*10/02/14 14:58*	*1*
Unknown	*39000*	*T J*	*ug/Kg*	☼	*6.66*		*10/01/14 08:47*	*10/02/14 14:58*	*1*
Unknown	*7600*	*T J*	*ug/Kg*	☼	*8.14*		*10/01/14 08:47*	*10/02/14 14:58*	*1*
Unknown	*11000*	*T J*	*ug/Kg*	☼	*20.25*		*10/01/14 08:47*	*10/02/14 14:58*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*72*		*35 - 105*	*10/01/14 08:47*	*10/02/14 14:58*	*1*
2-Fluorophenol	*5*	*X*	*39 - 103*	*10/01/14 08:47*	*10/02/14 14:58*	*1*
Nitrobenzene-d5	*67*		*25 - 104*	*10/01/14 08:47*	*10/02/14 14:58*	*1*
Phenol-d5	*0*	*X*	*25 - 105*	*10/01/14 08:47*	*10/02/14 14:58*	*1*
Terphenyl-d14	*57*		*25 - 127*	*10/01/14 08:47*	*10/02/14 14:58*	*1*
2,4,6-Tribromophenol	*26*	*X*	*35 - 124*	*10/01/14 08:47*	*10/02/14 14:58*	*1*

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	4.9		1.5	mg/Kg	☼	10/02/14 11:20	10/06/14 16:45	1

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.21		0.044	mg/Kg	☼	10/01/14 09:56	10/01/14 13:09	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	32		0.10	%			10/01/14 16:51	1
Percent Solids	68		0.10	%			10/01/14 16:51	1

QC Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-120257/1-A
Matrix: Solid
Analysis Batch: 120221

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 120257

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		2500	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Benzene	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Bromodichloromethane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Bromoform	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Bromomethane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
2-Butanone	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Carbon disulfide	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Carbon tetrachloride	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Chlorobenzene	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Chloroethane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Chloroform	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Chloromethane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
cis-1,3-Dichloropropene	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Dibromochloromethane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
1,2-Dibromo-3-Chloropropane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
1,1-Dichloroethane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
1,2-Dichloroethane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
1,1-Dichloroethene	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
1,2-Dichloroethene, Total	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
1,2-Dichloropropane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Ethylbenzene	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
2-Hexanone	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Methylene Chloride	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
4-Methyl-2-pentanone	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Styrene	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
1,1,2,2-Tetrachloroethane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Tetrachloroethene	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Toluene	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
trans-1,3-Dichloropropene	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
1,1,1-Trichloroethane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
1,1,2-Trichloroethane	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Trichloroethene	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Vinyl chloride	ND		630	ug/Kg		10/03/14 07:09	10/03/14 12:04	1
Xylenes, Total	ND		1900	ug/Kg		10/03/14 07:09	10/03/14 12:04	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/Kg*				*10/03/14 07:09*	*10/03/14 12:04*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*63 - 120*	*10/03/14 07:09*	*10/03/14 12:04*	*1*
Dibromofluoromethane (Surr)	*111*		*68 - 121*	*10/03/14 07:09*	*10/03/14 12:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*52 - 124*	*10/03/14 07:09*	*10/03/14 12:04*	*1*
Toluene-d8 (Surr)	*84*		*72 - 127*	*10/03/14 07:09*	*10/03/14 12:04*	*1*

QC Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-120257/2-A
Matrix: Solid
Analysis Batch: 120221

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 120257

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	6250	6050		ug/Kg		97	77 - 120
Chlorobenzene	6250	5710		ug/Kg		91	79 - 120
1,1-Dichloroethene	6250	7570		ug/Kg		121	59 - 129
Toluene	6250	5520		ug/Kg		88	78 - 124
Trichloroethene	6250	5750		ug/Kg		92	76 - 119

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*63 - 120*
Dibromofluoromethane (Surr)	*111*		*68 - 121*
1,2-Dichloroethane-d4 (Surr)	*102*		*52 - 124*
Toluene-d8 (Surr)	*91*		*72 - 127*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-119903/1-A
Matrix: Solid
Analysis Batch: 120075

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 119903

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Acenaphthylene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Anthracene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Benzo[a]anthracene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Benzo[a]pyrene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Benzo[b]fluoranthene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Benzo[g,h,i]perylene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Benzo[k]fluoranthene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Bis(2-chloroethoxy)methane	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Bis(2-chloroethyl)ether	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Bis(2-ethylhexyl) phthalate	ND		20000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
4-Bromophenyl phenyl ether	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Butyl benzyl phthalate	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Carbazole	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
4-Chloroaniline	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
4-Chloro-3-methylphenol	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2-Chloronaphthalene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2-Chlorophenol	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
4-Chlorophenyl phenyl ether	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Chrysene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Dibenz(a,h)anthracene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Dibenzofuran	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
1,2-Dichlorobenzene	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
1,3-Dichlorobenzene	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
1,4-Dichlorobenzene	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
3,3'-Dichlorobenzidine	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2,4-Dichlorophenol	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Diethyl phthalate	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1

QC Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-119903/1-A
Matrix: Solid
Analysis Batch: 120075

