

New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Waste Reduction & Recycling, 9th Floor
625 Broadway, Albany, New York 12233-7253
Phone: (518) 402-8706 • Fax: (518) 402-9024
Website: www.dec.ny.gov



NOV 08 2013

Mr. Tim Card
Highway Superintendent
Town of Harmony/Village of Panama
1001 County Rd. 35
Ashville, NY 14710

Dear Mr. Card:

RE: Brine Bud # **B068-13** – Deicing agent

We have reviewed the information submitted in your August 15, 2013 request for the proposed beneficial use of brine from the Chautauqua County storage tank located at the Town of Harmony Highway facility as part of your snow and ice control system. We have also reviewed existing information on file for use of this brine on Chautauqua county roads. This use is approved pursuant to 6 NYCRR 360-1.15(d) and in accordance with the following:

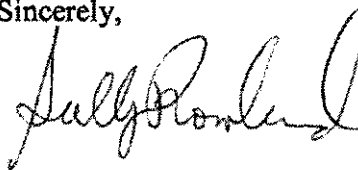
- Fracture fluids obtained during well flowback operations may not be spread on roads. Brine from Marcellus formation wells may not be used without additional analysis.
- Deicing activities must be conducted in accordance with procedures described in your BUD petition and the NYSDOT Office of Operations Management Highway Maintenance Guidelines for Snow and Ice Control should be used for guidance. Brine must be applied by use of a spreader bar or similar spray device with shut off controls in the cab of the truck and with vehicular equipment that is dedicated to this use or cleaned of previously transported waste materials.
- Brine may be used to treat bridge surfaces when deemed necessary for public safety, but must not be applied in a manner that could cause liquid to flow or run off into streams, creeks, lakes and other bodies of water.

Brine is approved for road spreading use on all Town of Harmony roads, as well as all Village of Panama roads. Brine may be applied a maximum of 30 times on any section of roadway during a season. Please contact this office should the need arise to increase the application frequency or add additional roads. In addition, a brine sample may be required in order to update the chemical analysis on file. Staff will be in contact for a convenient date and time.

You must keep a copy of this letter in all vehicles spreading brine. The New York State Department of Environmental Conservation reserves the right to rescind or modify this determination at any time, should conditions warrant. This determination does not exempt this activity from any other local, state, or federal requirements.

Please contact Stephen Condon at (518) 402-8706 if you have any questions or need any additional information.

Sincerely,



Sally Rowland, Ph.D., P.E.

Chief

Organic Recycling & Beneficial Use Section
Bureau of Waste Reduction & Recycling
Division of Materials Management

cc: D. Weiss, Reg. 9

bcc: P. Leonardo/P. Pettit/S. Rowland/S. Condon
SC:sb
H:\Condon\Brine_Letter_harmony2013.docx

TOWN OF HARMONY

1001 BLOCKVILLE- WATTS FLATS ROAD
ASHVILLE, NEW YORK 14710

Supervisor: WILLIAM LAWSON

Councilmen: PETE RADKA
JEFF JORDAN
BEVERLEY LUBI
CHERYL WARES

Highway Superintendent: TIMOTHY CARD
Town Clerk: SHELLY J. JOHNSON

RECEIVED
NYSDEC

AUG 15 2013

August 13, 2013

DIRECTOR'S OFFICE
DIV. OF MATERIALS MANAGEMENT

Mr. Steven Condon
NYS DEC
9th Floor 625 Broadway
Albany, NY 12233-7253

I am the Highway Superintendent for the Town of Harmony and Village of Panama. I am writing to seek approval of the use of salt brine within the Town of Harmony and Village of Panama for winter ice control on our paved roads.

Enclosed is a map of the area where brine will be applied.

I have one truck to apply brine. It is a Chevy 2500 HD with a 300 gallon tank.

I have provided the chemical analysis given to the Town by Chautauqua Counties supplier. The only location which we haul out of is owned by Chautauqua County and is located at the Town of Harmony Highway facility.

Thank you for your help in this matter. If you need any other information needed contact me.

Regards,

Tim Card
Town of Harmony
1001 County Rd 35
Ashville, NY 14710
716-782-3430
harmonyhighway@windstream.net



Microbac Laboratories, Inc.
 Erie Division
 1962 Wager Road • Erie, PA 16509 • Phone: 814-825-8533 • Fax: 814-825-9254
 Cheri Estes, Managing Director • E-mail: erie@microbac.com • http://www.microbac.com

CERTIFICATE OF ANALYSIS

Work Order Number:
 12B1972

Atlas Energy Resources
 Attn: Brian Klink
 3500 Massillon Road
 Union Town, OH 44685

Date Reported 03/05/2012
 Date Received 02/20/2012
 Account Number 000000001368



Purchase Order: _____
 Subject Drum Sampling and Analysis

SMP	TEST	METHOD	RESULT	UNITS	ANALYSIS		
					DATE	TIME	TECH
01 Brine Sample for Deraat #2							
Sample Date: 02/17/2012							
	Calcium Chloride	Calculation	7.73	% by Weight	02/21/12	10:11	MWR
	Calcium Chloride Chloride	Calculation	0.774	lbs/gal	02/21/12	10:11	MWR
	Chlorides, total	ASTM D512-89A	173000	mg/L	03/01/12	14:00	CMF
	Chlorides, total	Calculation	24.4	% by Weight	02/21/12	10:11	MWR
	Magnesium Chloride	Calculation	2.45	lbs/gal	02/21/12	10:11	MWR
	Magnesium Chloride	Calculation	0.990	% by Weight	02/21/12	10:11	MWR
	Potassium Chloride	Calculation	0.0990	lbs/gal	02/21/12	10:11	MWR
	Potassium Chloride	Calculation	0.220	% by Weight	02/21/12	10:11	MWR
	Sodium Chloride	Calculation	0.0220	lbs/gal	02/21/12	10:11	MWR
	Sodium Chloride	Calculation	15.51	% by Weight	02/21/12	10:11	MWR
	Specific Gravity	ASTM D 1429	1.554	lbs/gal	02/21/12	10:11	MWR
	Weight of One Gallon of Brine	Calculation	1.20		02/21/12	10:11	MWR
	Calcium	EPA 200.7	10.02	lbs/gal	02/21/12	10:11	MWR
	Magnesium	EPA 200.7	35300	mg/L	02/21/12	10:11	MWR
	Potassium	EPA 200.7	5040	mg/L	02/21/12	10:11	MWR
	Sodium	EPA 200.7	1570	mg/L	02/21/12	10:11	MWR
			73500	mg/L	02/21/12	10:11	MWR
02 Brine Sample for Morton #1B							
Sample Date: 02/17/2012							
	Calcium Chloride	Calculation	9.51	% by Weight	02/21/12	10:11	MWR
	Calcium Chloride Chloride	Calculation	0.961	lbs/gal	02/21/12	10:11	MWR
	Chlorides, total	ASTM D512-89A	171000	mg/L	05/01/12	14:00	CMF
	Chlorides, total	Calculation	24.3	% by Weight	02/21/12	10:11	MWR
		Calculation	1.46	lbs/gal	02/21/12	10:11	MWR

The data and information on this, and other accompanying documents, represent only the sample(s) analyzed and is rendered upon condition that it is not to be reproduced wholly or in part for advertising or other purposes without approval from the laboratory.
 USDA-EPA-NIOSH Testing Food Sanitation Consultants Chemical and Microbiological Analysis and Research

NETAP accredited by PA, NY. Visit our website to view our current NETAP accreditation for various drinking water, wastewater and solid & chemical materials in analytical & testing.

ADMA accredited for Environmental Lead. Visit our website to view our current ADMA LAP (L) accreditation.





Microbac Laboratories, Inc.

Erie Division

1962 Wager Road • Erie, PA 16509 • Phone: 814-825-8533 • Fax: 814-825-9254

Cheri Estes, Managing Director • E-mail: erie@microbac.com • <http://www.microbac.com>

CERTIFICATE OF ANALYSIS

Work Order Number:

12B1972

Atlas Energy Resources
Attn: Brian Klink
3500 Massillon Road
Union Town, OH 44685

Date Reported 03/05/2012
Date Received 02/20/2012
Account Number 00000001388



Purchase Order:

Subject: Drum Sampling and Analysis

SMP	TEST	METHOD	RESULT	UNITS	ANALYSIS			NOTES
					DATE	TIME	TECH	
02	Brine Sample for Morton #1B Sample Date: 02/17/2012		...continued					
	Magnesium Chloride	Calculation	2.62	% by Weight	02/21/12	10:11	MWR	
	Magnesium Chloride	Calculation	0.265	lbs/gal	02/21/12	10:11	MWR	
	Potassium Chloride	Calculation	0.600	% by Weight	02/21/12	10:11	MWR	
	Potassium Chloride	Calculation	0.0600	lbs/gal	02/21/12	10:11	MWR	
	Sodium Chloride	Calculation	11.57	% by Weight	02/21/12	10:11	MWR	
	Sodium Chloride	Calculation	1.169	lbs/gal	02/21/12	10:11	MWR	
	Specific Gravity	ASTM D1429	1.21		02/21/12	10:11	MWR	
	Weight of One Gallon of Brine	Calculation	10.11	lbs/gal	02/21/12	10:11	MWR	
	Calcium	EPA 200.7	41600	mg/L	02/21/12	10:11	MWR	
	Magnesium	EPA 200.7	8110	mg/L	02/21/12	10:11	MWR	
	Potassium	EPA 200.7	3780	mg/L	02/21/12	10:11	MWR	
	Sodium	EPA 200.7	55300	mg/L	02/21/12	10:11	MWR	

All samples received in proper condition and results conform to ISO 17025 unless otherwise noted

Some or all of the samples were collected by the customer. The verifiability of the final results are therefore limited by the customer's reported values. Microbac Laboratories, Inc. assumes that all sampling instructions are followed, and the data upon which these final results are based, have been accurately supplied by the client.

Notes and Definitions

The data and information on this, and other accompanying documents, represent only the sample(s) analyzed and is rendered upon condition that it is not to be reproduced wholly or in part for advertising or other purposes without approval from the laboratory.

USDA-EPA-NICSH Testing Food Sanitation Consulting Chemical and Microbiological Analysis and Research

NELAP accredited by PA, NY. Visit our website to view our current NELAP accreditation for various drinking water, wastewater and solid & chemical materials/analytical & emissions analysis

AIMA accredited for Environmental Lead. Visit our website to view our current AIMA LAP, LLC accreditation.





Microbac Laboratories, Inc.
Erie Division
1962 Wager Road • Erie, PA 16509 • Phone: 814-825-8533 • Fax: 814-825-9254
Cheri Estes, Managing Director • E-mail: erie@microbac.com • http://www.microbac.com

CERTIFICATE OF ANALYSIS

Work Order Number:
12B1972

Atlas Energy Resources
Attn: Brian Klink
3500 Massillon Road
Union Town, OH 44685

Date Reported 03/05/2012
Date Received 02/20/2012
Account Number 00000001368



Purchase Order

Subject: Drum Sampling and Analysis

Table with columns: SMP, TEST, METHOD, RESULT, UNITS, ANALYSIS (DATE, TIME, TECH), NOTES

Reviewed and Approved By:

Handwritten signature of Jeff Porte

Date Reviewed and Approved:

03/05/2012

Jeff Porte For Cheri Estes
Lab Manager, Microbac Laboratories, Inc./Erie Division
Report released by Jeff Porte For Cheri Estes

Any questions regarding this report, please contact your account manager.

As Regulatory limits frequently change, Microbac Laboratories, Inc. advises the recipient of this report to confirm such limits with the appropriate Federal, state or local authorities before acting on the data provided. For feedback concerning our services, please contact the Managing Director, or James Nokes, President, at president@microbac.com.

The data and information on this, and other accompanying documents, represent only the analytical results and is rendered upon condition that it is not to be reproduced wholly or in part for advertising or other purposes without approval from the laboratory.

USDA-ERS-NIDSH Testing Food Sanitation Consulting Chemical and Microbiological Analysis and Research

NELAP accredited by PA, NY. Visit our website to view our current NELAP accreditation for various drinking water, wastewater and solid chemical materials, air & emissions analysis.

ADHA accredited for Environmental Lead. Visit our website to view our current ADHA LAP/LIC accreditation.



Client # _____
 W.O. _____
 Quote # _____

12B1972
 Logged by: Chiral Baisey-Smith
 02/20/2012 12:27

USTODY

Microprobe

Microbac Laboratories, Inc
 Erie Division
 1982 Winger Road Erie, PA 16509
 P: 814-826-8633 F: 814-826-9254

Client/Company Name: H Haas Energy
 Address: _____
 City, State, Zip: _____

Turn Around Time: _____
 Report Type: Routine Results Only - Standard Courier

State Reporting: _____
 Monitoring Period: _____

Contact: _____
 Telephone: _____

Analyses/Method Requested: _____

Sample Receiving: _____
 Receiving killer: _____

Location: _____
 Sampler: Ken Alexander / Todd Myler

Number of Containers per Analysis: _____

Cooler Temp: _____
 Samples returned on ice? Y N
 Samples in good condition? Y N
 Contaminative media method? Y N
 Correct sample volume? Y N
 Headspace present? Y N
 Complete paperwork? Y N
 Samples within holding time? Y N

Send Report via Mail Fax
 Fax # _____
 Email: Richard B. Hasey@microprobe.com

Compliance Monitoring: YES NO State: _____
 Annual Quarterly Monthly PWSID # _____

Comments: _____

Sample ID/Description	State Type	Grab / Composite	Date Collected	Time Collected	Received By	Date	Time	PY/MT
1 <u>Bruce Martin #11B</u>			<u>2/17</u>	<u>1</u>	<u>COBS</u>	<u>2/20/12</u>	<u>1240</u>	
2 <u>Detroit #2</u>			<u>↓</u>	<u>1</u>				
3								
4								
5								
6								
7								

Container Type: (A) Amber Glass (C) Clear Glass (F) Plastic (O) Other
 Matrix Type: (S) Solid/Sediment (O) Oil (DW) Drinking Water (GW) Ground Water (SW) Surface Water (WW) Waste Water State Reporting Types: (E) Entry (D) Distribution (C) Check (R) Raw (M) Max Resistance
 Preservative Type: (1) HNO3 (2) H2SO4 (3) HCL (4) NaOH (5) Zinc Acetate (6) Methanol (7) Sodium Sulfate (8) Sodium Thiosulfate (V) Other

Resource 11/11/13

3

Resource America C

ATLAS

RESOURCE ENERGY, INC. Page 1 of 7

WELLS OPERATED FROM THE MAYVILLE OFFICE

C = Chris
J = Jim

WELL NAME	MM	TOWNSHIP	COUNTY	API#	WELL TENDER	STATUS	DATE				
5119	✓	Abers #1	X	NH	North Harmony	Chautauqua	31-013-21979	Kim	J	P	
X 5031	✓	Adamson #1-B	X	NH	North Harmony	Chautauqua	31-013-16462	Kim	J	P	9/1
5103	✓	Adamson #1A	X	NH	North Harmony	Chautauqua	31-013-18922		C	P	1/15
5057	✓	Anderson #1-B	X	NH	North Harmony	Chautauqua	31-013-18377	Jim	C	S/I	3/1
5166	✓	Anderson #5-B	X	NH	North Harmony	Chautauqua	31-013-20029	Jim	C	P	
5155	✓	Bargar #1-B	X	NH	North Harmony	Chautauqua	31-013-18421	Jim			
5079	✓	Bissel-Babcock #2-B	X	NH	North Harmony	Chautauqua	31-013-20117	Jim	C	P	
5152	✓	Bissel-Babcock #1-B	X	NH	North Harmony	Chautauqua	31-013-19188	Jim	C	P	
2004	✓	Blakeslee #2	X	NH	North Harmony	Chautauqua	31-013-11530	Kim			
2005	✓	Blakeslee #3	X	NH	North Harmony	Chautauqua	31-013-11285	Jim	C	P	
X 2034	✓	Brautigam #1	X	NH	North Harmony	Chautauqua	31-013-12121	Kim	J	P	
X 5041	✓	Brise #1	X	NH	North Harmony	Chautauqua	31-013-18003	Kim	J	P	
X 2066	✓	Brown #1	X	NH	North Harmony	Chautauqua	31-013-12022	Kim	J	P	
X 2067	✓	Button #1	X	NH	North Harmony	Chautauqua	31-013-11599	Kim	J	P	
X 2032	✓	Carlson #1	X	NH	North Harmony	Chautauqua	31-013-11394	Kim	J	S/I	
X 5158	✓	Carlson #1-B	X	NH	North Harmony	Chautauqua	31-013-14094	Kim	J	P	1/25
X 5128	✓	Carlson #2-B	X	NH	North Harmony	Chautauqua	31-013-22592		J	S/I	3/1
X 5032	✓	Carlson-Ticknor #1	X	NH	North Harmony	Chautauqua	31-013-16461	Kim	J	P	
2006	✓	Carpenter #1	X	NH	North Harmony	Chautauqua	31-013-12433	Jim	C	S/I	
2007	✓	Carpenter #2	X	NH	North Harmony	Chautauqua	31-013-11862	Jim	C	P	
2008	✓	Carpenter #3	X	NH	North Harmony	Chautauqua	31-013-12122	Jim	C	P	
5155	✓	Carr #1-B	X	NH	North Harmony	Chautauqua	31-013-18344	Jim	C	P	
5036	✓	Carr #2	X	NH	North Harmony	Chautauqua	31-013-17671	Jim	C	P	
5168	✓	Carr #4-B	X	NH	North Harmony	Chautauqua	31-013-20037	Jim	C	S/I	5
5128	✓	Carutis #1	X	NH	North Harmony	Chautauqua	31-013-18007	Jim	C	P	
5157	✓	Cave #1-B	X	NH	North Harmony	Chautauqua	31-013-12362	Jim	C	P	
X 5043	✓	Cornell-Wise #1	X	NH	North Harmony	Chautauqua	31-013-17661	Kim	J	P	
2012	✓	Cowles #3	X	NH	North Harmony	Chautauqua	31-013-12127	Jim	C	P	
2013	✓	Cowles #4	X	NH	North Harmony	Chautauqua	31-013-12435	Jim	C	P	
X 2058	✓	Davis #1	X	NH	North Harmony	Chautauqua	31-013-11663	Kim	J	S/I	10
X 5034	✓	DeJose #1	X	NH	North Harmony	Chautauqua	31-013-16533	Kim	J	P	
5039	✓	DeJose #2	X	NH	North Harmony	Chautauqua	31-013-21933	Jim	C	P	
X 5118	✓	Deraat #1	X	NH	North Harmony	Chautauqua	31-013-21977	Kim	J	P	
X 5117	✓	Deraat #2	X	NH	North Harmony	Chautauqua	31-013-21969	Kim	J	P	
5132	✓	Deraat #3	X	NH	North Harmony	Chautauqua	31-013-22051	Jim	C	P	
2014	✓	Donelson #1	X	NH	North Harmony	Chautauqua	31-013-11659	Jim	C	P	
2069	✓	Eastman-Seymour #1	X	NH	North Harmony	Chautauqua	31-013-11785	Jim	C	P	
X 5053	✓	Edwards #1	X	NH	North Harmony	Chautauqua	31-013-22085	Kim	J	P	
2015	✓	Erickson #1	X	NH	North Harmony	Chautauqua	31-013-11209	Jim	C	P	
2016	✓	Erickson #2	X	NH	North Harmony	Chautauqua	31-013-11210	Jim	C	S/I	
2017	✓	Erickson #3	X	NH	North Harmony	Chautauqua	31-013-11211	Jim	C	P	
2018	✓	Erickson #4	X	NH	North Harmony	Chautauqua	31-013-11212	Jim	C	P	
2019	✓	Fairbanks #1	X	NH	North Harmony	Chautauqua	31-013-11661	Jim	C	P	
X 2041	✓	Fisher #1	X	NH	North Harmony	Chautauqua	31-013-12054	Kim	J	S/I	
X 2042	✓	Fisher #2	X	NH	North Harmony	Chautauqua	31-013-12231	Kim	J	P	
X 2070	✓	Frye #1	X	NH	North Harmony	Chautauqua	31-013-19963	Kim	J	P	1/7
2020	✓	Gleason #1	X	NH	North Harmony	Chautauqua	31-013-11733	Jim	C	P	
X 5120	✓	Gleason #13-B	X	NH	North Harmony	Chautauqua	31-013-22015	Kim	J	S/I	



OCT 04 2013

Mr. Thomas Lowe
Superintendent of Highways
Town of Alexander
3437 Railroad Ave., P.O. Box 1
Alexander, NY 14005

Dear Mr. Lowe:

RE: Brine Bud # B067-13 – Deicing agent

We have reviewed the information submitted in your August 23, 2013 request for the proposed beneficial use of brine from the US Gypsum Company wells as part of your anti-icing/deicing system. This use is approved pursuant to 6 NYCRR 360-1.15(d) and in accordance with the following:

- Fracture fluids obtained during well flowback operations may not be spread on roads. Brine from Marcellus formation wells may not be used without additional analysis.
- Deicing activities must be conducted in accordance with procedures described in your BUD petition and the NYSDOT Office of Operations Management Highway Maintenance Guidelines for Snow and Ice Control should be used for guidance.
- Brine may be used to treat bridge surfaces when deemed necessary for public safety, but must not be applied in a manner that could cause liquid to flow or run off into streams, creeks, lakes and other bodies of water.