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 119903

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dimethylphenol	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Dimethyl phthalate	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Di-n-butyl phthalate	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
4,6-Dinitro-2-methylphenol	ND		50000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2,4-Dinitrophenol	ND		50000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2,4-Dinitrotoluene	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2,6-Dinitrotoluene	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Di-n-octyl phthalate	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Fluoranthene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Fluorene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Hexachlorobenzene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Hexachlorobutadiene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Hexachlorocyclopentadiene	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Hexachloroethane	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Indeno[1,2,3-cd]pyrene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Isophorone	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2-Methylnaphthalene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2-Methylphenol	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Naphthalene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2-Nitroaniline	ND		50000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
3-Nitroaniline	ND		50000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
4-Nitroaniline	ND		50000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Nitrobenzene	ND		20000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2-Nitrophenol	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
4-Nitrophenol	ND		50000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
N-Nitrosodi-n-propylamine	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
N-Nitrosodiphenylamine	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2,2'-oxybis[1-chloropropane]	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Pentachlorophenol	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Phenanthrene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Phenol	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Pyrene	ND		2000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
1,2,4-Trichlorobenzene	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2,4,5-Trichlorophenol	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
2,4,6-Trichlorophenol	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1
Methylphenol, 3 & 4	ND		10000	ug/Kg		10/01/14 08:47	10/02/14 10:51	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/Kg*				*10/01/14 08:47*	*10/02/14 10:51*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*70*		*35 - 105*	*10/01/14 08:47*	*10/02/14 10:51*	*1*
2-Fluorophenol	*73*		*39 - 103*	*10/01/14 08:47*	*10/02/14 10:51*	*1*
Nitrobenzene-d5	*71*		*25 - 104*	*10/01/14 08:47*	*10/02/14 10:51*	*1*
Phenol-d5	*71*		*25 - 105*	*10/01/14 08:47*	*10/02/14 10:51*	*1*
Terphenyl-d14	*68*		*25 - 127*	*10/01/14 08:47*	*10/02/14 10:51*	*1*
2,4,6-Tribromophenol	*73*		*35 - 124*	*10/01/14 08:47*	*10/02/14 10:51*	*1*

QC Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-119903/2-A
Matrix: Solid
Analysis Batch: 120075

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 119903

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	100000	79700		ug/Kg		80	47 - 104
4-Bromophenyl phenyl ether	100000	75500		ug/Kg		75	47 - 110
Butyl benzyl phthalate	100000	82800		ug/Kg		83	35 - 118
4-Chloro-3-methylphenol	100000	84000		ug/Kg		84	40 - 109
2-Chlorophenol	100000	80000		ug/Kg		80	40 - 101
1,4-Dichlorobenzene	100000	77700		ug/Kg		78	36 - 101
2,4-Dinitrotoluene	100000	86800		ug/Kg		87	45 - 124
Hexachloroethane	100000	79700		ug/Kg		80	35 - 104
Naphthalene	100000	77500		ug/Kg		78	38 - 105
4-Nitrophenol	200000	185000		ug/Kg		93	36 - 127
N-Nitrosodi-n-propylamine	100000	81000		ug/Kg		81	42 - 107
Pentachlorophenol	200000	155000		ug/Kg		78	17 - 122
Phenol	100000	78900		ug/Kg		79	41 - 102
Pyrene	100000	76900		ug/Kg		77	41 - 115
1,2,4-Trichlorobenzene	100000	80100		ug/Kg		80	43 - 100
Methylphenol, 3 & 4	100000	79200		ug/Kg		79	40 - 114

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*79*		*35 - 105*
2-Fluorophenol	*82*		*39 - 103*
Nitrobenzene-d5	*82*		*25 - 104*
Phenol-d5	*80*		*25 - 105*
Terphenyl-d14	*79*		*25 - 127*
2,4,6-Tribromophenol	*85*		*35 - 124*

Lab Sample ID: 180-37165-1 MS
Matrix: Solid
Analysis Batch: 120075

Client Sample ID: 20140955.1
Prep Type: Total/NA
Prep Batch: 119903

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		146000	121000		ug/Kg	☼	83	47 - 104
4-Bromophenyl phenyl ether	ND		146000	115000		ug/Kg	☼	79	47 - 110
Butyl benzyl phthalate	ND		146000	134000		ug/Kg	☼	92	35 - 118
4-Chloro-3-methylphenol	ND		146000	134000		ug/Kg	☼	91	40 - 109
2-Chlorophenol	ND		146000	124000		ug/Kg	☼	85	40 - 101
1,4-Dichlorobenzene	ND		146000	124000		ug/Kg	☼	85	36 - 101
2,4-Dinitrotoluene	ND		146000	133000		ug/Kg	☼	91	45 - 124
Hexachloroethane	ND		146000	131000		ug/Kg	☼	89	35 - 104
Naphthalene	ND		146000	119000		ug/Kg	☼	81	38 - 105
4-Nitrophenol	ND		292000	281000		ug/Kg	☼	96	36 - 127
N-Nitrosodi-n-propylamine	ND		146000	132000		ug/Kg	☼	90	42 - 107
Pentachlorophenol	ND		292000	215000		ug/Kg	☼	74	17 - 122
Phenol	ND		146000	130000		ug/Kg	☼	89	41 - 102
Pyrene	ND		146000	117000		ug/Kg	☼	80	41 - 115
1,2,4-Trichlorobenzene	ND		146000	125000		ug/Kg	☼	86	43 - 100
Methylphenol, 3 & 4	ND		146000	136000		ug/Kg	☼	93	40 - 114