Brine is approved for road spreading use on all Town of Alexander roads. For non-town roads additional approval verification letters are necessary. Brine may be applied a maximum of 30 times on any section of roadway during a season. Please contact this office should the need arise to increase the application frequency or add additional roads. In addition, a brine sample may be required in order to update the chemical analysis on file. Staff will be in contact for a convenient date and time.

You must keep a copy of this letter and the Part 364 permit (if required) in all vehicles transporting or spreading brine. The New York State Department of Environmental Conservation reserves the right to rescind or modify this determination at any time, should conditions warrant. This determination does not exempt this activity from any other local, state, or federal requirements.

Please contact Stephen Condon at (518) 402-8706 if you have any questions or need any additional information.

Sincerely,

A handwritten signature in cursive script that reads "Sally Rowland".

Sally Rowland, Ph.D., P.E.

Chief

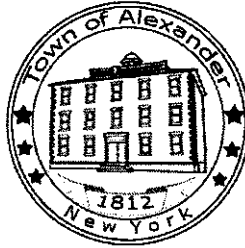
Organic Recycling & Beneficial Use Section
Bureau of Waste Reduction & Recycling
Division of Materials Management

bcc: P. Leonardo/P. Pettit/S. Rowland/S. Condon
SC:sb
H:\Condon\Brine_Letter_alexander.docx

TOWN OF ALEXANDER

Supervisor
Joseph Higley

Councilmen
William Hirsch
William Schmieder
Roy Haller III
David Miller



Highway Superintendent
Thomas Lowe

Town Clerk
Laura Schmieder

RECEIVED
NYSDEC

AUG 23 2013

DIRECTOR'S OFFICE
DIV. OF MATERIALS MANAGEMENT

August 20, 2013

Bureau of Solid Waste, Reduction, and Recycling
Division of Solid and Hazardous Materials
NYS Department of Environmental Conservation
625 Broadway – 9th Floor
Albany, NY 12233-7253

RE: Beneficial Use Determination – Town of Alexander Highway Department

Dear Sirs,

The Town of Alexander Highway Department began using natural salt brine as pre wetting agent on its granular rock salt twelve years ago as a means of reducing salt usage and improving driving conditions on our highway system. This letter is a request for a Beneficial Use Determination for the use of production brine as an anti-icing/ de-icing agent to be placed on our highway system during the winter season.

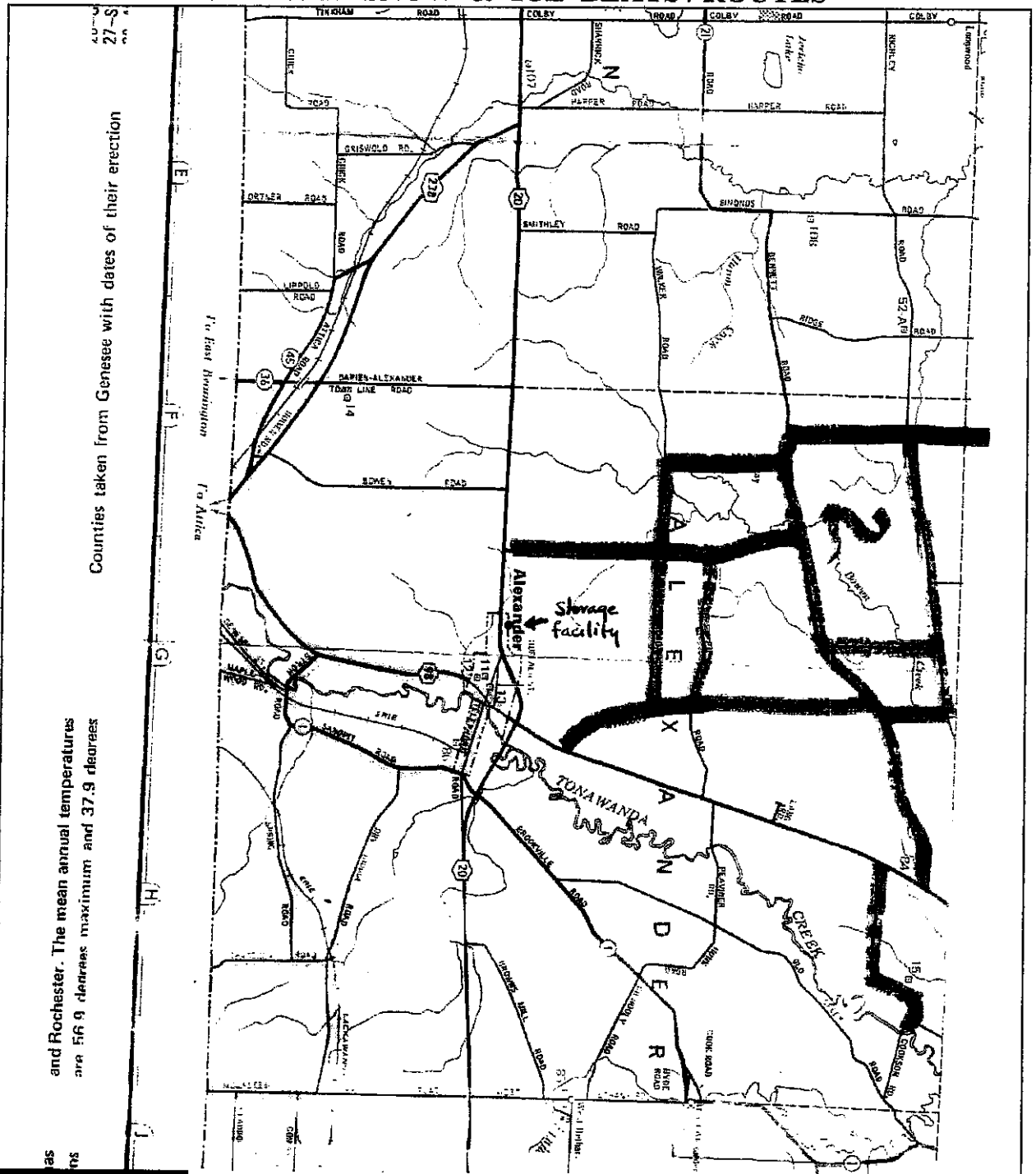
The Town of Alexander will receive production brine from the US Gypsum Company, 2750 Maple Avenue, Oakfield NY 14125, who operates natural gas wells throughout Genesee and Wyoming Counties. The production brine will be delivered to the Town of Alexander Salt Storage Facility located at 3145 Broadway Road, Alexander NY 14005 where it would be stored in three polyethylene tanks each with a capacity of 3,000 gallons totaling 9,000 gallon capacity. The tanks are located north of the granular storage structure where they are protected from vehicular traffic. The tanks are rated for 1.5 specific gravity and will be labeled for their contents and capacity.

The production brine will be applied via on board tanks directly onto the granular rock salt spreader as it deposits material onto the highway. The Town of Alexander plows and de-ices all State, County, Town, and Village Highways within The Town of Alexander boundaries. The Town of Alexander also applies rock salt to the Alexander School parking lots and the Alexander Fire Department parking areas. The Town of Alexander has five trucks equipped with one hundred gallon tanks. Four trucks typically respond to snow and ice events. Each truck operates with a Dickey John Control Point system.

All production brine applications will be in accordance with the NYS DOT snow and ice guidelines. In most cases the brine will be used to pre wet granular rock salt at the spreader. Salt is typically applied at a

Highway Department
3437 Railroad Avenue, P. O. Box 1, Alexander NY 14005
585-591-1471 phone and fax
Email: etownof1@rochester.rr.com

COMBINED SNOW & ICE BEATS/ROUTES



Beat -3



FRONTIER TECHNICAL ASSOCIATES INC.

October 10, 2012
ET-894

Mr. Ray Tamblin
US Gypsum Co.
2750 Maple Ave.
Oakfield NY 14125-9722

Re: Brine Well Testing September 20, 2012

Dear Mr. Tamblin:

Attached are the field parameter and analytical results received for the brine well sampling conducted on September 20, 2012.

Thank you for the opportunity to be of service. If you have any questions, please do not hesitate to call me at 634-2293.

Sincerely,

A handwritten signature in black ink that reads 'Kathy Wager'. The signature is written in a cursive style with a large, looping 'W'.

Kathy Wager
Vice President

KAW: 12-451
Attachment: Analytical Laboratory Report and Field Sheet



October 09, 2012

Service Request No: R1206342

Ms. Kathy Wager
Frontier Technical Associates
8675 Main Street
Williamsville, NY 14221

Laboratory Results for: Plant U/Brine ET-1075

Dear Ms. Wager:

Enclosed are the results of the sample(s) submitted to our laboratory on September 20, 2012. For your reference, these analyses have been assigned our service request number **R1206342**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7473. You may also contact me via email at Deb.Patton@alsglobal.com.

Respectfully submitted,

Columbia Analytical Services, Inc. dba ALS Environmental

Deb Patton
Project Manager

Page 1 of 32



ADDRESS 1665 Jefferson Rd, Building 300, Suite 380, Rochester, NY 14623
PHONE 585-288-5380 : FAX 585-288-8475
Columbia Analytical Services, Inc.
Part of the ALS Group A Campbell Brothers Limited Company



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RIGHT SOLUTIONS RIGHT PARTNER

00001

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Frontier Technical Associates
Project: Plant U Brine ET-1075
Sample Matrix: Water

Service Request No.: R1206342
Date Received: 9/30/12

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One water sample was received for analysis at Columbia Analytical Services on 9/30/12. The sample was received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received within the 0-6°C temperature guidelines.

Volatile Organics

The Continuing Calibration Verification (CCV) standard did not meet the minimum response factor for Trichloroethene. All data is considered acceptable as the MRL has been verified by the low standard in the calibration.

Acrylonitrile was analyzed at a pH less than 2. Acrolein was analyzed outside of the three day holding time.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics

The Continuing Calibration Verification from 9/24/12 exceeded 20% difference for Hexachlorocyclopentadiene and 2,4-Dinitrophenol and the 9/25/12 CCV exceeded 20% difference for Benzidine. All detected concentrations for these compounds in samples associated with their relevant CCV should be considered as estimated.

The Laboratory Control Sample and Duplicate Laboratory Control Sample were outside of the control limits low for Benzidine and have been flagged with a "**". The Laboratory Control Sample was outside of the control limits for 4,6-Dinitro-2-methylphenol and Di-n-octyl Phthalate and have been flagged with a "**". The RPD was outside of the control limits high for Benzidine and has also been flagged with a "**". There were no hits in the sample and no data was affected.

No other analytical or quality control problems were encountered during analysis.

Inorganics & Metals

Conductivity exceeded the calibration range of the meter and has been flagged with an "E".

No analytical or quality control problems were encountered during analysis.

Approved by



Date 10/9/12

00002

CASE NARRATIVE

This report contains analytical results for the following samples:
Service Request Number: R1206342

Lab ID
R1206342-001

Client ID
Brine Well

Samples have been subcontracted to the following laboratory(ies). The subcontractor's analytical report is attached:

ALS Laboratory Group
Middletown, PA

00003



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REPORT QUALIFIERS

- U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.
- J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Aroclors).
- B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.
- E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.
- E Organics- Concentration has exceeded the calibration range for that specific analysis.
- D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.
- * Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.
- H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.
- # Spike was diluted out.
- + Correlation coefficient for MSA is <0.995.
- N Inorganics- Matrix spike recovery was outside laboratory limits.
- N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.
- S Concentration has been determined using Method of Standard Additions (MSA).
- W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.
- P Concentration >40% (25% for CLP) difference between the two GC columns.
- C Confirmed by GC/MS
- Q DoD reports: indicates a pesticide/Aroclor is not confirmed ($\geq 100\%$ Difference between two GC columns).
- X See Case Narrative for discussion.



CAS/Rochester Lab ID # for State Certifications¹

NELAP Accredited
Connecticut ID # PH0556
Delaware Accredited
DoD BLAP #65817
Florida ID # E87674
Illinois ID #200047
Maine ID #NY0032
Nebraska Accredited

Nevada ID # NY-00032
New Jersey ID # NY004
New York ID # 10145
New Hampshire ID # 294100 A/B
North Carolina #676
Pennsylvania ID# 68-786
Rhode Island ID # 158
Virginia #460167

¹ Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to the certifications section at www.caslab.com.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Frontier Technical Associates
 Project: Plant U/Brine ET-1075
 Sample Matrix: Water
 Sample Name: Brine Well
 Lab Code: R1206342-001

Service Request: R1206342
 Date Collected: 9/20/12 1025
 Date Received: 9/20/12

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	SM20 5310 C	29.4		mg/L	2.0	2	NA	10/2/12 13:45	
Conductivity	120.1	247000	E	µMHOS/cm	0.050	1	NA	9/20/12 17:08	
Cyanide, Total	335.4	ND	U	mg/L	0.010	1	9/26/12	9/26/12 14:44	
pH	SM 4500-H+ B	2.23		pH Units		1	NA	9/20/12 20:00	H
Phenolics, Total Recoverable	420.4	0.83		mg/L	0.50	100	NA	10/2/12 09:45	
Temperature of pH Analysis	SM 4500-H+ B	21.4		deg C		1	NA	9/20/12 20:00	H

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: 9/20/12 1025
Date Received: 9/20/12

Sample Name: Brine Well
Lab Code: R1206342-001

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	ND U	µg/L	1000	10	9/27/12	10/3/12 22:15	
Antimony, Total	6010C	ND U	µg/L	600	10	9/27/12	10/3/12 22:15	
Arsenic, Total	6010C	700	µg/L	500	50	9/27/12	10/3/12 22:08	
Barium, Total	6010C	680	µg/L	200	10	9/27/12	10/3/12 22:15	
Beryllium, Total	6010C	ND U	µg/L	50	10	9/27/12	10/3/12 22:15	
Cadmium, Total	6010C	ND U	µg/L	50	10	9/27/12	10/3/12 22:15	
Calcium, Total	6010C	37800000	µg/L	1000000	1000	9/27/12	10/3/12 21:05	
Chromium, Total	6010C	ND U	µg/L	100	10	9/27/12	10/3/12 22:15	
Cobalt, Total	6010C	ND U	µg/L	500	10	9/27/12	10/3/12 22:15	
Copper, Total	6010C	ND U	µg/L	1000	50	9/27/12	10/3/12 22:08	
Iron, Total	6010C	149000	µg/L	10000	100	9/27/12	10/2/12 03:28	
Magnesium, Total	6010C	3910000	µg/L	100000	100	9/27/12	10/2/12 03:28	
Manganese, Total	6010C	91700	µg/L	1000	100	9/27/12	10/2/12 03:28	
Mercury, Total	7470A	ND U	µg/L	1.0	1	10/3/12	10/3/12 12:51	
Nickel, Total	6010C	ND U	µg/L	400	10	9/27/12	10/3/12 22:15	
Potassium, Total	6010C	1430000	µg/L	200000	100	9/27/12	10/2/12 03:28	
Selenium, Total	6010C	ND U	µg/L	500	50	9/27/12	10/3/12 22:08	
Silver, Total	6010C	ND U	µg/L	100	10	9/27/12	10/3/12 22:15	
Sodium, Total	6010C	46600000	µg/L	1000000	1000	9/27/12	10/3/12 21:05	
Thallium, Total	6010C	ND U	µg/L	100	10	9/27/12	10/3/12 22:15	
Vanadium, Total	6010C	ND U	µg/L	500	10	9/27/12	10/3/12 22:15	
Zinc, Total	6010C	2300	µg/L	1000	50	9/27/12	10/3/12 22:08	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: 9/20/12 1025
Date Received: 9/20/12
Date Analyzed: 9/27/12 11:07

Sample Name: Brine Well
Lab Code: R1206342-001

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: J:\ACQUDATA\MSVOA8\DATA\092712\F9768.D\

Analysis Lot: 311335
Instrument Name: R-MS-08
Dilution Factor: 5

CAS No.	Analyte Name	Result Q	MRL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND U	25	
79-34-5	1,1,2,2-Tetrachloroethane	ND U	25	
79-00-5	1,1,2-Trichloroethane	ND U	25	
75-34-3	1,1-Dichloroethane (1,1-DCA)	ND U	25	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND U	25	
107-06-2	1,2-Dichloroethane	ND U	25	
78-87-5	1,2-Dichloropropane	ND U	25	
110-75-8	2-Chloroethyl Vinyl Ether	ND U	25	
107-02-8	Acrolein	ND U	500	
107-13-1	Acrylonitrile	ND U	500	
71-43-2	Benzene	ND U	25	
75-27-4	Bromodichloromethane	ND U	25	
75-25-2	Bromoform	ND U	25	
74-83-9	Bromomethane	ND U	25	
56-23-5	Carbon Tetrachloride	ND U	25	
108-90-7	Chlorobenzene	ND U	25	
75-00-3	Chloroethane	ND U	25	
67-66-3	Chloroform	ND U	25	
74-87-3	Chloromethane	ND U	25	
124-48-1	Dibromochloromethane	ND U	25	
75-09-2	Dichloromethane	ND U	25	
100-41-4	Ethylbenzene	ND U	25	
127-18-4	Tetrachloroethene (PCE)	ND U	25	
108-88-3	Toluene	ND U	25	
79-01-6	Trichloroethene (TCE)	ND U	25	
75-69-4	Trichlorofluoromethane (CFC 11)	ND U	25	
75-01-4	Vinyl Chloride	ND U	25	
156-59-2	cis-1,2-Dichloroethene	ND U	25	
10061-01-5	cis-1,3-Dichloropropene	ND U	25	
156-60-5	trans-1,2-Dichloroethene	ND U	25	
10061-02-6	trans-1,3-Dichloropropene	ND U	25	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: 9/20/12 1025
Date Received: 9/20/12
Date Analyzed: 9/27/12 11:07