QC Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 180-37165-1 MS
Matrix: Solid
Analysis Batch: 120075

Client Sample ID: 20140955.1
Prep Type: Total/NA
Prep Batch: 119903

Surrogate	MS %Recovery	MS Qualifier	Limits
2-Fluorobiphenyl	80		35 - 105
2-Fluorophenol	85		39 - 103
Nitrobenzene-d5	86		25 - 104
Phenol-d5	85		25 - 105
Terphenyl-d14	82		25 - 127
2,4,6-Tribromophenol	84		35 - 124

Lab Sample ID: 180-37165-1 MSD
Matrix: Solid
Analysis Batch: 120075

Client Sample ID: 20140955.1
Prep Type: Total/NA
Prep Batch: 119903

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		146000	120000		ug/Kg	☼	82	47 - 104	1	40
4-Bromophenyl phenyl ether	ND		146000	114000		ug/Kg	☼	78	47 - 110	0	40
Butyl benzyl phthalate	ND		146000	129000		ug/Kg	☼	88	35 - 118	4	40
4-Chloro-3-methylphenol	ND		146000	122000		ug/Kg	☼	83	40 - 109	9	36
2-Chlorophenol	ND		146000	120000		ug/Kg	☼	82	40 - 101	3	40
1,4-Dichlorobenzene	ND		146000	119000		ug/Kg	☼	82	36 - 101	4	40
2,4-Dinitrotoluene	ND		146000	128000		ug/Kg	☼	87	45 - 124	4	40
Hexachloroethane	ND		146000	122000		ug/Kg	☼	84	35 - 104	7	40
Naphthalene	ND		146000	116000		ug/Kg	☼	80	38 - 105	2	32
4-Nitrophenol	ND		292000	262000		ug/Kg	☼	90	36 - 127	7	40
N-Nitrosodi-n-propylamine	ND		146000	124000		ug/Kg	☼	85	42 - 107	6	40
Pentachlorophenol	ND		292000	211000		ug/Kg	☼	72	17 - 122	2	40
Phenol	ND		146000	122000		ug/Kg	☼	84	41 - 102	6	39
Pyrene	ND		146000	116000		ug/Kg	☼	80	41 - 115	0	40
1,2,4-Trichlorobenzene	ND		146000	120000		ug/Kg	☼	82	43 - 100	4	36
Methylphenol, 3 & 4	ND		146000	130000		ug/Kg	☼	89	40 - 114	5	40

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorobiphenyl	80		35 - 105
2-Fluorophenol	82		39 - 103
Nitrobenzene-d5	82		25 - 104
Phenol-d5	83		25 - 105
Terphenyl-d14	80		25 - 127
2,4,6-Tribromophenol	81		35 - 124

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 180-120111/1-A
Matrix: Solid
Analysis Batch: 120553

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 120111

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.0	mg/Kg		10/02/14 11:20	10/06/14 16:35	1

QC Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

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

Lab Sample ID: LCS 180-120111/2-A
Matrix: Solid
Analysis Batch: 120553

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 120111

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	49.5	48.2		mg/Kg		97	80 - 120

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 180-119929/1-A
Matrix: Solid
Analysis Batch: 119979

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 119929

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.033	mg/Kg		10/01/14 09:56	10/01/14 12:39	1

Lab Sample ID: LCS 180-119929/2-A
Matrix: Solid
Analysis Batch: 119979

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 119929

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.417	0.443		mg/Kg		106	80 - 120

QC Association Summary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

GC/MS VOA

Analysis Batch: 120221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-1	20140955.1	Total/NA	Solid	8260B	120257
LCS 180-120257/2-A	Lab Control Sample	Total/NA	Solid	8260B	120257
MB 180-120257/1-A	Method Blank	Total/NA	Solid	8260B	120257

Prep Batch: 120257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-1	20140955.1	Total/NA	Solid	5030B	
LCS 180-120257/2-A	Lab Control Sample	Total/NA	Solid	5030B	
MB 180-120257/1-A	Method Blank	Total/NA	Solid	5030B	

GC/MS Semi VOA

Prep Batch: 119903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-1	20140955.1	Total/NA	Solid	3550B	
180-37165-1 MS	20140955.1	Total/NA	Solid	3550B	
180-37165-1 MSD	20140955.1	Total/NA	Solid	3550B	
LCS 180-119903/2-A	Lab Control Sample	Total/NA	Solid	3550B	
MB 180-119903/1-A	Method Blank	Total/NA	Solid	3550B	