Sample Name: Brine Well
Lab Code: R1206342-001

Units: Percent
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: J:\ACQDATA\MSVOA8\DATA\092712\F9768.D\

Analysis Lot: 311335
Instrument Name: R-MS-08
Dilution Factor: 5

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	9/27/12 11:07	
Dibromofluoromethane	104	89-119	9/27/12 11:07	
Toluene-d8	103	87-121	9/27/12 11:07	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: 9/20/12 1025
Date Received: 9/20/12
Date Extracted: 9/21/12
Date Analyzed: 9/25/12 19:49

Sample Name: Brine Well
Lab Code: R1206342-001

Units: µg/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analytical Method: 8270D
Prep Method: EPA 3510C
Data File Name: J:\ACQU\DATA\5973A\DATA\092512\CN262.DA

Analysis Lot: 311207
Extraction Lot: 167573
Instrument Name: R-MS-51
Dilution Factor: 1

CAS No.	Analyte Name	Result Q	MRL	Note
218-01-9	Chrysene	ND U	9.4	
84-74-2	Di-n-butyl Phthalate	ND U	9.4	
117-84-0	Di-n-octyl Phthalate	ND U	9.4	
53-70-3	Dibenz(a,h)anthracene	ND U	9.4	
84-66-2	Diethyl Phthalate	ND U	9.4	
131-11-3	Dimethyl Phthalate	ND U	9.4	
206-44-0	Fluoranthene	ND U	9.4	
86-73-7	Fluorene	ND U	9.4	
118-74-1	Hexachlorobenzene	ND U	9.4	
87-68-3	Hexachlorobutadiene	ND U	9.4	
77-47-4	Hexachlorocyclopentadiene	ND U	9.4	
67-72-1	Hexachloroethane	ND U	9.4	
193-39-5	Indeno(1,2,3-cd)pyrene	ND U	9.4	
78-59-1	Isophorone	ND U	9.4	
621-64-7	N-Nitrosodi-n-propylamine	ND U	9.4	
62-75-9	N-Nitrosodimethylamine	ND U	9.4	
86-30-6	N-Nitrosodiphenylamine	ND U	9.4	
91-20-3	Naphthalene	ND U	9.4	
98-95-3	Nitrobenzene	ND U	9.4	
87-86-5	Pentachlorophenol (PCP)	ND U	47	
85-01-8	Phenanthrene	ND U	9.4	
108-95-2	Phenol	ND U	9.4	
129-00-0	Pyrene	ND U	9.4	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: 9/20/12 10:25
Date Received: 9/20/12
Date Extracted: 9/21/12
Date Analyzed: 9/25/12 19:49

Sample Name: Brine Well
Lab Code: R1206342-001

Units: Percent
Basis: NA

Semivolatle Organic Compounds by GC/MS

Analytical Method: 8270D
Prep Method: EPA 3510C
Data File Name: J:\ACQU\DATA\5973A\DATA\092512\CN262.D\

Analysis Lot: 311207
Extraction Lot: 167573
Instrument Name: R-MS-51
Dilution Factor: 1

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	79	28-157	9/25/12 19:49	
2-Fluorobiphenyl	68	39-119	9/25/12 19:49	
2-Fluorophenol	64	10-105	9/25/12 19:49	
Nitrobenzene-d5	75	37-117	9/25/12 19:49	
Phenol-d6	65	10-107	9/25/12 19:49	
p-Terphenyl-d14	61	40-133	9/25/12 19:49	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: 9/20/12 1025
Date Received: 9/20/12
Date Extracted: 9/21/12
Date Analyzed: 9/25/12 17:31

Sample Name: Brine Well
Lab Code: R1206342-001

Units: µg/L
Basis: NA

Organochlorine Pesticides by Gas Chromatography

Analytical Method: 8081B
Prep Method: EPA 3510C
Data File Name: J:\ACQU\DATA\7890m\DATA\092512\aa675.D\

Analysis Lot: 311085
Extraction Lot: 167437
Instrument Name: R-GC-62
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	Note
72-54-8	4,4'-DDD	ND	U	0.047	
72-55-9	4,4'-DDE	ND	U	0.047	
50-29-3	4,4'-DDT	ND	U	0.047	
309-00-2	Aldrin	ND	U	0.047	
60-57-1	Dieldrin	ND	U	0.047	
959-98-8	Endosulfan I	ND	U	0.047	
33213-65-9	Endosulfan II	ND	U	0.047	
1031-07-8	Endosulfan Sulfate	ND	U	0.047	
72-20-8	Endrin	ND	U	0.047	
7421-93-4	Endrin Aldehyde	ND	U	0.047	
53494-70-5	Endrin Ketone	ND	U	0.047	
76-44-8	Heptachlor	ND	U	0.047	
1024-57-3	Heptachlor Epoxide	ND	U	0.047	
72-43-5	Methoxychlor	ND	U	0.047	
8001-35-2	Toxaphene	ND	U	0.47	
319-84-6	alpha-BHC	ND	U	0.047	
5103-71-9	alpha-Chlordane	ND	U	0.047	
319-85-7	beta-BHC	ND	U	0.047	
319-86-8	delta-BHC	ND	U	0.047	
58-89-9	gamma-BHC (Lindane)	ND	U	0.047	
5566-34-7	gamma-Chlordane	ND	U	0.047	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	72	10-164	9/25/12 17:31	
Tetrachloro-m-xylene	54	10-147	9/25/12 17:31	

COLUMBIA ANALYTICAL SERVICES, INC.

New part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: 9/20/12 10:25
Date Received: 9/20/12
Date Extracted: 9/21/12
Date Analyzed: 9/24/12 22:14

Sample Name: Brine Well
Lab Code: R1206342-001

Units: µg/L
Basis: NA

Polychlorinated Biphenyls (PCBs) by GC

Analytical Method: 8082A
Prep Method: EPA 3510C
Data File Name: J:\ACQU\DATA\6890G\DATA\092412\AS612.D\

Analysis Lot: 310875
Extraction Lot: 167437
Instrument Name: R-GC-58
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	Note
12674-11-2	Aroclor 1016	ND	U	0.94	
11104-28-2	Aroclor 1221	ND	U	1.9	
11141-16-5	Aroclor 1232	ND	U	0.94	
53469-21-9	Aroclor 1242	ND	U	0.94	
12672-29-6	Aroclor 1248	ND	U	0.94	
11097-69-1	Aroclor 1254	ND	U	0.94	
11096-82-5	Aroclor 1260	ND	U	0.94	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	105	10-124	9/24/12 22:14	
Tetrachloro-m-xylene	62	11-131	9/24/12 22:14	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R1206342-MB

Service Request: R1206342
Date Collected: NA
Date Received: NA

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Carbon, Total Organic (TOC)	SM20 5310 C	ND U	mg/L	1.0	1	NA	10/2/12 12:44	
Cyanide, Total	335.4	ND U	mg/L	0.010	1	9/26/12	9/26/12 14:40	
Phenolics, Total Recoverable	420.4	ND U	mg/L	0.0050	1	NA	10/2/12 09:45	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: R1206342-MB

Service Request: R1206342
Date Collected: NA
Date Received: NA

Basis: NA

Inorganic Parameters

Analyte Name	Method	Result Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed	Note
Aluminum, Total	6010C	ND U	µg/L	100	1	9/27/12	10/2/12 00:12	
Antimony, Total	6010C	ND U	µg/L	60	1	9/27/12	10/2/12 00:12	
Arsenic, Total	6010C	ND U	µg/L	10	1	9/27/12	10/2/12 00:12	
Barium, Total	6010C	ND U	µg/L	20	1	9/27/12	10/2/12 00:12	
Beryllium, Total	6010C	ND U	µg/L	5.0	1	9/27/12	10/2/12 00:12	
Cadmium, Total	6010C	ND U	µg/L	5.0	1	9/27/12	10/2/12 00:12	
Calcium, Total	6010C	ND U	µg/L	1000	1	9/27/12	10/2/12 00:12	
Chromium, Total	6010C	ND U	µg/L	10	1	9/27/12	10/2/12 00:12	
Cobalt, Total	6010C	ND U	µg/L	50	1	9/27/12	10/2/12 00:12	
Copper, Total	6010C	ND U	µg/L	20	1	9/27/12	10/2/12 00:12	
Iron, Total	6010C	ND U	µg/L	100	1	9/27/12	10/2/12 00:12	
Magnesium, Total	6010C	ND U	µg/L	1000	1	9/27/12	10/2/12 00:12	
Manganese, Total	6010C	ND U	µg/L	10	1	9/27/12	10/2/12 00:12	
Mercury, Total	7470A	ND U	µg/L	0.20	1	10/3/12	10/3/12 12:10	
Nickel, Total	6010C	ND U	µg/L	40	1	9/27/12	10/2/12 00:12	
Potassium, Total	6010C	ND U	µg/L	2000	1	9/27/12	10/2/12 00:12	
Selenium, Total	6010C	ND U	µg/L	10	1	9/27/12	10/2/12 00:12	
Silver, Total	6010C	ND U	µg/L	10	1	9/27/12	10/2/12 00:12	
Sodium, Total	6010C	ND U	µg/L	1000	1	9/27/12	10/3/12 17:39	
Thallium, Total	6010C	ND U	µg/L	10	1	9/27/12	10/2/12 00:12	
Vanadium, Total	6010C	ND U	µg/L	50	1	9/27/12	10/2/12 00:12	
Zinc, Total	6010C	ND U	µg/L	20	1	9/27/12	10/2/12 00:12	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: NA
Date Received: NA
Date Analyzed: 9/27/12 10:11

Sample Name: Method Blank
Lab Code: RQ1211387-03

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: J:\ACQDATA\MSVOA8\DATA\092712\F9766.D\

Analysis Lot: 311335
Instrument Name: R-MS-08.
Dilution Factor: 1

CAS No.	Analyte Name	Result Q	MRL	Note
71-55-6	1,1,1-Trichloroethane (TCA)	ND U	5.0	
79-34-5	1,1,2,2-Tetrachloroethane	ND U	5.0	
79-00-5	1,1,2-Trichloroethane	ND U	5.0	
75-34-3	1,1-Dichloroethane (1,1-DCA)	ND U	5.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	ND U	5.0	
107-06-2	1,2-Dichloroethane	ND U	5.0	
78-87-5	1,2-Dichloropropane	ND U	5.0	
110-75-8	2-Chloroethyl Vinyl Ether	ND U	5.0	
107-02-8	Acrolein	ND U	100	
107-13-1	Acrylonitrile	ND U	100	
71-43-2	Benzene	ND U	5.0	
75-27-4	Bromodichloromethane	ND U	5.0	
75-25-2	Bromoform	ND U	5.0	
74-83-9	Bromomethane	ND U	5.0	
56-23-5	Carbon Tetrachloride	ND U	5.0	
108-90-7	Chlorobenzene	ND U	5.0	
75-00-3	Chloroethane	ND U	5.0	
67-66-3	Chloroform	ND U	5.0	
74-87-3	Chloromethane	ND U	5.0	
124-48-1	Dibromochloromethane	ND U	5.0	
75-09-2	Dichloromethane	ND U	5.0	
100-41-4	Ethylbenzene	ND U	5.0	
127-18-4	Tetrachloroethene (PCE)	ND U	5.0	
108-88-3	Toluene	ND U	5.0	
79-01-6	Trichloroethene (TCE)	ND U	5.0	
75-69-4	Trichlorofluoromethane (CFC 11)	ND U	5.0	
75-01-4	Vinyl Chloride	ND U	5.0	
156-59-2	cis-1,2-Dichloroethene	ND U	5.0	
10061-01-5	cis-1,3-Dichloropropene	ND U	5.0	
156-60-5	trans-1,2-Dichloroethene	ND U	5.0	
10061-02-6	trans-1,3-Dichloropropene	ND U	5.0	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: NA
Date Received: NA
Date Analyzed: 9/27/12 10:11

Sample Name: Method Blank
Lab Code: RQ1211387-03

Units: Percent
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: J:\ACQU\DATA\M\$VOA8\DATA\092712\F9766.D\

Analysis Lot: 311335
Instrument Name: R-MS-08
Dilution Factor: 1

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	9/27/12 10:11	
Dibromofluoromethane	102	89-119	9/27/12 10:11	
Toluene-d8	104	87-121	9/27/12 10:11	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: NA
Date Received: NA
Date Extracted: 9/21/12
Date Analyzed: 9/24/12 16:07

Sample Name: Method Blank
Lab Code: RQ1211093-01

Units: µg/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analytical Method: 8270D
Prep Method: EPA 3510C
Data File Name: J:\ACQU\DATA\5973A\DATA\092412\CN232.DA

Analysis Lot: 310999
Extraction Lot: 167573
Instrument Name: R-MS-51
Dilution Factor: 1

CAS No.	Analyte Name	Result Q	MRL	Note
120-82-1	1,2,4-Trichlorobenzene	ND U	10	
95-50-1	1,2-Dichlorobenzene	ND U	10	
541-73-1	1,3-Dichlorobenzene	ND U	10	
106-46-7	1,4-Dichlorobenzene	ND U	10	
88-06-2	2,4,6-Trichlorophenol	ND U	10	
120-83-2	2,4-Dichlorophenol	ND U	10	
105-67-9	2,4-Dimethylphenol	ND U	10	
51-28-5	2,4-Dinitrophenol	ND U	50	
121-14-2	2,4-Dinitrotoluene	ND U	10	
606-20-2	2,6-Dinitrotoluene	ND U	10	
91-58-7	2-Chloronaphthalene	ND U	10	
95-57-8	2-Chlorophenol	ND U	10	
88-75-5	2-Nitrophenol	ND U	10	
91-94-1	3,3'-Dichlorobenzidine	ND U	10	
534-52-1	4,6-Dinitro-2-methylphenol	ND U	50	
101-55-3	4-Bromophenyl Phenyl Ether	ND U	10	
59-50-7	4-Chloro-3-methylphenol	ND U	10	
7005-72-3	4-Chlorophenyl Phenyl Ether	ND U	10	
100-02-7	4-Nitrophenol	ND U	50	
83-32-9	Acenaphthene	ND U	10	
208-96-8	Acenaphthylene	ND U	10	
120-12-7	Anthracene	ND U	10	
56-55-3	Benz(a)anthracene	ND U	10	
92-87-5	Benzidine	ND U	100	
50-32-8	Benzo(a)pyrene	ND U	10	
205-99-2	Benzo(b)fluoranthene	ND U	10	
191-24-2	Benzo(g,h,i)perylene	ND U	10	
207-08-9	Benzo(k)fluoranthene	ND U	10	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND U	10	
111-91-1	Bis(2-chloroethoxy)methane	ND U	10	
111-44-4	Bis(2-chloroethyl) Ether	ND U	10	
117-81-7	Bis(2-ethylhexyl) Phthalate	ND U	10	
85-68-7	Butyl Benzyl Phthalate	ND U	10	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: NA
Date Received: NA
Date Extracted: 9/21/12
Date Analyzed: 9/24/12 16:07

Sample Name: Method Blank
Lab Code: RQ1211093-01

Units: µg/L
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analytical Method: 8270D
Prep Method: EPA 3510C
Data File Name: J:\ACQUDATA\5973A\DATA\092412\CN232.D\

Analysis Lot: 310999
Extraction Lot: 167573
Instrument Name: R-MS-51
Dilution Factor: 1

CAS No.	Analyte Name	Result Q	MRL	Note
218-01-9	Chrysene	ND U	10	
84-74-2	Di-n-butyl Phthalate	ND U	10	
117-84-0	Di-n-octyl Phthalate	ND U	10	
53-70-3	Dibenz(a,h)anthracene	ND U	10	
84-66-2	Diethyl Phthalate	ND U	10	
131-11-3	Dimethyl Phthalate	ND U	10	
206-44-0	Fluoranthene	ND U	10	
86-73-7	Fluorene	ND U	10	
118-74-1	Hexachlorobenzene	ND U	10	
87-68-3	Hexachlorobutadiene	ND U	10	
77-47-4	Hexachlorocyclopentadiene	ND U	10	
67-72-1	Hexachloroethane	ND U	10	
193-39-5	Indeno(1,2,3-cd)pyrene	ND U	10	
78-59-1	Isophorone	ND U	10	
621-64-7	N-Nitrosodi-n-propylamine	ND U	10	
62-75-9	N-Nitrosodimethylamine	ND U	10	
86-30-6	N-Nitrosodiphenylamine	ND U	10	
91-20-3	Naphthalene	ND U	10	
98-95-3	Nitrobenzene	ND U	10	
87-86-5	Pentachlorophenol (PCP)	ND U	50	
85-01-8	Phenanthrene	ND U	10	
108-95-2	Phenol	ND U	10	
129-00-0	Pyrene	ND U	10	

COLUMBIA ANALYTICAL SERVICES, INC.
Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: NA
Date Received: NA
Date Extracted: 9/21/12
Date Analyzed: 9/24/12 16:07

Sample Name: Method Blank
Lab Code: RQ1211093-01

Units: Percent
Basis: NA

Semivolatile Organic Compounds by GC/MS

Analytical Method: 8270D
Prep Method: EPA 3510C
Data File Name: J:\ACQUDATA\5973A\DATA\092412\CN232.D\

Analysis Lot: 310999
Extraction Lot: 167573
Instrument Name: R-MS-51
Dilution Factor: 1

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
2,4,6-Tribromophenol	93	28-157	9/24/12 16:07	
2-Fluorobiphenyl	88	39-119	9/24/12 16:07	
2-Fluorophenol	49	10-105	9/24/12 16:07	
Nitrobenzene-d5	86	37-117	9/24/12 16:07	
Phenol-d6	34	10-107	9/24/12 16:07	
p-Terphenyl-d14	81	40-133	9/24/12 16:07	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: NA
Date Received: NA
Date Extracted: 9/21/12
Date Analyzed: 9/25/12 10:37

Sample Name: Method Blank
Lab Code: RQ1211095-01

Units: µg/L
Basis: NA

Organochlorine Pesticides by Gas Chromatography

Analytical Method: 8081B
Prep Method: EPA 3510C
Data File Name: J:\ACQU\DATA\7890m\DATA\092512\aa662.D\