Analysis Batch: 120075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-1	20140955.1	Total/NA	Solid	8270C	119903
180-37165-1 MS	20140955.1	Total/NA	Solid	8270C	119903
180-37165-1 MSD	20140955.1	Total/NA	Solid	8270C	119903
LCS 180-119903/2-A	Lab Control Sample	Total/NA	Solid	8270C	119903
MB 180-119903/1-A	Method Blank	Total/NA	Solid	8270C	119903

Metals

Prep Batch: 119929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-1	20140955.1	Total/NA	Solid	7471A	
LCS 180-119929/2-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 180-119929/1-A	Method Blank	Total/NA	Solid	7471A	

Analysis Batch: 119979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-1	20140955.1	Total/NA	Solid	7471A	119929
LCS 180-119929/2-A	Lab Control Sample	Total/NA	Solid	7471A	119929
MB 180-119929/1-A	Method Blank	Total/NA	Solid	7471A	119929

Prep Batch: 120111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-1	20140955.1	Total/NA	Solid	3050B	
LCS 180-120111/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 180-120111/1-A	Method Blank	Total/NA	Solid	3050B	

QC Association Summary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.1

TestAmerica Job ID: 180-37165-1

Metals (Continued)

Analysis Batch: 120553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-1	20140955.1	Total/NA	Solid	6010B	120111
LCS 180-120111/2-A	Lab Control Sample	Total/NA	Solid	6010B	120111
MB 180-120111/1-A	Method Blank	Total/NA	Solid	6010B	120111

General Chemistry

Analysis Batch: 120010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-1	20140955.1	Total/NA	Solid	2540G	

CALGON CARBON CORPORATION

Carbon Acceptance Laboratory
Mailing Address: P.O. Box 717, Pittsburgh, PA 15230-0717
Sample Shipping Address: 500 Calgon Carbon Drive, Pittsburgh, PA 15205
Phone (412) 787-6700 • Fax: (412) 787-4795

CalgonCarbon

Laboratory TSR Nun
(assigned by laboratory p

180-37165 Chain of Custody

CHAIN OF CUSTODY RECORD

****THIS COMPLETED FORM MUST ACCOMPANY ALL SAMPLES SUBMITTED FOR ANALYSIS IN ORDER FOR SAMPLE TO BE ACCEPTABLE FOR EVALUATION****

Customer Name: 2014 0955

Customer Email:

Site Address:

Phone No. | Fax No.

Sampler Signature

Special Instructions:

Temp °C:

Ice: Yes / No

Sample Disposal ☐ Return to Customer ☐ Disposal by Lab

Analysis Required

No.	Sample Identification	Date	Time	No. of Containers	Sampling Method: Composite	Sampling Method: Grab	Container Type: Glass	Container Type: Plastic	Acceptance Testing	Spent	TCP Metals + Cr6+ in Solids	Total Solids							Sample Remarks
1	20140955.1	9/30/14	1117	1		X	X			X									5 DAY
2	20140955.2	9/30/14	1117	1		X	X				X								5 DAY
3	20140955.3	9/30/14	1117	1		X	X					X							5 DAY
4																			
5																			
6																			

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time
	9/30/14	1117		9/30/14	1117		9/30/14	1200

Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	9/30/14	1200						

Sample condition upon arrival at laboratory | Temp °C 4.4 | Received on ice (Circle One) Y / N | Sample intact and acceptable for evaluation? (Circle One) Y / N

Initials of personnel checking in sample: | Sample disposed of by: (Signature) | Date:

Additional sample remarks:

№ 18875

Login Sample Receipt Checklist

Client: Calgon Carbon Corporation

Job Number: 180-37165-1

Login Number: 37165
List Number: 1
Creator: Kovitch, Christina M

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= 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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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: 180-37165-2
Client Project/Site: Carbon Acceptance, 20140955.2

For:
Calgon Carbon Corporation
PO BOX 717
Pittsburgh, Pennsylvania 15230

Attn: Rene Kotyk

Authorized for release by:
10/7/2014 1:38:52 PM

David Dunlap, Senior Project Manager
(412)963-2432
dave.dunlap@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: 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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Definitions/Glossary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.2

TestAmerica Job ID: 180-37165-2

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery exceeds the control limits
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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.2

TestAmerica Job ID: 180-37165-2

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	06-27-15
California	State Program	9	2891	03-31-15
Connecticut	State Program	1	PH-0688	09-30-14 *
Florida	NELAP	4	E871008	06-30-15
Illinois	NELAP	5	002602	06-30-15
Kansas	NELAP	7	E-10350	01-31-15
Louisiana	NELAP	6	04041	06-30-15
New Hampshire	NELAP	1	203011	04-04-15
New Jersey	NELAP	2	PA005	06-30-15
New York	NELAP	2	11182	03-31-15
North Carolina (WW/SW)	State Program	4	434	12-31-14
Pennsylvania	NELAP	3	02-00416	04-30-15
South Carolina	State Program	4	89014	04-30-15
Texas	NELAP	6	T104704528	03-31-15
US Fish & Wildlife	Federal		LE94312A-1	11-30-14
USDA	Federal		P330-10-00139	05-23-16
Utah	NELAP	8	STLP	05-31-15
Virginia	NELAP	3	460189	09-14-15
West Virginia DEP	State Program	3	142	01-31-15

* Certification renewal pending - certification considered valid.

Sample Summary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.2

TestAmerica Job ID: 180-37165-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-37165-2	20140955.2	Solid	09/30/14 11:17	09/30/14 12:00

Method Summary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.2

TestAmerica Job ID: 180-37165-2

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL PIT
2540G	SM 2540G	SM22	TAL PIT
7196A	Chromium, Hexavalent	SW846	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: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.2

TestAmerica Job ID: 180-37165-2

Client Sample ID: 20140955.2
Date Collected: 09/30/14 11:17
Date Received: 09/30/14 12:00

Lab Sample ID: 180-37165-2
Matrix: Solid
Percent Solids: 68.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			00000.90 g	100 mL	120111	10/02/14 11:20	RJR	TAL PIT
Total/NA	Analysis	6010B		1	00000.90 g	100 mL	120553	10/06/14 16:50	RJR	TAL PIT
	Instrument ID: C									
Total/NA	Analysis	2540G		1			120010	10/01/14 16:51	AB1	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	3060A			2.53 g	100 mL	119946	10/01/14 11:18	NAK	TAL PIT
Total/NA	Analysis	7196A		1	2.53 g	100 mL	120156	10/02/14 15:48	NAK	TAL PIT
	Instrument ID: GENESYS10S									

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
NAK = Neil Klingman
RJR = Ron Rosenbaum
Batch Type: Analysis
AB1 = Ashwin Baikadi
NAK = Neil Klingman
RJR = Ron Rosenbaum

Client Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.2

TestAmerica Job ID: 180-37165-2

Client Sample ID: 20140955.2
Date Collected: 09/30/14 11:17
Date Received: 09/30/14 12:00

Lab Sample ID: 180-37165-2
Matrix: Solid
Percent Solids: 68.3

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	3.3		1.6	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Arsenic	9.2		1.6	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Barium	210		33	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Beryllium	2.2		0.65	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Cadmium	ND		0.81	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Calcium	8500		810	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Chromium	28		0.81	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Cobalt	13		8.1	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Copper	130		4.1	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Iron	33000		16	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Manganese	36		2.4	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Nickel	200		6.5	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Selenium	2.6		1.6	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Silver	ND		0.81	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Thallium	ND		3.3	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1
Zinc	290		3.3	mg/Kg	☼	10/02/14 11:20	10/06/14 16:50	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	32		0.10	%			10/01/14 16:51	1
Percent Solids	68		0.10	%			10/01/14 16:51	1
Hexavalent chromium	ND		0.58	mg/Kg	☼	10/01/14 11:18	10/02/14 15:48	1

QC Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.2

TestAmerica Job ID: 180-37165-2

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 180-120111/1-A
Matrix: Solid
Analysis Batch: 120553

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 120111

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		1.0	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Arsenic	ND		1.0	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Barium	ND		20	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Beryllium	ND		0.40	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Cadmium	ND		0.50	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Calcium	ND		500	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Chromium	ND		0.50	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Cobalt	ND		5.0	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Copper	ND		2.5	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Iron	ND		10	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Manganese	ND		1.5	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Nickel	ND		4.0	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Selenium	ND		1.0	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Silver	ND		0.50	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Thallium	ND		2.0	mg/Kg		10/02/14 11:20	10/06/14 16:35	1
Zinc	ND		2.0	mg/Kg		10/02/14 11:20	10/06/14 16:35	1

Lab Sample ID: LCS 180-120111/2-A
Matrix: Solid
Analysis Batch: 120553

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 120111

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	49.5	51.9		mg/Kg		105	80 - 120
Arsenic	49.5	51.3		mg/Kg		104	80 - 120
Barium	198	201		mg/Kg		102	80 - 120
Beryllium	4.95	5.17		mg/Kg		104	80 - 120
Cadmium	4.95	5.10		mg/Kg		103	80 - 120
Calcium	4950	5110		mg/Kg		103	80 - 120
Chromium	19.8	20.8		mg/Kg		105	80 - 120
Cobalt	49.5	51.3		mg/Kg		104	80 - 120
Copper	24.8	25.1		mg/Kg		101	80 - 120
Iron	99.0	99.7		mg/Kg		101	80 - 120
Manganese	49.5	49.5		mg/Kg		100	80 - 120
Nickel	49.5	50.4		mg/Kg		102	80 - 120
Selenium	49.5	50.2		mg/Kg		101	80 - 120
Silver	4.95	5.13		mg/Kg		104	80 - 120
Thallium	49.5	47.4		mg/Kg		96	80 - 120
Zinc	49.5	52.2		mg/Kg		105	80 - 120

Lab Sample ID: 180-37165-2 MS
Matrix: Solid
Analysis Batch: 120553

Client Sample ID: 20140955.2
Prep Type: Total/NA
Prep Batch: 120111

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	3.3		69.7	53.3	F1	mg/Kg	☼	72	75 - 125
Arsenic	9.2		69.7	75.5		mg/Kg	☼	95	75 - 125
Barium	210		279	462		mg/Kg	☼	89	75 - 125
Beryllium	2.2		6.97	8.88		mg/Kg	☼	96	75 - 125