Analysis Lot: 311085
Extraction Lot: 167437
Instrument Name: R-GC-62
Dilution Factor: 1

CAS No.	Analyte Name	Result Q	MRL	Note
72-54-8	4,4'-DDD	ND U	0.050	
72-55-9	4,4'-DDE	ND U	0.050	
50-29-3	4,4'-DDT	ND U	0.050	
309-00-2	Aldrin	ND U	0.050	
60-57-1	Dieldrin	ND U	0.050	
959-98-8	Endosulfan I	ND U	0.050	
33213-65-9	Endosulfan II	ND U	0.050	
1031-07-8	Endosulfan Sulfate	ND U	0.050	
72-20-8	Endrin	ND U	0.050	
7421-93-4	Endrin Aldehyde	ND U	0.050	
53494-70-5	Endrin Ketone	ND U	0.050	
76-44-8	Heptachlor	ND U	0.050	
1024-57-3	Heptachlor Epoxide	ND U	0.050	
72-43-5	Methoxychlor	ND U	0.050	
8001-35-2	Toxaphene	ND U	0.50	
319-84-6	alpha-BHC	ND U	0.050	
5103-71-9	alpha-Chlordane	ND U	0.050	
319-85-7	beta-BHC	ND U	0.050	
319-86-8	delta-BHC	ND U	0.050	
58-89-9	gamma-BHC (Lindane)	ND U	0.050	
5566-34-7	gamma-Chlordane	ND U	0.050	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	67	10-164	9/25/12 10:37	
Tetrachloro-m-xylene	68	10-147	9/25/12 10:37	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group
Analytical Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Collected: NA
Date Received: NA
Date Extracted: 9/21/12
Date Analyzed: 9/25/12 00:30

Sample Name: Method Blank
Lab Code: RQ1211095-01

Units: µg/L
Basis: NA

Polychlorinated Biphenyls (PCBs) by GC

Analytical Method: 8082A
Prep Method: EPA 3510C
Data File Name: J:\ACQU\DATA\6890G\DATA\092412\AS616.D\

Analysis Lot: 310875
Extraction Lot: 167437
Instrument Name: R-GC-58
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	Note
12674-11-2	Aroclor 1016	ND	U	1.0	
11104-28-2	Aroclor 1221	ND	U	2.0	
11141-16-5	Aroclor 1232	ND	U	1.0	
53469-21-9	Aroclor 1242	ND	U	1.0	
12672-29-6	Aroclor 1248	ND	U	1.0	
11097-69-1	Aroclor 1254	ND	U	1.0	
11096-82-5	Aroclor 1260	ND	U	1.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
Decachlorobiphenyl	93	10-124	9/25/12 00:30	
Tetrachloro-m-xylene	77	11-131	9/25/12 00:30	

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Analyzed: 9/26/12 -
10/2/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1206342-LCS1		% Rec	% Rec Limits
		Result	Spike Amount		
Carbon, Total Organic (TOC)	SM20 5310 C	10.2	10.0	102	86 - 117
Cyanide, Total	335.4	0.0964	0.100	96	90 - 110
Phenolics, Total Recoverable	420.4	0.0416	0.0400	104	77 - 117

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Analyzed: 9/26/12

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1206342-LCS2			% Rec Limits
		Result	Spike Amount	% Rec	
Cyanide, Total	335.4	0.397	0.400	99	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Frontier Technical Associates
 Project: Plant U/Brine ET-1075
 Sample Matrix: Water

Service Request: R1206342
 Date Analyzed: 10/2/12 -
 10/3/12

**Lab Control Sample Summary
 Inorganic Parameters**

Units: µg/L
 Basis: NA

Lab Control Sample
 R1206342-LCS

Analyte Name	Method	Result	Spike		% Rec Limits
			Amount	% Rec	
Aluminum, Total	6010C	2020	2000	101	80 - 120
Antimony, Total	6010C	450	500	90	80 - 120
Arsenic, Total	6010C	36.5	40	91	80 - 120
Barium, Total	6010C	1980	2000	99	80 - 120
Beryllium, Total	6010C	47.2	50.0	94	80 - 120
Cadmium, Total	6010C	49.0	50.0	98	80 - 120
Calcium, Total	6010C	2030	2000	102	80 - 120
Chromium, Total	6010C	202	200	101	80 - 120
Cobalt, Total	6010C	513	500	103	80 - 120
Copper, Total	6010C	258	250	103	80 - 120
Iron, Total	6010C	996	1000	100	80 - 120
Magnesium, Total	6010C	1990	2000	100	80 - 120
Manganese, Total	6010C	489	500	98	80 - 120
Mercury, Total	7470A	0.859	1.00	86	80 - 120
Nickel, Total	6010C	440	500	88	80 - 120
Potassium, Total	6010C	18600	20000	93	80 - 120
Selenium, Total	6010C	977	1010	97	80 - 120
Silver, Total	6010C	49.6	50	99	80 - 120
Sodium, Total	6010C	18800	20000	94	80 - 120
Thallium, Total	6010C	2020	2000	101	80 - 120
Vanadium, Total	6010C	477	500	95	80 - 120
Zinc, Total	6010C	504	500	101	80 - 120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Frontier Technical Associates
 Project: Plant U/Brine ET-1075
 Sample Matrix: Water

Service Request: R1206342
 Date Analyzed: 9/27/12

**Lab Control Sample Summary
 Volatile Organic Compounds by GC/MS**

Analytical Method: 8260C

Units: µg/L
 Basis: NA

Analysis Lot: 311335

**Lab Control Sample
 RQ1211387-04**

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	18.9	20.0	95	67 - 121
1,1,2,2-Tetrachloroethane	20.1	20.0	100	72 - 124
1,1,2-Trichloroethane	19.9	20.0	100	81 - 117
1,1-Dichloroethane (1,1-DCA)	19.6	20.0	98	76 - 124
1,1-Dichloroethene (1,1-DCE)	19.7	20.0	98	67 - 119
1,2-Dichloroethane	19.4	20.0	97	72 - 130
1,2-Dichloropropane	18.9	20.0	95	83 - 119
2-Chloroethyl Vinyl Ether	20.9	20.0	104	60 - 136
Acrolein	27.8	40.0	70	11 - 169
Acrylonitrile	104	100	104	71 - 129
Benzene	19.0	20.0	95	78 - 118
Bromodichloromethane	18.9	20.0	94	79 - 123
Bromoform	19.6	20.0	98	69 - 126
Bromomethane	19.8	20.0	99	49 - 124
Carbon Tetrachloride	19.2	20.0	96	64 - 129
Chlorobenzene	19.6	20.0	98	80 - 121
Chloroethane	18.6	20.0	93	72 - 130
Chloroform	19.7	20.0	99	75 - 123
Chloromethane	19.6	20.0	98	55 - 139
Dibromochloromethane	20.2	20.0	101	78 - 127
Dichloromethane	19.5	20.0	97	73 - 122
Ethylbenzene	19.4	20.0	97	75 - 123
Tetrachloroethene (PCE)	20.2	20.0	101	71 - 127
Toluene	19.1	20.0	95	77 - 120
Trichloroethene (TCE)	18.7	20.0	94	75 - 122
Trichlorofluoromethane (CFC 11)	19.6	20.0	98	64 - 134
Vinyl Chloride	19.3	20.0	97	68 - 139
cis-1,2-Dichloroethene	19.4	20.0	97	77 - 123
cis-1,3-Dichloropropene	18.3	20.0	92	77 - 125
trans-1,2-Dichloroethene	19.6	20.0	98	72 - 120
trans-1,3-Dichloropropene	19.0	20.0	95	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Frontier Technical Associates
 Project: Plant U/Brine ET-1075
 Sample Matrix: Water

Service Request: R1206342
 Date Analyzed: 9/24/12

**Lab Control Sample Summary
 Semivolatle Organic Compounds by GC/MS**

Analytical Method: 8270D
 Prep Method: EPA 3510C

Units: µg/L
 Basis: NA

Extraction Lot: 167573

Analyte Name	Lab Control Sample RQ1211093-02			Duplicate Lab Control Sample RQ1211093-03			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
1,2,4-Trichlorobenzene	58.6	100	59	62.9	100	63	10 - 127	7	30
1,2-Dichlorobenzene	59.0	100	59	60.8	100	61	23 - 130	3	30
1,3-Dichlorobenzene	55.4	100	55	58.5	100	58	21 - 90	5	30
1,4-Dichlorobenzene	55.8	100	56	57.2	100	57	10 - 124	2	30
2,4,6-Trichlorophenol	99.8	100	100	99.6	100	100	62 - 115	<1	30
2,4-Dichlorophenol	89.8	100	90	93.1	100	93	62 - 109	4	30
2,4-Dimethylphenol	94.8	100	95	86.4	100	86	28 - 100	9	30
2,4-Dinitrophenol	46.6	100	47	50.1	100	50	40 - 156	7	30
2,4-Dinitrotoluene	104	100	104	103	100	103	69 - 122	<1	30
2,6-Dinitrotoluene	100	100	100	102	100	102	48 - 125	2	30
2-Chloronaphthalene	78.5	100	78	84.3	100	84	47 - 98	7	30
2-Chlorophenol	80.2	100	80	83.6	100	84	42 - 112	4	30
2-Nitrophenol	86.0	100	86	88.0	100	88	60 - 113	2	30
3,3'-Dichlorobenzidine	97.6	100	98	87.6	100	88	44 - 114	11	30
4,6-Dinitro-2-methylphenol	64.2	100	64 *	68.2	100	68	65 - 141	6	30
4-Bromophenyl Phenyl Ether	98.0	100	98	102	100	102	63 - 124	4	30
4-Chloro-3-methylphenol	99.6	100	100	102	100	102	42 - 124	2	30
4-Chlorophenyl Phenyl Ether	96.3	100	96	98.6	100	99	59 - 112	2	30
4-Nitrophenol	50.2	100	50	50.1	100	50	10 - 126	<1	30
Acenaphthene	95.1	100	95	96.2	100	96	54 - 125	1	30
Acenaphthylene	91.4	100	91	95.7	100	96	69 - 111	5	30
Anthracene	102	100	102	104	100	104	55 - 116	2	30
Benz(a)anthracene	99.9	100	100	102	100	102	66 - 110	2	30
Benzidine	ND	100	0 *	ND	100	0 *	10 - 99	149 *	30
Benzo(a)pyrene	92.3	100	92	93.1	100	93	44 - 114	<1	30
Benzo(b)fluoranthene	98.8	100	99	95.4	100	95	64 - 122	4	30
Benzo(g,h,i)perylene	103	100	103	111	100	111	60 - 127	7	30
Benzo(k)fluoranthene	88.0	100	88	87.2	100	87	49 - 133	<1	30
2,2'-Oxybis(1-chloropropane)	105	100	105	110	100	110	44 - 112	5	30
Bis(2-chloroethoxy)methane	93.6	100	94	95.1	100	95	53 - 142	2	30
Bis(2-chloroethyl) Ether	86.9	100	87	89.1	100	89	56 - 106	3	30
Bis(2-ethylhexyl) Phthalate	91.9	100	92	96.0	100	96	62 - 124	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Frontier Technical Associates
 Project: Plant U/Brine ET-1075
 Sample Matrix: Water

Service Request: R1206342
 Date Analyzed: 9/24/12

**Lab Control Sample Summary
 Semivolatile Organic Compounds by GC/MS**

Analytical Method: 8270D
 Prep Method: EPA 3510C

Units: µg/L
 Basis: NA

Extraction Lot: 167573

Analyte Name	Lab Control Sample RQ1211093-02			Duplicate Lab Control Sample RQ1211093-03			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Butyl Benzyl Phthalate	87.2	100	87	90.6	100	91	41 - 148	4	30
Chrysene	101	100	101	103	100	103	57 - 118	3	30
Di-n-butyl Phthalate	105	100	105	108	100	108	57 - 139	3	30
Di-n-octyl Phthalate	74.7	100	75 *	76.7	100	77	77 - 120	3	30
Dibenz(a,h)anthracene	108	100	108	116	100	116	58 - 132	8	30
Diethyl Phthalate	104	100	104	105	100	105	65 - 122	1	30
Dimethyl Phthalate	103	100	103	105	100	105	69 - 115	2	30
Fluoranthene	111	100	111	113	100	113	62 - 123	1	30
Fluorene	98.7	100	99	99.5	100	99	60 - 112	<1	30
Hexachlorobenzene	103	100	103	105	100	105	76 - 119	2	30
Hexachlorobutadiene	60.9	100	61	62.3	100	62	16 - 95	2	30
Hexachlorocyclopentadiene	27.6	100	28	28.9	100	29	10 - 99	5	30
Hexachloroethane	55.5	100	56	54.3	100	54	15 - 92	2	30
Indeno(1,2,3-cd)pyrene	102	100	102	109	100	109	64 - 126	7	30
Isophorone	101	100	101	103	100	103	61 - 128	2	30
N-Nitrosodi-n-propylamine	101	100	101	100	100	100	51 - 119	<1	30
N-Nitrosodimethylamine	56.8	100	57	60.1	100	60	37 - 67	6	30
N-Nitrosodiphenylamine	107	100	107	109	100	109	45 - 123	2	30
Naphthalene	68.7	100	69	73.2	100	73	36 - 95	6	30
Nitrobenzene	88.8	100	89	92.7	100	93	51 - 113	4	30
Pentachlorophenol (PCP)	106	100	106	99.2	100	99	56 - 146	7	30
Phenanthrene	105	100	105	106	100	106	58 - 118	<1	30
Phenol	41.4	100	41	42.1	100	42	10 - 113	2	30
Pyrene	86.3	100	86	92.3	100	92	67 - 118	7	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Frontier Technical Associates
 Project: Plant U/Brine ET-1075
 Sample Matrix: Water

Service Request: R1206342
 Date Analyzed: 9/25/12

**Lab Control Sample Summary
 Organochlorine Pesticides by Gas Chromatography**

Analytical Method: 8081B
 Prep Method: EPA 3510C

Units: µg/L
 Basis: NA

Extraction Lot: 167437

Analyte Name	Lab Control Sample RQ1211095-02			Duplicate Lab Control Sample RQ1211095-03			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
4,4'-DDD	0.204	0.200	102	0.190	0.200	95	53 - 143	7	30
4,4'-DDE	0.192	0.200	96	0.186	0.200	93	39 - 144	3	30
4,4'-DDT	0.201	0.200	101	0.189	0.200	94	46 - 137	6	30
Aldrin	0.181	0.200	90	0.184	0.200	92	15 - 148	2	30
Dieldrin	0.198	0.200	99	0.199	0.200	99	55 - 141	<1	30
Endosulfan I	0.192	0.200	96	0.196	0.200	98	52 - 142	2	30
Endosulfan II	0.200	0.200	100	0.197	0.200	98	56 - 147	1	30
Endosulfan Sulfate	0.209	0.200	105	0.200	0.200	100	44 - 146	5	30
Endrin	0.222	0.200	111	0.217	0.200	109	53 - 144	2	30
Endrin Aldehyde	0.156	0.200	78	0.127	0.200	63	10 - 166	21	30
Endrin Ketone	0.204	0.200	102	0.197	0.200	99	54 - 143	3	30
Heptachlor	0.190	0.200	95	0.196	0.200	98	28 - 151	3	30
Heptachlor Epoxide	0.192	0.200	96	0.196	0.200	98	57 - 128	2	30
Methoxychlor	0.229	0.200	115	0.210	0.200	105	50 - 142	9	30
alpha-BHC	0.195	0.200	97	0.200	0.200	100	40 - 147	2	30
alpha-Chlordane	0.191	0.200	96	0.195	0.200	97	46 - 137	2	30
beta-BHC	0.192	0.200	96	0.197	0.200	99	49 - 136	3	30
delta-BHC	0.204	0.200	102	0.203	0.200	102	32 - 147	<1	30
gamma-BHC (Lindane)	0.196	0.200	98	0.201	0.200	101	44 - 142	3	30
gamma-Chlordane	0.189	0.200	94	0.192	0.200	96	46 - 138	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Now part of the ALS Group

QA/QC Report

Client: Frontier Technical Associates
Project: Plant U/Brine ET-1075
Sample Matrix: Water

Service Request: R1206342
Date Analyzed: 9/25/12

**Lab Control Sample Summary
 Polychlorinated Biphenyls (PCBs) by GC**

Analytical Method: 8082A
Prep Method: EPA 3510C

Units: µg/L
Basis: NA

Extraction Lot: 167437

Analyte Name	Lab Control Sample RQ1211095-02			Duplicate Lab Control Sample RQ1211095-03			% Rec Limits	RPD	RPD Limit
	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
Aroclor 1260	4.46	5.00	89	5.05	5.00	101	45 - 134	12	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 3579

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name PLANT - U (BRINE)		Project Number ET-1075		ANALYSIS REQUESTED (Include Method Number and Container Preservative)	
Project Manager KATHY WAGER		Report CC		PRESERVATIVE 1	
Company/Address FRONTIER TECHNICAL ASSOCIATES, INC. 8675 MAIN ST WILLIAMSVILLE, NY 14021		DATE 9/20/12		METALS TOTAL (List in comments below) 882	
Phone 716-634-2293		SAMPLING TIME BRINE 15		METALS DISSOLVED (List in comments below) PHENOL	
Sampler's Signature <i>[Signature]</i>		DATE 9/20/12		PCBs 882	
FOR OFFICE USE ONLY LAB ID		DATE 9/20/12		PESTICIDES 882	
CLIENT SAMPLE ID BRINE WEL		DATE 9/20/12		GC VOAS 8270 + 825	
MATRIX BRINE 15		DATE 9/20/12		GCMS SVOAS 8280 + 824 + CLP	
SPECIAL INSTRUCTIONS/COMMENTS Metals = P.P METALS, Hg		DATE 9/20/12		GCMS VOAS 8280 + 824 + CLP	
FULL TRUBHY POLLUTANT LIST, TOC, TOX, PH, COND, VOA, SVOA, PESTICIDES, CN+ PHENOLS		DATE 9/20/12		METALS TOTAL (List in comments below) 882	
		DATE 9/20/12		METALS DISSOLVED (List in comments below) PHENOL	
RECEIVED BY <i>[Signature]</i>		RECEIVED BY <i>[Signature]</i>		REPORT REQUIREMENTS I. Results Only II. Results + CC Summaries (LOS, DUP, MSA/MSD as required) III. Results + CC and Calibration Summaries IV. Data Validation Report with Plant U	
RELINQUISHED BY <i>[Signature]</i>		RELINQUISHED BY <i>[Signature]</i>		TURNAROUND REQUIREMENTS RUSH (SURCHARGES APPLY) 1 day 2 day 3 day 4 day 5 day	
STATE WHERE SAMPLES WERE COLLECTED		STATE WHERE SAMPLES WERE COLLECTED		INVOICE INFORMATION PO # BILL TO: R1206342 Frontier Technical Associates Plant U	
Signature <i>[Signature]</i>		Signature <i>[Signature]</i>		Scale Yes No RELINQUISHED BY	
Printed Name ET BENSON		Printed Name WATER		Firm FRONTIER TECHNICAL ASSOCIATES	
Date 9/20/12		Date 9/20/12		Date/Time	