QC Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.2

TestAmerica Job ID: 180-37165-2

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

Lab Sample ID: 180-37165-2 MS
Matrix: Solid
Analysis Batch: 120553

Client Sample ID: 20140955.2
Prep Type: Total/NA
Prep Batch: 120111

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	ND		6.97	6.91		mg/Kg	☼	94	75 - 125
Calcium	8500		6970	14200		mg/Kg	☼	83	75 - 125
Chromium	28		27.9	52.3		mg/Kg	☼	88	75 - 125
Cobalt	13		69.7	80.8		mg/Kg	☼	97	75 - 125
Copper	130		34.9	145	F1	mg/Kg	☼	58	75 - 125
Iron	33000		139	30400	4	mg/Kg	☼	-1731	75 - 125
Manganese	36		69.7	91.9		mg/Kg	☼	80	75 - 125
Nickel	200		69.7	268		mg/Kg	☼	90	75 - 125
Selenium	2.6		69.7	67.0		mg/Kg	☼	92	75 - 125
Silver	ND		6.97	6.89		mg/Kg	☼	93	75 - 125
Thallium	ND		69.7	51.9	F1	mg/Kg	☼	74	75 - 125
Zinc	290		69.7	345	4	mg/Kg	☼	75	75 - 125

Lab Sample ID: 180-37165-2 MSD
Matrix: Solid
Analysis Batch: 120553

Client Sample ID: 20140955.2
Prep Type: Total/NA
Prep Batch: 120111

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	3.3		75.5	59.4	F1	mg/Kg	☼	74	75 - 125	11	20
Arsenic	9.2		75.6	80.6		mg/Kg	☼	95	75 - 125	7	20
Barium	210		302	480		mg/Kg	☼	88	75 - 125	4	20
Beryllium	2.2		7.55	9.48		mg/Kg	☼	97	75 - 125	6	20
Cadmium	ND		7.55	7.40		mg/Kg	☼	94	75 - 125	7	20
Calcium	8500		7550	14800		mg/Kg	☼	85	75 - 125	4	20
Chromium	28		30.2	54.4		mg/Kg	☼	88	75 - 125	4	20
Cobalt	13		75.5	86.3		mg/Kg	☼	96	75 - 125	7	20
Copper	130		37.7	163		mg/Kg	☼	98	75 - 125	11	20
Iron	33000		151	30100	4	mg/Kg	☼	-1761	75 - 125	1	20
Manganese	36		75.5	95.2		mg/Kg	☼	79	75 - 125	4	20
Nickel	200		75.5	271		mg/Kg	☼	88	75 - 125	1	20
Selenium	2.6		75.5	71.4		mg/Kg	☼	91	75 - 125	6	20
Silver	ND		7.55	7.42		mg/Kg	☼	93	75 - 125	7	20
Thallium	ND		75.5	55.2	F1	mg/Kg	☼	73	75 - 125	6	20
Zinc	290		75.5	344	F1	mg/Kg	☼	67	75 - 125	0	20

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 180-119946/1-A
Matrix: Solid
Analysis Batch: 120156

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 119946

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexavalent chromium	ND		0.40	mg/Kg		10/01/14 11:18	10/02/14 15:33	1

QC Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.2

TestAmerica Job ID: 180-37165-2

Method: 7196A - Chromium, Hexavalent (Continued)

Lab Sample ID: LCSI 180-119946/3-A
Matrix: Solid
Analysis Batch: 120156

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 119946

Analyte	Spike Added	LCSI Result	LCSI Qualifier	Unit	D	%Rec	%Rec. Limits
Hexavalent chromium	708	688		mg/Kg		97	80 - 120

Lab Sample ID: LCSS 180-119946/2-A
Matrix: Solid
Analysis Batch: 120156

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 119946

Analyte	Spike Added	LCSS Result	LCSS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexavalent chromium	20.0	17.4		mg/Kg		87	80 - 120

QC Association Summary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.2

TestAmerica Job ID: 180-37165-2

Metals

Prep Batch: 120111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-2	20140955.2	Total/NA	Solid	3050B	
180-37165-2 MS	20140955.2	Total/NA	Solid	3050B	
180-37165-2 MSD	20140955.2	Total/NA	Solid	3050B	
LCS 180-120111/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 180-120111/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 120553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-2	20140955.2	Total/NA	Solid	6010B	120111
180-37165-2 MS	20140955.2	Total/NA	Solid	6010B	120111
180-37165-2 MSD	20140955.2	Total/NA	Solid	6010B	120111
LCS 180-120111/2-A	Lab Control Sample	Total/NA	Solid	6010B	120111
MB 180-120111/1-A	Method Blank	Total/NA	Solid	6010B	120111