Cooler Receipt and Preservation Check Form

Project/Client Forties Folder Number R12-6342

Cooler received on 9/20/12 by: AD COURIER: ALS UPS FEDEX VELOCITY CLIENT

- 1. Were custody seals on outside of cooler? YES NO
- 2. Were custody papers properly filled out (ink, signed, etc.)? YES NO
- 3. Did all bottles arrive in good condition (unbroken)? YES NO
- 4. Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles? YES NO N/A (2 vials) *Brink*
- 5. Were Ice or Ice packs present? YES NO
- 6. Where did the bottles originate? ALS/ROC, CLIENT
- 7. Temperature of cooler(s) upon receipt: 3.7° 3.6°

Is the temperature within 0° - 6° C?: Yes Yes Yes Yes Yes

If No, Explain Below No No No No No

Date/Time Temperatures Taken: 9/20/12 1509

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/icé condition & Client Approval to Run Samples:

All Samples held in storage location R-002 by AD on 9/20/12 at 1512
5035 samples placed in storage location by on at

PC Secondary Review: [Signature]

Cooler Breakdown: Date: 9/20/12 Time: 1839 by: AD

- 1. Were all bottle labels complete (i.e. analysis, preservation, etc.)? YES NO
- 2. Did all bottle labels and tags agree with custody papers? YES NO
- 3. Were correct containers used for the tests indicated? YES NO
- 4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	YES NO		Lot Received [±]	Exp	Sample ID	Vol. Added	Lot Added	Final pH
		YES	NO						
≥12	NaOH		<input checked="" type="checkbox"/>	WC12041A	6/13	001	2 vials	WC12041A	≤12
≤2	HNO ₃	<input checked="" type="checkbox"/>		BDB26122A	8/13				
≤2	H ₂ SO ₄	<input checked="" type="checkbox"/>		WC112071A	7/13				
<4	NaHSO ₄								
Residual Chlorine (-)	For TCN Phenol and 522	<input checked="" type="checkbox"/>		If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	Na ₂ S ₂ O ₃	-	-						
	Zn Aceta	-	-						
	HCl	-	-	411100	7/13				

Yes = All samples OK

No = Samples were preserved at lab as listed

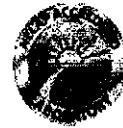
PM OK to Adjust:

*Not to be tested before analysis - pH tested and recorded by VOAs or GenChem on a separate worksheet

Bottle lot numbers: 2-143-002, 2-143-002, BDB26122A, 04R17-14, 082012-244, 331637, 062510-12
Other Comments:

PC Secondary Review: [Signature]
H:\SMODOCS\Cooler Receipt 5.doc

*significant air bubbles: VOA > 5-6 mm : WC -1 in. diameter



34 Dogwood Lane ■ Middletown, PA 17057 ■ Phone: 717-944-5541 ■ Fax: 717-944-1430 ■ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

October 5, 2012

Ms. Deb Patton
ALS Environmental-Rochester NY
1565 Jefferson Road, Bldg. 300
Suite 360
Rochester, NY 14623

Certificate of Analysis

Project Name: TOX - 9020	Workorder: 9990187
Purchase Order:	Workorder ID: R1206342-001

Dear Ms. Patton,

Enclosed are the analytical results for samples received by the laboratory on Wednesday, September 26, 2012.

The ALS Environmental laboratory in Middletown, Pennsylvania (formerly Analytical Laboratory Services, Inc.) is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Denise Brooks (Project Coordinator) or Anna G Milliken (Technical Manager) at (717) 944-5541.

Please visit us at www.analyticallab.com for a listing of ALS' NELAP accreditations and Scope of Work, as well as other links to Water Quality documentation on the internet.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Anna G Milliken
Anna G Milliken
Technical Manager

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SAMPLE SUMMARY

Workorder: 9990187 R1206342-001

Discard Date: 10/19/2012

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
9990187001	R1206342-001	Water	9/20/12 10:25	9/26/12 10:30	Customer

Workorder Comments:

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.

Standard Acronyms/Flags

- J, B Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
- U Indicates that the analyte was Not Detected (ND)
- N Indicates presumptive evidence of the presence of a compound
- MDL Method Detection Limit
- PQL Practical Quantitation Limit
- RDL Reporting Detection Limit
- ND Not Detected - indicates that the analyte was Not Detected at the RDL
- Cntr Analysis was performed using this container
- RegLmt Regulatory Limit
- LCS Laboratory Control Sample
- MS Matrix Spike
- MSD Matrix Spike Duplicate
- DUP Sample Duplicate
- %Rec Percent Recovery
- RPD Relative Percent Difference

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ANALYTICAL RESULTS

Workorder: 9990187 R1206342-001

Lab ID: 9990187001

Date Collected: 9/20/2012 10:25

Matrix: Water

Sample ID: R1206342-001

Date Received: 9/26/2012 10:30

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
WET CHEMISTRY									
Halogen, Total Organic (TOX)	2810		ug/L	1000	SW846 9020B		10/3/12 14:44	PAG	A

Sample Comments:

Anna G Milliken
Anna G Milliken
Technical Manager

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QUALITY CONTROL DATA

Workorder: 9990187 R1206342-001

QC Batch: WETC/116483 Analysis Method: SW846 9020B
 QC Batch Method: SW846 9020B
 Associated Lab Samples: 9990183001 9990187001

METHOD BLANK: 1042728

Parameter	Result	Qualifiers	Units	Reporting Limit
Halogen, Total Organic (TOX)	ND		ug/L	10.0

METHOD BLANK: 1042729

Parameter	Result	Qualifiers	Units	Reporting Limit
Halogen, Total Organic (TOX)	ND		ug/L	10.0

MATRIX SPIKE SAMPLE: 1042994

Original: 9990183001

***NOTE: The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Qualifiers	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limits
Halogen, Total Organic (TOX)	3.1		ug/L	500	534	106	80-120

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 9990187 R1206342-001

Lab ID	Sample ID	Prep Batch Method	Prep Batch	Analytical Method	Analytical Batch
9990187001	R1206342-001			SW846 9020B	WETC/116483

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New York State Department of Environmental Conservation

Division of Materials Management

Bureau of Waste Reduction & Recycling, 9th Floor

625 Broadway, Albany, New York 12233-7253

Phone: (518) 402-8706 • Fax: (518) 402-9024

Website: www.dec.ny.gov



Joe Martens
Commissioner

OCT 03 2013

Mr. Tim Hull
VP Appalachian Division
Empire Energy E&P, LLC
P.O. Box 187
100 East Chautauqua St.
Mayville, NY 14757

Dear Mr. Hull:

RE: Brine Bud # **B066-13** - Dust Control/Road Stabilization

We have reviewed the information submitted in your September 16, 2013 request for the proposed beneficial use of brine from Medina formation wells as described in your submittal as part of your dust control and road stabilization systems for the Town of Ripley, NY. This use is approved pursuant to 6 NYCRR 360-1.15(d) and in accordance with the following:


- Fracture fluids obtained during well flowback operations may not be spread on roads. Brine from Marcellus formation wells may not be used and the brine source is limited to the Medina formation wells as described.
- Dust control activities must be conducted in accordance with procedures described in your BUD petition. No brine can be applied after daylight hours or used within 50 feet of any stream, creek, lake or other body of water or in a manner that cause brine to flow or run off into streams, creeks, lakes and other bodies of water. Brine may not be applied on wet roads, during rain, or when rain is imminent.

Brine is approved for road spreading use on all non-paved roads in the Town of Ripley. Brine may be applied a maximum of 10 times on any section of roadway during a season. Please contact this office should the need arise to increase the application frequency or add additional roads. In addition, a brine sample may be required in order to update the chemical analysis on file. Staff will be in contact for a convenient date and time.

You must keep a copy of this letter and the Part 364 permit (if required) in all vehicles transporting or spreading brine. The New York State Department of Environmental Conservation reserves the right to rescind or modify this determination at any time, should conditions warrant. This determination does not exempt this activity from any other local, state, or federal requirements.

Please contact Stephen Condon at (518) 402-8706 if you have any questions or need any additional information.

Sincerely,

A handwritten signature in black ink that reads "Sally Rowland". The signature is written in a cursive style with a large, looped initial "S".

Sally Rowland, Ph.D., P.E.

Chief

Organic Recycling & Beneficial Use Section
Bureau of Waste Reduction & Recycling
Division of Materials Management

bcc: P. Leonardo/P. Pettit/S. Rowland/S. Condon
SC:sb
H:\Condon\Brine_Letter_Empire_Ripley.docx



EMPIRE ENERGY E&P, LLC

Regional Office
100 East Chautauqua Street
Box 187
Mayville, NY 14757
T: 716 753 3385
F: 716 753 3394

September 12, 2013

Corporate Headquarters
380 Southpointe Blvd.
Suite 130
Canonsburg, PA 15317
T: 724 483 2070
F: 724 483 2270

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials
Bureau of Solid Waste, Reduction and Recycling, 9th Floor
Attn: Mr. Stephen Condon
625 Broadway
Albany, New York 12233-7253

RECEIVED
NYSDEC

SEP 16 2013

Dear Mr. Stephen Condon,

DIRECTOR'S OFFICE
DIV. OF MATERIALS MANAGEMENT

Enclosed you will find, paperwork from Empire regarding to file for a BUD petition.

- Copy of Empire's Waste Transporter Permit No. 9-A-816
- Operating Requirements
- Request For Brine To Be Spread On Roads from Town of Ripley with a copy of their map.
- Certificate of Analysis
- Certificate of Liability
- Certificate of NYS Workers' Compensation Insurance Coverage
- Insurance Identification Cards for Empire's 2009 MACK, and 1989 MACK water trucks that will be used for the spreading of brine.

If there is anything you need, or questions you may have, please give me a call at the Mayville office at (716) 753-3385.

Thank you!

Sincerely,

Tim Hull – VP Appalachian Division
Empire Energy E & P, LLC

Enclosure

Stephen Condon - RE: brine BUD request/Empire energy/(T) Ripley

From: "Tim Hull" <thull@empireenergyusa.com>
To: "Stephen Condon" <sccondon@gw.dec.state.ny.us>
Date: 9/30/2013 10:30 AM
Subject: RE: brine BUD request/Empire energy/(T) Ripley

Stephen,

Sorry for the delay in returning your email. The brine sample was taken from the Leamer #210 well 31-013-10597. It produces from the Medina formation. The brine that will be used on the Town of Ripley roads will be from the Leamer and surrounding wells.

Thank you,

Tim Hull
Empire Energy E&P, LLC
P.O. Box 187
100 East Chautauqua Street
Mayville, NY 14757
716-753-3385 office
716-450-4341 cell

From: Stephen Condon [mailto:sccondon@gw.dec.state.ny.us]
Sent: Monday, September 16, 2013 3:10 PM
To: thull@empireenergyusa.com
Subject: brine BUD request/Empire energy/(T) Ripley

I've received your brine application package. Could you tell me the source of the brine that will be used, including the formation(s). Also, could you tell me the source of the sample?

thanks
Steve

Stephen Condon
Bureau of Waste Reduction & Recycling

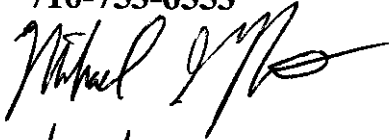
Operating Requirements

1. The application of brine to unpaved roads must be performed in accordance with the approved plan.
2. The brine may only be applied at a rate and frequency necessary to suppress dust and stabilize the road. The rate and frequency of application must be controlled to prevent the brine from flowing or running off into roadside ditches, streams, creeks, lakes, and other bodies of water or infiltrating to groundwater.
3. Recommended spreading rates: The road should initially be spread at a rate of up to one-half gallon per square yard (typically after the road has been graded). The road should subsequently be spread at a rate of up to one-third gallon per square yard no more than once per month unless based on weather conditions, traffic volume or brine characteristics-a greater frequency is needed to control dust and stabilize the road.
4. 1989 MACK, and 2009 MACK is dedicated to moving brine.
5. Brine must not be applied within 50 feet of a stream, creek, lake or other body of water.
6. Brine must be spread by use of a spreader bar with shut-off controls in the cab of the truck.
7. Brine must not be placed on sections of road having a grade exceeding 10 percent.
8. Brine must not be spread on wet roads, during rain, or when rain is imminent.
9. Brine must be only spread during daylight hours
10. Each vehicle used to spread brine shall have a clearly legible sign identifying the applicator on both sides of the vehicle.

Request For Brine To Be Spread On Roads

The Town Of Ripley would like to have brine spread on our dirt roads. I have included a map of the roads we would like to have brine spread on them. We have many dirt roads that have a lot of houses on them and have received a lot of calls this year about dust problem. The company that used to spread brine on these roads is no longer in business. Empire Energy is the new company that we have to spread brine on these roads.

Michael L Knight
Town Of Ripley
Highway Superintendent
ripleyhs@fairpoint.net
716-753-6553



9/12/13

Microbac Laboratories, Inc.

Erie Division

1962 Wager Road • Erie, PA 16509 • Phone: 814-825-8533 • Fax: 814-825-9254

Larry Lewis, Managing Director • E-mail: erie@microbac.com •

CERTIFICATE OF ANALYSIS

Work Order Number:

13H1560

Empire Energy
Attn: Brian Smith
PO Box 187
Mayville, NY 14757

Date Reported 08/21/2013
Date Received 08/02/2013
Account Number 000000012144



Purchase Order:

Subject: Brine Testing

SMP	TEST	METHOD	RESULT	UNITS	ANALYSIS			NOTES
					DATE	TIME	TECH	
01	Brine							
	Sample Date: 08/02/2013							
				Sample Time: 11:00				
	Chloride	EPA 300.0, Rv. 2.1	194000	mg/L	08/05/13	21:21	CP3	
	Oil & Grease	EPA 1664A	<5.3	mg/L	08/07/13	08:00	DJS	
	pH	SM4500-H+ B	5.7	Units	08/02/13	17:15	MAD	Y
	Total Dissolved Solids - TDS	SM2540 C-1997	332000	mg/L	08/06/13	13:20	CMF	
	Sulfate	SM4500-SO4 D	326	mg/L	08/06/13	10:00	CMF	
	Barium	EPA 200.7, Rv. 4.4	1.98	mg/L	08/07/13	14:10	MWR	
	Calcium	EPA 200.7, Rv. 4.4	34000	mg/L	08/13/13	14:16	MWR	
	Iron	EPA 200.7, Rv. 4.4	290	mg/L	08/13/13	14:16	MWR	
	Lead	EPA 200.7, Rv. 4.4	<0.100	mg/L	08/07/13	14:10	MWR	
	Magnesium	EPA 200.7, Rv. 4.4	3220	mg/L	08/13/13	14:16	MWR	
	Sodium	EPA 200.7, Rv. 4.4	73300	mg/L	08/13/13	14:16	MWR	
Analysis Performed By: Microbac Laboratories, Inc. - Ohio Valley								
	Benzene	SW8260B	2.24	ug/L	08/10/13	01:18	FJB	
	Ethylbenzene	SW8260B	<0.250	ug/L	08/10/13	01:18	FJB	U
	m,p-Xylene	SW8260B	0.555	ug/L	08/10/13	01:18	FJB	J
	o-Xylene	SW8260B	0.371	ug/L	08/10/13	01:18	FJB	J
	Toluene	SW8260B	1.38	ug/L	08/10/13	01:18	FJB	
	1,2-Dichloroethane-d4	SW8260B	26.8	ug/L	08/10/13	01:18	FJB	
	4-Bromofluorobenzene	SW8260B	27.3	ug/L	08/10/13	01:18	FJB	
	Dibromofluoromethane	SW8260B	22.1	ug/L	08/10/13	01:18	FJB	
	Toluene-d8	SW8260B	21.1	ug/L	08/10/13	01:18	FJB	*

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AIHA accredited for Environmental Lead. Visit our website to view our current AIHA LAP, LLC accreditation.





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Empire Energy
Attn: Brian Smith
PO Box 187
Mayville, NY 14757

Date Reported 08/21/2013
Date Received 08/02/2013
Account Number 000000012144



Purchase Order:

Subject: Brine Testing

SMP	TEST	METHOD	RESULT	UNITS	ANALYSIS			NOTES
					DATE	TIME	TECH	

All samples received in proper condition and results conform to ISO 17025 unless otherwise noted
Sample(s) were collected by Microbac personnel in accordance with the respective Microbac/Erie Sampling SOP for the Matrix

Project Requested Certification(s):

Certificate ID	Agency
10121	New York State Department of Health

Sub-Contract Laboratories:

Microbac Ohio Valley's NELAC Identification Number: # 68-01670

Notes and Definitions

- Y This analyte is not on the the laboratory's current Scope of Accreditation.
- U Not detected at or above adjusted sample detection limit
- J The analyte was positively identified, but the quantitation was below the RL
- * Surrogate or spike compound out of range

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Erie Division

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Larry Lewis, Managing Director • E-mail: erie@microbac.com •

CERTIFICATE OF ANALYSIS

Work Order Number:

13H1560

Empire Energy
Attn: Brian Smith
PO Box 187
Mayville, NY 14757

Date Reported 08/21/2013
Date Received 08/02/2013
Account Number 00000012144



Purchase Order:

Subject: Brine Testing

Table with columns: SMP, TEST, METHOD, RESULT, UNITS, ANALYSIS (DATE, TIME, TECH), NOTES. Includes abbreviations for MG/KG, UG/L, ND, TIC, and "<".

An E associated with Microbiology values designates that the result obtained was outside of the method specified counting range. Estimated counts are valid, but must be notated as such per regulation.

Reviewed and Approved By:

Date Reviewed and Approved:

Handwritten signature: Cheri A. Estes

08/21/2013

Cheri Estes
Client Services Manager, Microbac Laboratories, Inc. - Erie
Report released by Cheri Estes

Any questions regarding this report, please contact your account manager.

As Regulatory limits frequently change, Microbac Laboratories, Inc. advises the recipient of this report to confirm such limits with the appropriate Federal, state or local authorities before acting on the data provided.

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1982 Waiper Road
 Erie, PA 16509
 Phone: (814)825-8533 Fax: (814)825-9254
 PA#: 25-00067 NY#: 10121
 Form GC270, VA, 3/11/13

Microbac®



13H1560

Logged by Carolyn Cocco
 08/02/2013 15:07

Client Information

Name: Empire Energy

Address: 100 East Chautauque St

Moynihan NY 14757

Contact: Tim HOLL

Phone: 716-753-3385

Project:

PO#:

Billing/Invoice:

Compliance Monitoring: YES NO State:

Annual Quarterly Monthly PWSID#:

Monitoring Period: to

Rush TAT Bur. Days: 2-5 5-7 7-10 Date Req.:

Email Results: Yes

Fax Results: Yes

See Attached

Sample Information					Matrix		Number of Containers for Analysis Requested		Comments/Field Data	
Description/Location	Date	Time	Initial	Type	Grab/	Comp				
1 <u>Brine</u>	<u>8-2-17</u>	<u>11:00</u>	<u>JM</u>							
2										
3										
4										
5										
6										

Print Name and Company: Joh McManon Signature: _____ Date/Time: _____

Relinquished: _____

Received: Carolyn 2102 8/2/13 @ 1330

Received: _____

Microbac®

TOWN OF RIPLEY

CHAUT COUNTY, NEW YORK

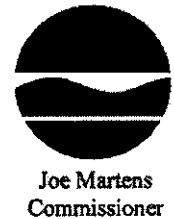
1 PARK AVE.
RIPLEY, N.Y. 14775

TELEPHONE: (716) 736-2201

Roads to Be Brined



New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Waste Reduction & Recycling, 9th Floor
625 Broadway, Albany, New York 12233-7253
Phone: (518) 402-8706 • Fax: (518) 402-9024
Website: www.dec.ny.gov



AUG 07 2013

Mr. Lee E. Tarr
President
Lee's Water Hauling Inc.
6649 Moore Road
Mayville, NY 14757

Dear Mr. Tarr:

Re: Brine Bud # **B065-13** - Dust Control/Road Stabilization

We have reviewed the information submitted in your July 24, 2013 request for the proposed beneficial use of brine collected from various producers as listed in your application. We understand that all producers' wells are in the Bass Island or Medina formations and are located in Chautauqua and Cattaraugus Counties only. This use is approved pursuant to 6 NYCRR 360-1.15(d) and in accordance with the following:

- Fracture fluids obtained during well flowback operations may not be spread on roads. Brine from Marcellus formation wells may not be used without additional analysis.
- Dust control activities must be conducted in accordance with procedures described in your BUD petition. No brine can be applied after daylight hours or used within 50 feet of any stream, creek, lake or other body of water or in a manner that may cause brine to flow or run off into streams, creeks, lakes and other bodies of water. Brine may not be applied on wet roads, during rain, or when rain is imminent.

Brine is approved for dust control, road stabilization use by road spreading on the following non-paved Town roads only.

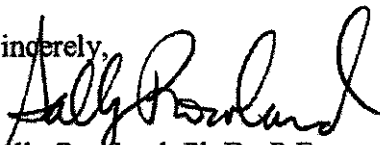
(T) North Harmony	Chautauqua County
(T) Harmony	Chautauqua County
(T) Stockton	Chautauqua County
(T) Ellery	Chautauqua County

Brine may be applied a maximum of 30 times on any section of roadway during a season, including any applications made by the Towns. Please contact this office should the need arise to increase the application frequency or add additional roads. In addition, a brine sample may be required in order to update the chemical analysis on file. Staff will be in contact for a convenient date and time.

You must keep a copy of this letter and the Part 364 permit (if required) in all vehicles transporting or spreading brine. The New York State Department of Environmental Conservation reserves the right to rescind or modify this determination at any time, should conditions warrant. This determination does not exempt this activity from any other local, state, or federal requirements.

Please contact Stephen Condon at (518) 402-8706 if you have any questions or need any additional information.

Sincerely,



Sally Rowland, Ph.D., P.E.
Organic Recycling & Beneficial Use Section
Bureau of Waste Reduction & Recycling
Division of Materials Management

cc: D. Weiss, Reg. 9

bcc: P. Leonardo/P. Pettit
S. Rowland/S. Condon
SC:sb
H:\Condon\Brine_Letter_LeeTarr2013.docx

LEE'S WATER HAULING INC
6649 MOORE ROAD
MAYVILLE, NY 14757
716-269-9279
FAX 716-269-3841

July 24, 2013

Mr. Steven Condon
NYSDEC
9th Floor, 625 Broadway
Albany, NY 12233-7253

Dear Mr. Condon,

I am seeking approval to spread brine water in the townships and business property locations in NYS.

I have a 1993 Peterbuilt truck with a 4200 gallon water tank and 8' spreader bar, with electric valve controlled in the cab and a 3" manual valve for backup control. The spreading rate will cover approximately two miles of dirt road.

The maps and authorization letters will be supplied to you by the Townships and business property owners.

Thank you,



Lee E. Tarr, President
Lee's Water Hauling Inc.



Microbac Laboratories, Inc.

Erie Division

1962 Wager Road - Erie, PA 16509 • Phone: 814-825-8533 • Fax: 814-825-9254

Cheri Estes, Managing Director • E-mail: eric@microbac.com • http://www.microbac.com

GERTIFICATE OF ANALYSIS

Work Order Number:

12B1972

Atlas Energy Resources
 Attn: Brian Klink
 3500 Massillon Road
 Union Town, OH 44685

Date Reported 03/05/2012
 Date Received 02/20/2012
 Account Number 00000001368



Purchase Order:

Subject: Drum Sampling and Analysis

ANALYSIS

SMP	TEST	METHOD	RESULT	UNITS	DATE	TIME	TECH	NOTES
01 Brine Sample for Dorast #2								
Sample Date: 02/17/2012								
	Calcium Chloride	Calculation	7.72	% by Weight	02/21/12	10:11	MWR	
	Calcium Chloride	Calculation	0.774	lbs/gal	02/21/12	10:11	MWR	
	Chloride	ASTM D512-89A	175000	mg/L	03/01/12	14:00	CMF	
	Chlorides, total	Calculation	24.4	% by Weight	02/21/12	10:11	MWR	
	Chlorides, total	Calculation	2.45	lbs/gal	02/21/12	10:11	MWR	
	Magnesium Chloride	Calculation	0.950	% by Weight	02/21/12	10:11	MWR	
	Magnesium Chloride	Calculation	0.0990	lbs/gal	02/21/12	10:11	MWR	
	Potassium Chloride	Calculation	0.220	% by Weight	02/21/12	10:11	MWR	
	Potassium Chloride	Calculation	0.0220	lbs/gal	02/21/12	10:11	MWR	
	Sodium Chloride	Calculation	15.51	% by Weight	02/21/12	10:11	MWR	
	Sodium Chloride	Calculation	1.554	lbs/gal	02/21/12	10:11	MWR	
	Specific Gravity	ASTM D1429	1.20		02/21/12	10:11	MWR	
	Weight of One Gallon of Brine	Calculation	10.02	lbs/gal	02/21/12	10:11	MWR	
	Calcium	EPA 200.7	33500	mg/L	02/21/12	10:11	MWR	
	Magnesium	EPA 200.7	3040	mg/L	02/21/12	10:11	MWR	
	Potassium	EPA 200.7	1370	mg/L	02/21/12	10:11	MWR	
	Sodium	EPA 200.7	73500	mg/L	02/21/12	10:11	MWR	
02 Brine Sample for Morton #1B								
Sample Date: 02/17/2012								
	Calcium Chloride	Calculation	9.51	% by Weight	02/21/12	10:11	MWR	
	Calcium Chloride	Calculation	0.961	lbs/gal	02/21/12	10:11	MWR	
	Chloride	ASTM D512-89A	173000	mg/L	03/01/12	14:00	CMF	
	Chlorides, total	Calculation	24.3	% by Weight	02/21/12	10:11	MWR	
	Chlorides, total	Calculation	2.46	lbs/gal	02/21/12	10:11	MWR	

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 USDA-CFA-NRCH Testing Food Service Consulting Chemical and Microbiological Analysis and Research

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ADNA Accredited for Environmental Lead. Visit our website to view our current ADNA LAP/LLC accreditation.





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Erie Division

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Cheri Estes, Managing Director • E-mail: erie@microbac.com • http://www.microbac.com

CERTIFICATE OF ANALYSIS

Work Order Number:

12B1972

Atlas Energy Resources
 Attn: Brian Klink
 3500 Massillon Road
 Union Town, OH 44685

Date Reported 03/05/2012
 Date Received 02/20/2012
 Account Number 000000001368



Purchase Order:

Subject: Drum Sampling and Analysis

SMP	TEST	METHOD	RESULT	UNITS	ANALYSIS		
					DATE	TIME	TECH
			NOTES				
02 Brine Sample for Morton #1E			...continued				
Sample Date: 02/17/2012							
	Magnesium Chloride	Calculation	2.62 % by Weight		02/21/12	10:11	MWR
	Magnesium Chloride	Calculation	0.265 lbs/gal		02/21/12	10:11	MWR
	Potassium Chloride	Calculation	0.600 % by Weight		02/21/12	10:11	MWR
	Potassium Chloride	Calculation	0.0600 lbs/gal		02/21/12	10:11	MWR
	Sodium Chloride	Calculation	11.57 % by Weight		02/21/12	10:11	MWR
	Sodium Chloride	Calculation	1.169 lbs/gal		02/21/12	10:11	MWR
	Specific Gravity	ASTM D1429	1.21		02/21/12	10:11	MWR
	Weight of One Gallon of Brine	Calculation	10.11 lbs/gal		02/21/12	10:11	MWR
	Calcium	EPA 200.7	41680 mg/L		02/21/12	10:11	MWR
	Magnesium	EPA 200.7	8110 mg/L		02/21/12	10:11	MWR
	Potassium	EPA 200.7	3789 mg/L		02/21/12	10:11	MWR
	Sodium	EPA 200.7	55300 mg/L		02/21/12	10:11	MWR

All samples received in proper condition and results conform to ISO 17025 unless otherwise noted

Some or all of the samples were collected by the customer. The verifiability of the final results are therefore limited by the customer's reported values. Microbac Laboratories, Inc. assumes that all sampling instructions are followed, and the data upon which these final results are based, have been accurately supplied by the client.

Notes and Definitions

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3500 Massillon Road
Union Town, OH 44685

Date Reported 03/05/2012
Date Received 02/20/2012
Account Number 000000001368



Purchase Order:
Subject: Drum Sampling and Analysis

ANALYSIS

SMP TEST METHOD RESULT UNITS DATE TIME TECH NOTES

Reviewed and Approved By:

[Handwritten signature]

Date Reviewed and Approved:

03/05/2012

Jeff Porte For Cheri Estes
Lab Manager, Microbac Laboratories, Inc./Erie Division
Report released by Jeff Porte For Cheri Estes

Any questions regarding this report, please contact your account manager.

As Regulatory limits frequently change, Microbac Laboratories, Inc. advises the recipient of this report to confirm such limits with the appropriate Federal, state or local authorities before acting on the data provided. For feedback concerning our services, please contact the Managing Director, or James Nokes, President, at president@microbac.com.

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July 24, 2013

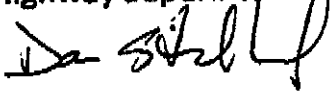
TO: Steve Condon, NYSDEC

FROM: Dan Strickland, Highway Superintendent of North Harmony
Tim Card, Highway Superintendent of Harmony
Aaron Burnett, Highway Superintendent of Stockton
Greg Hallberg, Highway Superintendent of Ellery

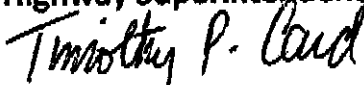
Dear Mr. Condon,

We the undersigned highway superintendents give Lee Tarr permission to spread Brine on the gravel roads highlighted on our maps.

Dan Strickland
Highway Superintendent of North Harmony



Tim Card
Highway Superintendent of Harmony



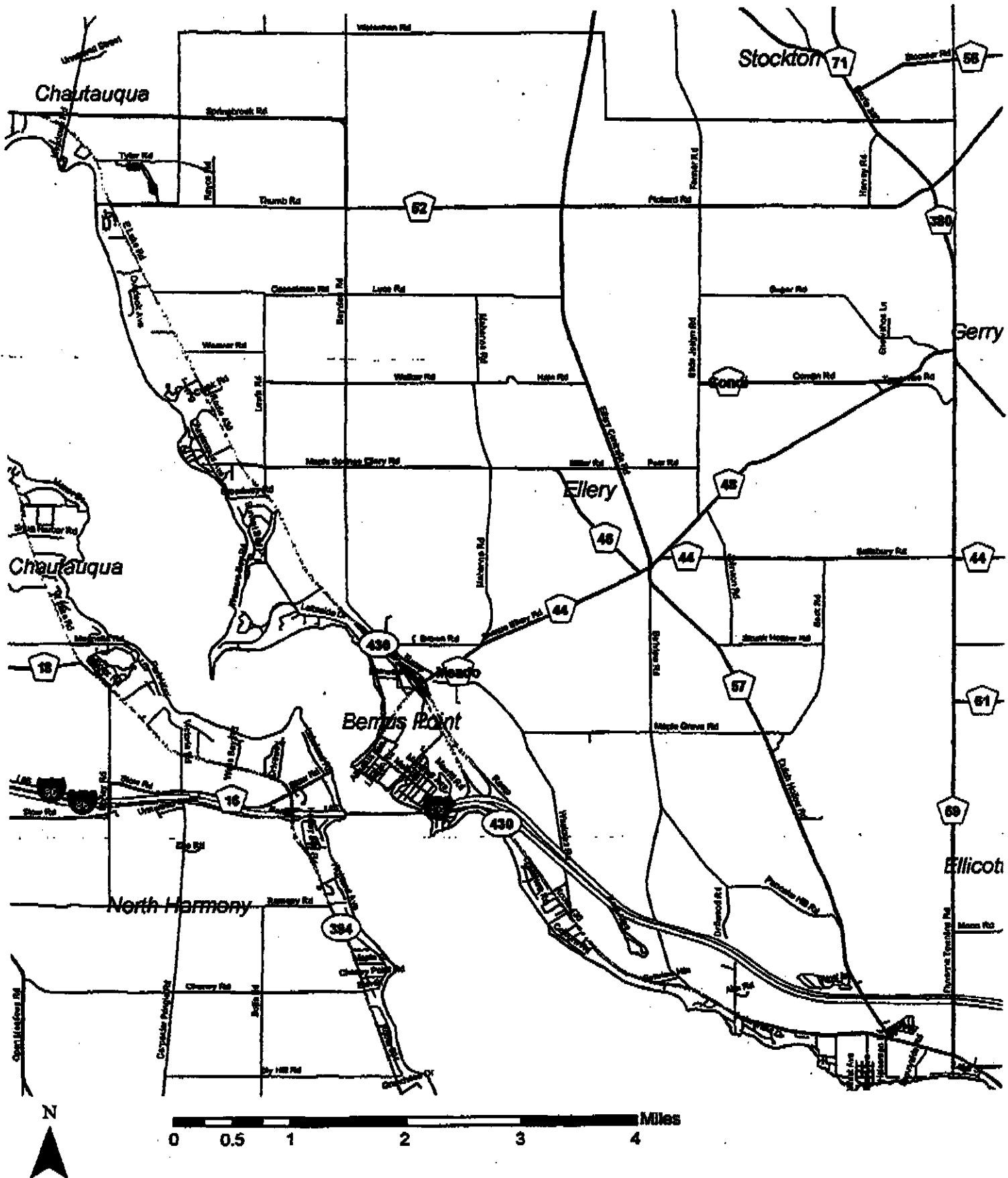
Aaron Burnett
Highway Superintendent of Stockton