General Chemistry

Prep Batch: 119946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-2	20140955.2	Total/NA	Solid	3060A	
LCSI 180-119946/3-A	Lab Control Sample	Total/NA	Solid	3060A	
LCSS 180-119946/2-A	Lab Control Sample	Total/NA	Solid	3060A	
MB 180-119946/1-A	Method Blank	Total/NA	Solid	3060A	

Analysis Batch: 120010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-2	20140955.2	Total/NA	Solid	2540G	

Analysis Batch: 120156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-2	20140955.2	Total/NA	Solid	7196A	119946
LCSI 180-119946/3-A	Lab Control Sample	Total/NA	Solid	7196A	119946
LCSS 180-119946/2-A	Lab Control Sample	Total/NA	Solid	7196A	119946
MB 180-119946/1-A	Method Blank	Total/NA	Solid	7196A	119946

CALGON CARBON CORPORATION

Carbon Acceptance Laboratory
Mailing Address: P.O. Box 717, Pittsburgh, PA 15230-0717
Sample Shipping Address: 500 Calgon Carbon Drive, Pittsburgh, PA 15205
Phone (412) 787-6700 • Fax: (412) 787-4795

CalgonCarbon

Laboratory TSR Nun
(assigned by laboratory p

180-37165 Chain of Custody

CHAIN OF CUSTODY RECORD

****THIS COMPLETED FORM MUST ACCOMPANY ALL SAMPLES SUBMITTED FOR ANALYSIS IN ORDER FOR SAMPLE TO BE ACCEPTABLE FOR EVALUATION****

Customer Name: 2014 0955

Customer Email:

Site Address:

Phone No.

Fax No.

Sampler Signature

Special Instructions:

Temp °C:

Ice: Yes / No

Sample Disposal ☐ Return to Customer ☐ Disposal by Lab

Analysis Required

No.	Sample Identification	Date	Time	No. of Containers	Sampling Method: Composite	Sampling Method: Grab	Container Type: Glass	Container Type: Plastic	Acceptance Testing	Spent	TCP Metals + Cr6+ w/ Polly	Total Sulfide							Sample Remarks
1	20140955.1	9/30/14	1117	1		X	X			X									5DAY
2	20140955.2	9/30/14	1117	1		X	X				X								5DAY
3	20140955.3	9/30/14	1117	1		X	X					X							5DAY
4																			
5																			
6																			

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time
	9/30/14	1117		9/30/14	1117		9/30/14	1200

Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	9/30/14	1200						

Sample condition upon arrival at laboratory | Temp °C 4.4 | Received on ice (Circle One) Y / N | Sample intact and acceptable for evaluation? (Circle One) Y / N

Initials of personnel checking in sample: | Sample disposed of by: (Signature) | Date:

Additional sample remarks:

№ 18875

Login Sample Receipt Checklist

Client: Calgon Carbon Corporation

Job Number: 180-37165-2

Login Number: 37165
List Number: 1
Creator: Kovitch, Christina M

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= 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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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: 180-37165-3
Client Project/Site: Carbon Acceptance, 20140955.3

For:
Calgon Carbon Corporation
PO BOX 717
Pittsburgh, Pennsylvania 15230

Attn: Rene Kotyk

Authorized for release by:
10/7/2014 10:47:27 AM

David Dunlap, Senior Project Manager
(412)963-2432
dave.dunlap@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: 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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Definitions/Glossary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.3

TestAmerica Job ID: 180-37165-3

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.3

TestAmerica Job ID: 180-37165-3

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	06-27-15
California	State Program	9	2891	03-31-15
Connecticut	State Program	1	PH-0688	09-30-14 *
Florida	NELAP	4	E871008	06-30-15
Illinois	NELAP	5	002602	06-30-15
Kansas	NELAP	7	E-10350	01-31-15
Louisiana	NELAP	6	04041	06-30-15
New Hampshire	NELAP	1	203011	04-04-15
New Jersey	NELAP	2	PA005	06-30-15
New York	NELAP	2	11182	03-31-15
North Carolina (WW/SW)	State Program	4	434	12-31-14
Pennsylvania	NELAP	3	02-00416	04-30-15
South Carolina	State Program	4	89014	04-30-15
Texas	NELAP	6	T104704528	03-31-15
US Fish & Wildlife	Federal		LE94312A-1	11-30-14
USDA	Federal		P330-10-00139	05-23-16
Utah	NELAP	8	STLP	05-31-15
Virginia	NELAP	3	460189	09-14-15
West Virginia DEP	State Program	3	142	01-31-15

* Certification renewal pending - certification considered valid.