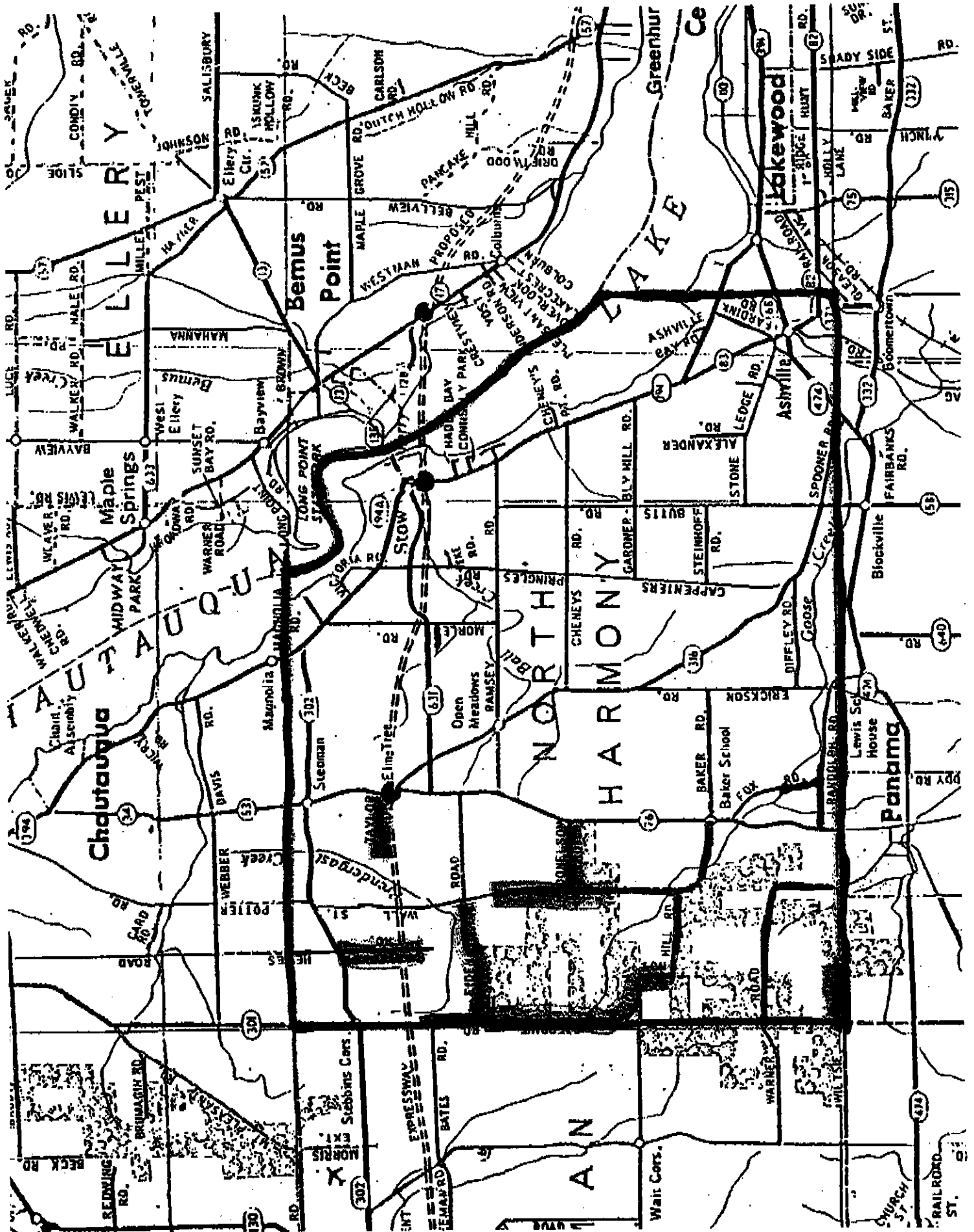


Greg Hallberg
Highway Superintendent of Ellery

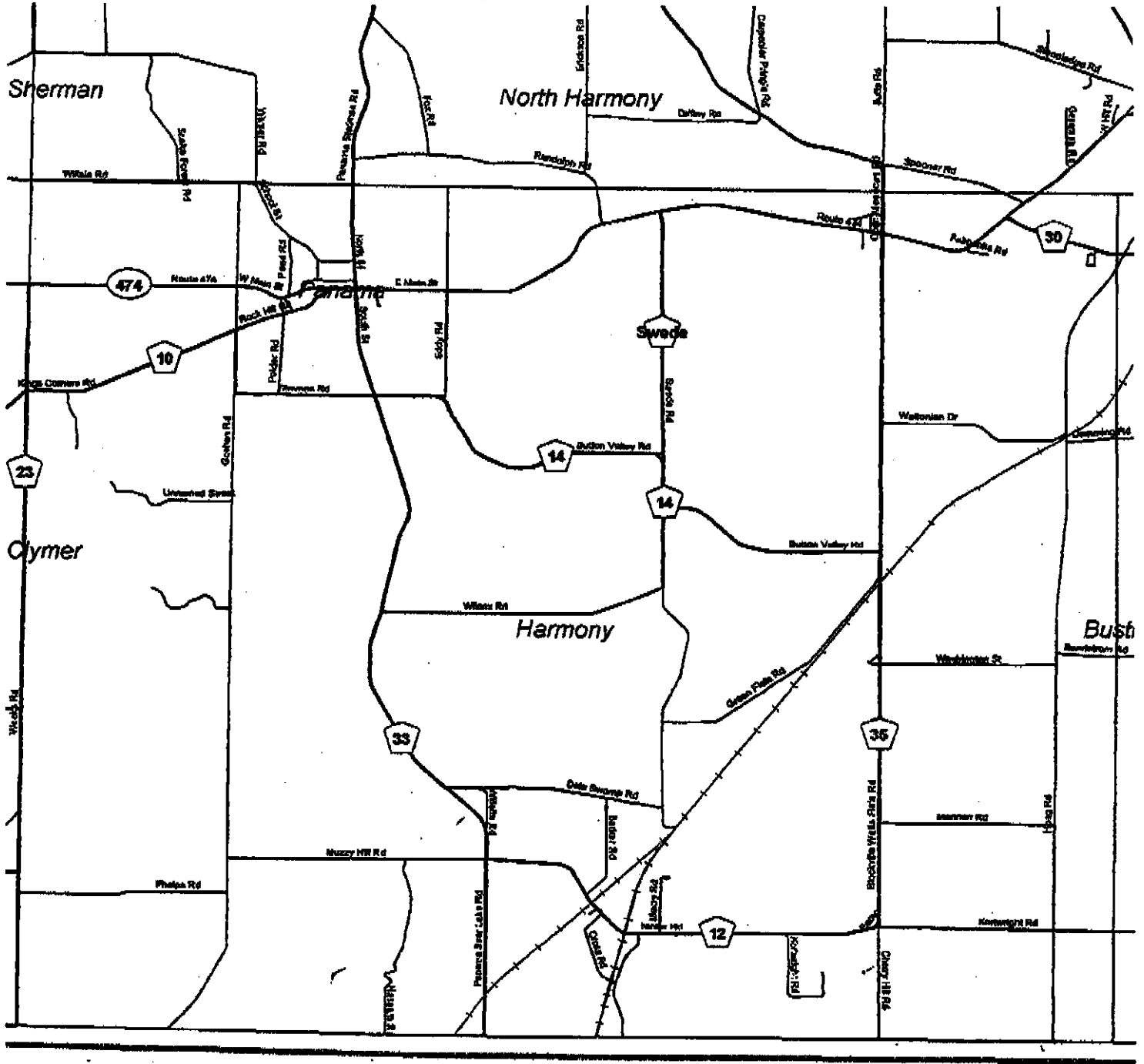


Town of Ellery

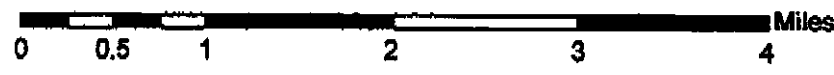


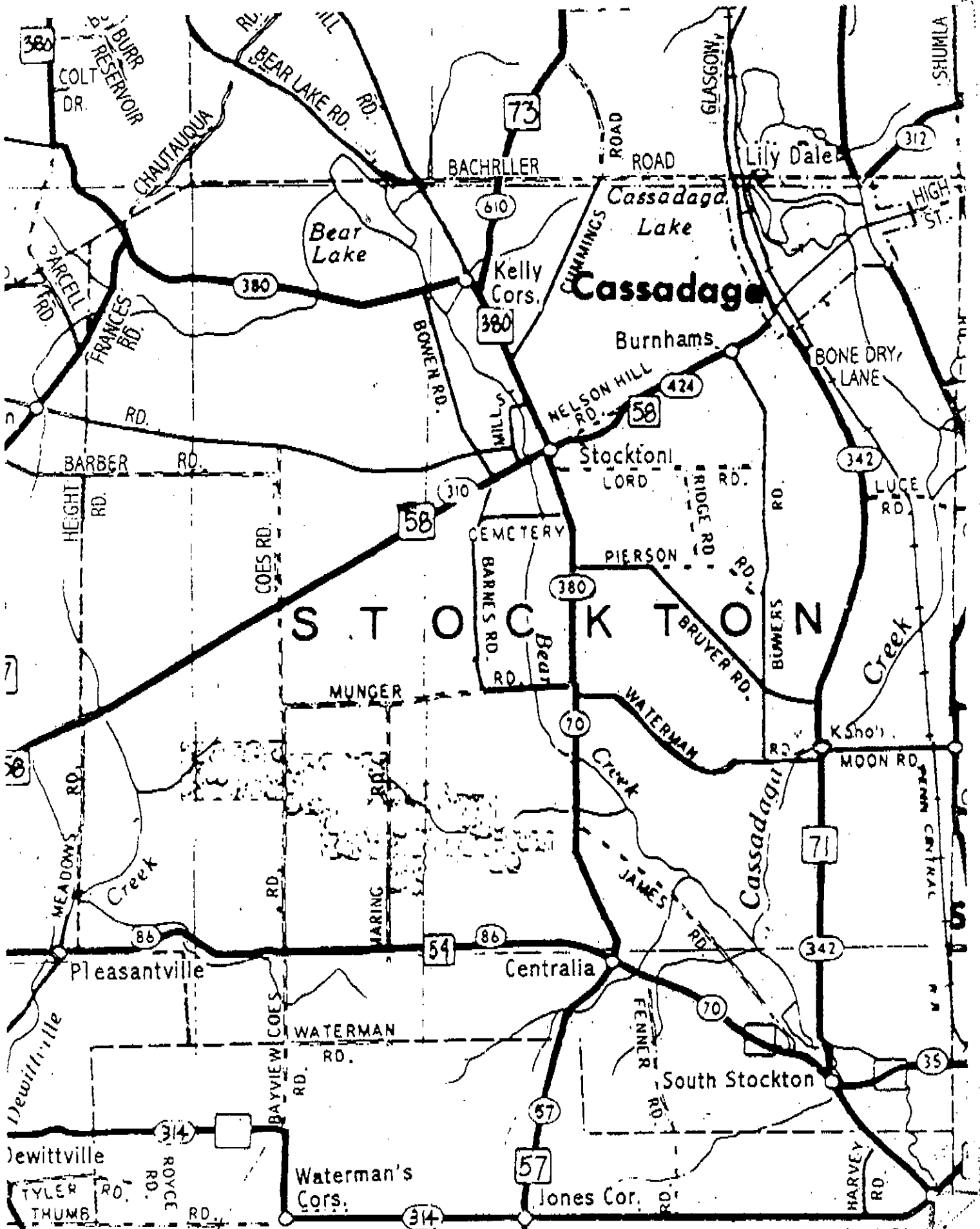


Town of Harmony



= Dirt Roads





TOWN OF NORTH HARMONY

BOX 167
STOW, NEW YORK 14785

(716) 789-2055
FAX: (716) 789-2059



To: Steve London
From: Lee Tarr
Date: 7-25-13
Time: 8:30 A.M.

Steve,
Please fax any more information to Lee's fax number. His phone & fax are on his letter head. Thank you for all your help and let me know if there is anything I can do to help.

Thank you
Dan Still

LEE'S WATER HAULING INC
6649 MOORE ROAD
MAYVILLE, NY 14757
716-269-9279
FAX 716-269-3841

July 24, 2013

Mr. Steven Condon
NYSDEC
9th Floor, 625 Broadway
Albany, NY 12233-7253

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The maps and authorization letters will be supplied to you by the Townships and business property owners.

Thank you,

Lee E. Tarr, President
Lee's Water Hauling Inc.

**LEE'S WATER HAULING INC
6649 MOORE ROAD
MAYVILLE, NY 14757
716-269-9279
FAX 716-269-3841
PERMIT # 9A-861**

July 31, 2013

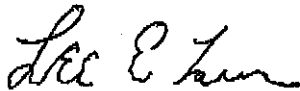
Steve Condon
Fax 716-402-9024

Attached is a list of my customers, which I haul water for. The wells I service are all located in Chautauqua, or Cattaraugus Counties of New York State and are located in the Base Island, and Medina Formation.

If I get new customers, or work in other locations in the future I will send you the additional information.

If you need any more detail, or any other information, please let me know ASAP, so I can continue to work. These delays are a real hardship on a small business.

Sincerely,



Lee E Tarr
President

FAX

**LEES WATER HAULING INC
6649 MOORE ROAD
MAYVILLE, NY 14757
716-269-9279
FAX 716-269-3841**

TO: Steve

FROM: Lee

DATE: 7-31-13

PAGES: 3

COMMENTS: List as requested

518-402-9024

LEES WATER HAULING INC
Customer Contact List

July 31, 2013

Customer	Bill to	Contact	Phone
ARDENT RESOURCES, INC.	ARDENT RESOURCES, INC. BROOKSIDE OFFICE PARK TWO #204 61 MCILURRAY ROAD PITTSBURGH, PA 15241		
ATLAS ENERGY, INC.	ATLAS ENERGY, INC. 126 EAST CHAUTAUKA STREET MAYVILLE, NY 14757-0182	KEN PAPP	716-269-7685
BEAR LAKE ENERGY	BEAR LAKE ENERGY 1442 ROUTE 967 SUGAR GROVE, PA 16380	MARGARET ROGERS	814-489-6679
BELDEN & BLAKE CORP/ENERVEST OPE...	BELDEN & BLAKE CORP/ENERVEST OPERATING 300 CAPITOL STREET SUITE 200 CHARLESTON, WV 25301		304-343-5506 K487121
COPPER RIDGE OIL, INC	COPPER RIDGE OIL, INC PO BOX 628 OLEAN, NY 14780	JIM SCGA	716-872-4021
EASTERN ENERGY GROUP, INC	EASTERN ENERGY GROUP, INC PO BOX 23351 LEXINGTON, KY 40523-3351	TAM HOLL	856-223-2841
EMPIRE ENERGY E&P, LLC	EMPIRE ENERGY E&P, LLC 100 EAST CHAUTAUKA STREET PO BOX 187 MAYVILLE, NY 14757-0187		716-753-3385
ENERVEST OPERATING LLC	ENERVEST OPERATING LLC 22811 TITUSVILLE ROAD PLEASANTVILLE, PA 16941	SCOTT	814-469-5114
ERIE HARD CHROME, INC.	ERIE HARD CHROME, INC. 4570 EAST 12TH STREET ERIE, PA 16565	ROD WEST	814-898-2122
GFS ENERGY, INC.	GFS ENERGY, INC. 2107 STATE ROUTE 44 S. SHINGLENHOUSE, PA 16748	KEITH FAIRBANK	716-792-2000
GOOSE CREEK DRILLING, INC.	GOOSE CREEK DRILLING, INC. 8280 RANDOLPH ROAD HARBOR CREEK, PA 16428	FRANK STEPHAN	814-897-2100
HARBOR CREEK SCHOOL DISTRICT	HARBOR CREEK SCHOOL DISTRICT 1975 BUFFALO ROAD HARBOR CREEK, PA 16428	TODD R. LANDIS, SR.	800-566-7894
1 & S INC OF NY	1 & S INC OF NY PO BOX 380 ALLEGANY, NY 14708-0380	TODD LANDIS	814-734-8896
KASTLE RESOURCES ENTERPRISES, INC.	KASTLE RESOURCES ENTERPRISES, INC. 7032 ROUTE 6N EDINBORO, PA 16612	KARL KIMMICH	814-798-2250
LANDIS WELL TENDING & TRENCHING	LANDIS WELL TENDING & TRENCHING 1692 LINK HILL ROAD WATERFORD, PA 16441		585-344-1200
LENAPE RESOURCES, INC.	LENAPE RESOURCES, INC. 9499 ALEXANDER ROAD ALEXANDER, NY 14005		
LION ENERGY COMPANY LLC	LION ENERGY COMPANY LLC 5638 N MONTGOMERY ROAD GIBSONIA, PA 15044		
MILLCREEK TOWNSHIP SUPERVISORS	MILLCREEK TOWNSHIP SUPERVISORS 3808 WEST 28TH STREET ERIE, PA 16506		
NUCCOMER	NUCCOMER 2901 PALERMO DRIVE SUITE ERIE, PA 16505		
PERLEY OIL & GAS, INC	PERLEY OIL & GAS, INC PO BOX 102 WEST FALLS, NY 14170	MIKE YORK	716-941-1289
RUSSELL A WEISE, JR.	RUSSELL A WEISE, JR. PO BOX 548 SHERMAN, NY 14781-0548		718-791-8255
SENECA COMPRESSION	SENECA COMPRESSION PO BOX 236 YOUNGSVILLE, PA 16371-0288		814-888-0224
SENECA RESOURCE CORP.	SENECA RESOURCE CORP. RD#1 BOX 17A 6860 BUTTER MILK ROAD SOUTH DAYTON, NY 14138		718-868-3388
SLT PRODUCTION LLC	SLT PRODUCTION LLC P.O. BOX 547 SHEFFIELD, PA 16347		814-723-8660
STERMAN ENERGY INC.	STERMAN ENERGY INC. PO BOX 1006 CHAUTAUKA, NY 14722-1006	KEVIN MCCHESNEY	718-729-3018
TEXAS KEYSTONE INC.	TEXAS KEYSTONE INC. ATTN: JAM FREDERICK 30 PALMER STREET GOVANADA, NY 14070	JIM FREDERICK	718-636-5888
U.S. ENERGY DEVELOPMENT CORP	U.S. ENERGY DEVELOPMENT CORP 2360 N FOREST ROAD GETZVILLE, NY 14068	DOUG - EXT. 310	718-636-1401
UNIVERSAL RESOURCES HOLDINGS, INC.	UNIVERSAL RESOURCES HOLDINGS, INC. 9152 E MAIN ROAD DUNKIRK, NY 14048	JOHN WALBONE	718-673-9116
VENANGO TOWNSHIP SUPERVISORS	VENANGO TOWNSHIP SUPERVISORS 9141 TOWN HALL ROAD WATTSBURG, PA 16442		814-738-2688

New York State Department of Environmental Conservation

Division of Materials Management

Bureau of Waste Reduction & Recycling, 9th Floor

625 Broadway, Albany, New York 12233-7253

Phone: (518) 402-8706 • Fax: (518) 402-9024

Website: www.dec.ny.gov



Joe Martens
Commissioner

JUL 31 2013

Mr. Kevin S. LaForge
K.S. LaForge Excavating, Inc.
P.O. Box 425
3090 Trapping Brook Road
Wellsville, NY 14895

Dear Mr. LaForge:

Re: Brine Bud # **B064-13** - Dust Control/Road Stabilization

We have reviewed the information submitted in your June 25, 2013 request for the proposed beneficial use of brine from the National Fuel Gas – Beech Hill Station near Wellsville, New York as part of your dust control system at the Alstom Power Facility in Wellsville, NY. This use is approved pursuant to 6 NYCRR 360-1.15(d) and in accordance with the following:

- Fracture fluids obtained during well flowback operations may not be spread on roads. Brine from Marcellus formation wells may not be used without additional analysis.
- Dust control activities must be conducted in accordance with procedures described in your BUD petition. No brine can be applied after daylight hours or used within 50 feet of any stream, creek, lake or other body of water or in a manner that cause brine to flow or run off into streams, creeks, lakes and other bodies of water. Brine may not be applied on wet gravel yards or drives, during rain, or when rain is imminent.

Brine may be applied a maximum of 10 times on any single location during a season. Please contact this office should the need arise to increase the application frequency or add additional areas. In addition, a brine sample may be required in order to update the chemical analysis on file. Staff will be in contact for a convenient date and time.

You must keep a copy of this letter and the Part 364 permit (if required) in all vehicles transporting or spreading brine. The New York State Department of Environmental Conservation reserves the right to rescind or modify this determination at any time, should conditions warrant. This determination does not exempt this activity from any other local, state, or federal requirements.

Please contact Stephen Condon at (518) 402-8706 if you have any questions or need any additional information.

Sincerely,

Sally Rowland, Ph.D., P.E.

Chief, Organic Recycling & Beneficial Use Section
Bureau of Waste Reduction & Recycling
Division of Materials Management

Enclosure

bcc: P. Leonardo/P. Pettit/S. Rowland/S. Condon
SC:sb

H:\Condon\Brine_Letter_laforge.docx

K.S. LaFORGE EXCAVATING, INC.
P.O. BOX 425
3090 TRAPPING BROOK ROAD
WELLSVILLE, NEW YORK 14895
PHONE (585) 593-6177
FAX (585) 593-3943

June 25, 2013

Stephan Condon
NYS DEC
Bureau of Solid Waste 9th floor
625 Broadway
Albany, NY 12233-7253

Dear Stephan:

My name is Kevin S. LaForge, President of K. S. LaForge Excavating, Inc. 364-(9A-462). I am seeking BUD approval for the application of National Fuel Gas brine at the Alstom Power Facility in Wellsville, NY 14895. This brine is being used for dust control in the approximately 500,000 square feet of gravel yards at their Andover Road and South Main Street facilities. (Letter from Facility Director George W. Goetschius is attached.)

The brine is to come from the Beech Hill Storage Facility of National Fuel Gas, located in the Town of Willing, NY (Wellsville). Laboratory testing by National Fuel Gas is attached.

The brine will be spread at the Andover Road and Main Street locations of Alstom Power in Wellsville, NY (maps attached). A 50 foot separation from any stream will be maintained. Maximum application rate will be .05 gallon/square foot. The topography at both locations is 1-2 % grade maximum and all work will be performed during daylight hours.

The actual brining will be done with a 364 permitted dump truck with a 3,500 gallon tank and spreader bar. The spreading of brine would be controlled by an electric valve in the cab, with an in-line gate valve for flow control and shut-down redundancy.

We will not be storing any brine. As soon as we pick it up at the National Fuel Gas facility we will apply it.

I hope this narrative has addressed all relevant concerns for a positive BUD decision.