Sample Summary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.3

TestAmerica Job ID: 180-37165-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-37165-3	20140955.3	Solid	09/30/14 11:17	09/30/14 12:00

5

Method Summary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.3

TestAmerica Job ID: 180-37165-3

Method	Method Description	Protocol	Laboratory
2540G	SM 2540G	SM22	TAL PIT
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	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: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.3

TestAmerica Job ID: 180-37165-3

Client Sample ID: 20140955.3
Date Collected: 09/30/14 11:17
Date Received: 09/30/14 12:00

Lab Sample ID: 180-37165-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540G		1			120010	10/01/14 16:51	AB1	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	9030B			5.03 g	50 mL	120521	10/06/14 14:20	MEB	TAL PIT
Total/NA	Analysis	9034		1	5.03 g	50 mL	120524	10/06/14 14:30	MEB	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
MEB = Michael Bucklaw

Batch Type: Analysis
AB1 = Ashwin Baikadi

MEB = Michael Bucklaw

Client Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.3

TestAmerica Job ID: 180-37165-3

Client Sample ID: 20140955.3
Date Collected: 09/30/14 11:17
Date Received: 09/30/14 12:00

Lab Sample ID: 180-37165-3
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	31		0.10	%			10/01/14 16:51	1
Percent Solids	69		0.10	%			10/01/14 16:51	1
Sulfide	73		43	mg/Kg	☼	10/06/14 14:20	10/06/14 14:30	1

QC Sample Results

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.3

TestAmerica Job ID: 180-37165-3

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 180-120521/1-A
Matrix: Solid
Analysis Batch: 120524

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 120521

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		30	mg/Kg		10/06/14 14:20	10/06/14 14:30	1

Lab Sample ID: LCS 180-120521/2-A
Matrix: Solid
Analysis Batch: 120524

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 120521

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	192	198		mg/Kg		103	85 - 115

Lab Sample ID: 180-37165-3 MS
Matrix: Solid
Analysis Batch: 120524

Client Sample ID: 20140955.3
Prep Type: Total/NA
Prep Batch: 120521

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	73		279	310		mg/Kg	☼	85	75 - 125

Lab Sample ID: 180-37165-3 MSD
Matrix: Solid
Analysis Batch: 120524

Client Sample ID: 20140955.3
Prep Type: Total/NA
Prep Batch: 120521

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	73		278	304		mg/Kg	☼	83	75 - 125	2	20

QC Association Summary

Client: Calgon Carbon Corporation
Project/Site: Carbon Acceptance, 20140955.3

TestAmerica Job ID: 180-37165-3

General Chemistry

Analysis Batch: 120010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-3	20140955.3	Total/NA	Solid	2540G	

Prep Batch: 120521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-3	20140955.3	Total/NA	Solid	9030B	
180-37165-3 MS	20140955.3	Total/NA	Solid	9030B	
180-37165-3 MSD	20140955.3	Total/NA	Solid	9030B	
LCS 180-120521/2-A	Lab Control Sample	Total/NA	Solid	9030B	
MB 180-120521/1-A	Method Blank	Total/NA	Solid	9030B	

Analysis Batch: 120524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-37165-3	20140955.3	Total/NA	Solid	9034	120521
180-37165-3 MS	20140955.3	Total/NA	Solid	9034	120521
180-37165-3 MSD	20140955.3	Total/NA	Solid	9034	120521
LCS 180-120521/2-A	Lab Control Sample	Total/NA	Solid	9034	120521
MB 180-120521/1-A	Method Blank	Total/NA	Solid	9034	120521

CALGON CARBON CORPORATION

Carbon Acceptance Laboratory
Mailing Address: P.O. Box 717, Pittsburgh, PA 15230-0717
Sample Shipping Address: 500 Calgon Carbon Drive, Pittsburgh, PA 15205
Phone (412) 787-6700 • Fax: (412) 787-4795

CalgonCarbon

Laboratory TSR Nun
(assigned by laboratory p

180-37165 Chain of Custody

CHAIN OF CUSTODY RECORD

****THIS COMPLETED FORM MUST ACCOMPANY ALL SAMPLES SUBMITTED FOR ANALYSIS IN ORDER FOR SAMPLE TO BE ACCEPTABLE FOR EVALUATION****

Customer Name: 2014 0955

Customer Email:

Site Address:

Phone No.

Fax No.

Sampler Signature

Special Instructions:

Temp °C:

Ice: Yes / No

Sample Disposal ☐ Return to Customer ☐ Disposal by Lab

No.	Sample Identification	Date	Time	No. of Containers	Sampling Method: Composite	Sampling Method: Grab	Container Type: Glass	Container Type: Plastic	Acceptance Testing	Spent	ICP Metals + Cr 6+ in Solids	Total Sulfide						Sample Remarks
1	20140955.1	9/30/14	1117	1		X	X			X								5 DAY
2	20140955.2	9/30/14	1117	1		X	X				X							5 DAY
3	20140955.3	9/30/14	1117	1		X	X					X						5 DAY
4																		
5																		
6																		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time
	9/30/14	1117		9/30/14	1117		9/30/14	1200
Received by: (Signature)	**Date**	**Time**	**Relinquished by: (Signature)**	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
	9/30/14	1200						

Sample condition upon arrival at laboratory | Temp °C 4.4 | Received on ice (Circle One) Y / N | Sample intact and acceptable for evaluation? (Circle One) Y / N

Initials of personnel checking in sample: | Sample disposed of by: (Signature) | Date:

Additional sample remarks:

№ 18875

Login Sample Receipt Checklist

Client: Calgon Carbon Corporation

Job Number: 180-37165-3

Login Number: 37165
List Number: 1
Creator: Kovitch, Christina M

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= 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 <6mm (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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