Thank You in Advance for your Consideration,

Kevin S. LaForge

ALSTOM Power Inc.
3020 Truax Road
Wellsville, NY 14895 USA
Tel: (585) 593-2200
Fax: (585) 593-2721

June 15, 2013


Mr. Kevin S. LaForge
K S LaForge Excavating, Inc.
P.O. Box 425
Wellsville, New York 14895

Re: Brining of Yard Areas

Mr. LaForge:

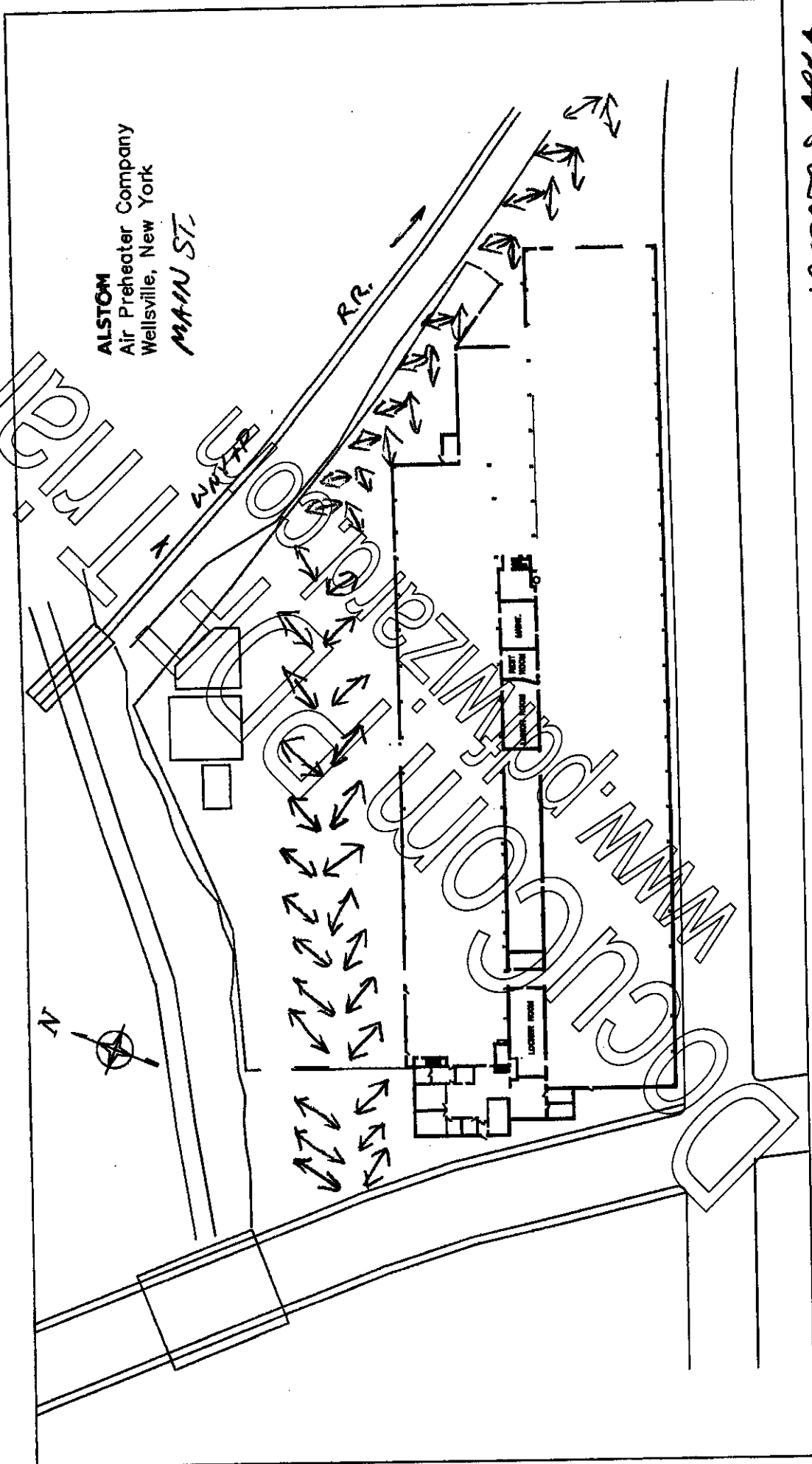
We would like to continue the brining program in the yard and storage areas at our Truax Road and Main Street locations in Wellsville. The brining program helps keep down the dust in the yards and significantly reduces the incidences of foreign bodies in the eye reports that we see in our safety reports. In addition to helping reduce the problem outside it helps reduce the amount of material that is tracked into the shops and therefore reduces the number of incidents inside as well.

Thank you,


George W. Goetschius

George W. Goetschius
Facilities Manager
Alstom Power Inc. Air Preheater Co.
3020 Truax Road
Wellsville, NY 14895

ALSTOM
Air Preheater Company
Wellsville, New York
MAIN ST.



↘ ↘ ↘
INDICATES AREA
TO BE DRUMED

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

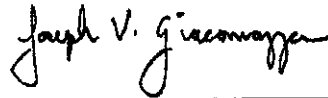
ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-16320-1
Client Project/Site: Brine Priority Pollutant Analysis

For:
National Fuel Gas Supply Company
5955 New Taylor Road
Orchard Park, New York 14127

Attn: James Clark



Authorized for release by:
3/6/2012 10:14:33 AM
Joe Giacomazza
Project Administrator
joe.giacomazza@testamericainc.com

Designee for
John Schove
Project Manager I
john.schove@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

General Chemistry

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate 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
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



New York State Department of Environmental Conservation

Division of Materials Management

Bureau of Waste Reduction & Recycling, 9th Floor

625 Broadway, Albany, New York 12233-7253

Phone: (518) 402-8706 • Fax: (518) 402-9024

Website: www.dec.ny.gov



Joe Martens
Commissioner

Mr. Daniel Ford
Highway Superintendent
Town of Alma
P.O. Box 67
Allentown, NY 14707

JUL 24 2013

Dear Mr. Ford:

Re: Brine Bud # **B063-13** - Dust Control/Road Stabilization

We have reviewed the information submitted in your October 10, 2012 request for the proposed beneficial use of brine from the National Fuel Gas – Beech Hill Station in Wellsville, New York as part of your dust control and road stabilization systems. This use is approved pursuant to 6 NYCRR 360-1.15(d) and in accordance with the following:

- Fracture fluids obtained during well flowback operations may not be spread on roads. Brine from Marcellus formation wells may not be used without additional analysis.
- Dust control activities must be conducted in accordance with procedures described in your BUD petition. No brine can be applied after daylight hours or used within 50 feet of any stream, creek, lake or other body of water or in a manner that cause brine to flow or run off into streams, creeks, lakes and other bodies of water. Brine may not be applied on wet roads, during rain, or when rain is imminent.

Brine is approved for road spreading use on all non-paved roads in the Town of Alma. Brine may be applied a maximum of 10 times on any section of roadway during a season. Please contact this office should the need arise to increase the application frequency or add additional roads. In addition, a brine sample may be required in order to update the chemical analysis on file. Staff will be in contact for a convenient date and time.

You must keep a copy of this letter and the Part 364 permit (if required) in all vehicles transporting or spreading brine. The New York State Department of Environmental Conservation reserves the right to rescind or modify this determination at any time, should conditions warrant. This determination does not exempt this activity from any other local, state, or federal requirements.

Please contact Stephen Condon at (518) 402-8706 if you have any questions or need any additional information.

Sincerely,

Sally Rowland, Ph.D., P.E.

Organic Recycling & Beneficial Use Section
Bureau of Waste Reduction & Recycling
Division of Materials Management

Enclosure

bcc: P. Pettit/S. Rowland/S. Condon/P. Leonardo

SC:sb

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TOWN OF ALMA**COUNTY OF ALLEGANY****PO BOX 67****ALLENTOWN NY 14707**

The Town of Alma is applying for a Waste Transporting Permit to apply brine water to our gravel roads as needed. We use one truck that is dedicated strictly for that purpose. The truck has a two thousand gallon tank with a spraying system. All controls are inner cab mounted; this includes an electric shutoff valve, and application control with shutdown control. This truck is cleaned after each day of use.

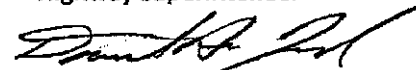
The Town of Alma has 6.8 miles of gravel roads that need dust suppression and road stabilization during the dry days of the season. We apply approximately 2000 gallons of brine water per mile for our dust suppression.

106 road	.73 mile with no more than 3% grade
Burnes road	.61 mile with no more than 3% grade
Hart road	.61 mile with no more than 3% grade
Murphy mulvey road	
	1.27 miles with no more than 3% grade
Prince Green road	.29 mile with no more than 3% grade
Ragen road	.50 mile with no more than 3% grade
Lower Reddy road	.90 mile with no more than 3% grade
Upper Reddy road	1.07 miles with no more than 3% grade
Regan road	.42 mile with no more than 3% grade

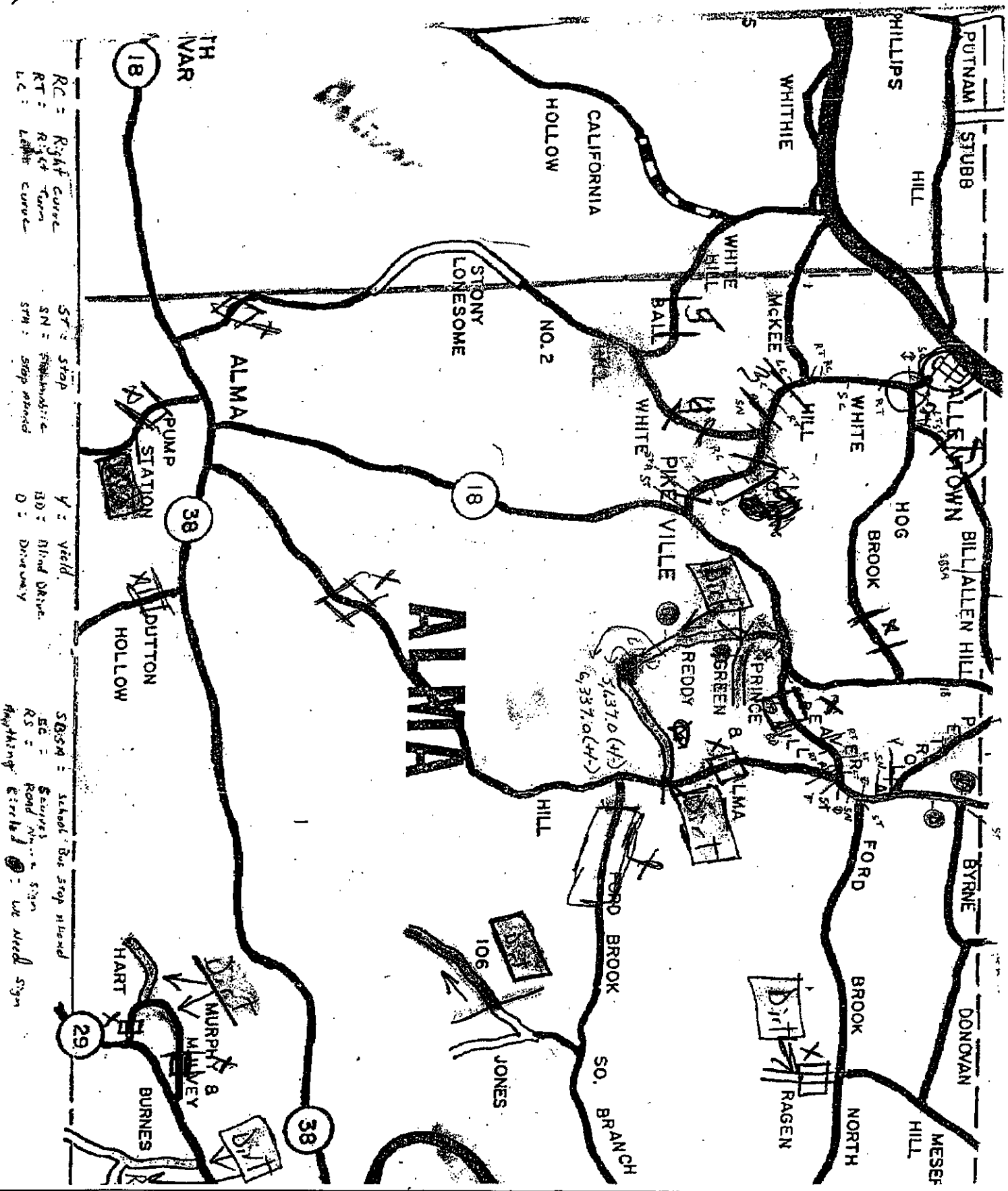
The Town of Alma only applies brine water to roads that are well over 50 feet from any stream or body of water. The Towns working hours are as follows. Monday thru Thursday 6:00 am till 4:30 pm.

Thanks Daniel A Ford

Highway Superintendent



Sign INVENTORY



New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Permitting and Planning, 9th Floor
625 Broadway, Albany, NY 12233-7251
Phone: (518) 402-8792 • Fax: (518) 402-9034
Website: www.dec.ny.gov



Joe Martens
Commissioner

May 31, 2013

Mr. Daniel A. Ford, Highway Superintendent
Town of Alma
5838 Allen Street
Allentown, NY 14707

Dear Mr. Ford:

I am in receipt of your application for a new NYS Part 364 Waste Transporter Permit to haul non-hazardous industrial/commercial waste (brine) for application to gravel roads as needed. My attempts to contact you at the phone number you listed only went to a fax machine.

You are correct that if you are picking up the brine and hauling it back to your facility/holding tank you would require a Part 364 permit; however, if you are having the brine hauled to you by a permitted hauler you would not require a Part 364 permit.

If needed, the application form you submitted is very old and was replaced by the enclosed application packet some time ago. Please complete this packet and mail to my attention so that I can process your permit. In addition, proof of Workers Compensation coverage is required as described on Page 5, No. 2 of the enclosed application.

Also, in order to apply brine for dust control, you must obtain a beneficial use determination (BUD) approval from our Division of Materials Management. For information on obtaining this BUD approval, please contact Steve Condon, Division of Materials Management, at 518-402-8678.

Sincerely,

Patti Leonardo
Waste Transporter Permitting Program
Bureau of Permitting and Planning
Division of Materials Management

Enclosure

TOWN OF ALMA

COUNTY OF ALLEGANY

PO BOX 67

ALLENTOWN NY 14707

The Town of Alma is applying for a Waste Transporting Permit to apply brine water to our gravel roads as needed. We use one truck that is dedicated strictly for that purpose. The truck has a two thousand gallon tank with a spraying system. All controls are inner cab mounted; this includes an electric shutoff valve, and application control with shutdown control. This truck is cleaned after each day of use.

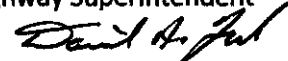
The Town of Alma has 6.8 miles of gravel roads that need dust suppression and road stabilization during the dry days of the season. We apply approximately 2000 gallons of brine water per mile for our dust suppression.

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Murphy mulvey road	
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Prince Green road	.29 mile with no more than 3% grade
Ragen road	.50 mile with no more than 3% grade
Lower Reddy road	.90 mile with no more than 3% grade
Upper Reddy road	1.07 miles with no more than 3% grade
Regan road	.42 mile with no more than 3% grade

The Town of Alma only applies brine water to roads that are well over 50 feet from any stream or body of water. The Towns working hours are as follows. Monday thru Thursday 6:00 am till 4:30 pm.

Thanks Daniel A Ford

Highway Superintendent



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

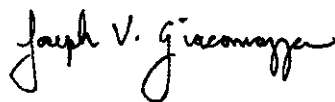
ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-16320-1
Client Project/Site: Brine Priority Pollutant Analysis

For:
National Fuel Gas Supply Company
5955 New Taylor Road
Orchard Park, New York 14127

Attn: James Clark



Authorized for release by:
3/6/2012 10:14:33 AM
Joe Giacomazza
Project Administrator
joe.giacomazza@testamericainc.com

Designee for
John Schove
Project Manager I
john.schove@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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.



Total Access

Time Expert

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Definitions/Glossary

Client: National Fuel Gas Supply Company
Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

General Chemistry

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate 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
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: National Fuel Gas Supply Company
Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Job ID: 480-16320-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-16320-1

Receipt

All samples were received in good condition within temperature requirements.

GC/MS VOA

No analytical or quality issues were noted.

GC/MS Semi VOA

Method 625: The method blank for batch 52174 contained multiple analytes above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No other analytical or quality issues were noted.

GC Semi VOA

Method 608: The following sample: (LCS 480-52444/2-A), has Surrogate outside recovery limits, though the secondary surrogate is within limits.

Method 608: The following sample was diluted due to the nature of the sample matrix: BRINE (480-16320-1). Therefore, surrogate recoveries are not representative, and elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

Metals

Method 200.7 Rev 4.4: The Method Blank for batch 480-52385 contained total sodium and calcium above the method detection limits. These target analyte concentrations were less than the reporting limits (RLs); therefore, re-extraction and/or re-analysis of sample BRINE (480-16320-1) was not performed.

Method 200.7 Rev 4.4: The following sample was diluted for total silver, lead and selenium due to the nature of the sample matrix: BRINE (480-16320-1). Elevated reporting limits (RLs) are provided.

Method 200.7 Rev 4.4: The following sample was diluted due to the abundance of target analyte total calcium & magnesium: BRINE (480-16320-1). Elevated reporting limits (RLs) are provided.

Method 200.7, 3005A: Due to the matrix, the initial volume used for the following sample deviated from the standard procedure: BRINE (480-16320-1). The reporting limits (RLs) have been adjusted proportionately.

Method 245.1, 7470A: Due to interference with the sample matrix, the standard mercury preparation procedure was inadequate for the following samples: BRINE (480-16320-1). This was demonstrated when the potassium permanganate reagent was added and the characteristic purple color faded rapidly. This loss of color indicates oxidizing conditions were not maintained. The sample was prepared and analyzed at a 5x dilution, which maintained the purple color during digestion.

No other analytical or quality issues were noted.

General Chemistry

Method SM 2540C: The method blank for batch 52430 contained total dissolved solids above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method SM 2540C: Due to the matrix, the initial volume used for the following sample deviated from the standard procedure: BRINE (480-16320-1). The reporting limits (RLs) have been adjusted proportionately.

Method 335.4, 9012A: The laboratory control sample (LCS) for batch 52395 exceeded control limits for the following analytes: Cyanide. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. BRINE (480-16320-1)



Case Narrative

TestAmerica Job ID: 480-16320-1

Client: National Fuel Gas Supply Company
Project/Site: Brine Priority Pollutant Analysis

Job ID: 480-16320-1 (Continued)

Laboratory: TestAmerica Buffalo (Continued)

Method 420.4: The method blank for batch 52948 contained phenol above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed. BRINE (480-16320-1)

Method 9020: Breakthrough exceeded 10% for the following sample: BRINE (480-16320-1). Re-analysis was performed with concurring results. The data have been reported.

Method 9020: This method uses a dilution applied during the preparation portion of the procedure. The dilution factor (DF) presented on the final report represents only the analytical dilution, not the dilution factor applied in the preparation batch. BRINE (480-16320-1)

Method 9060: The method blank for batch 53807 contained TOC above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No other analytical or quality issues were noted.

Organic Prep

Method 625: Precipitate formed when sodium hydroxide was added.

No other analytical or quality issues were noted.



Detection Summary

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Client Sample ID: BRINE

Lab Sample ID: 480-16320-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	53		5.0	0.60	ug/L	1		624	Total/NA
Chloromethane	2.8	J	5.0	0.64	ug/L	1		624	Total/NA
Toluene	11		5.0	0.45	ug/L	1		624	Total/NA
Benzo[<i>a</i>]anthracene	0.30	J B	5.0	0.043	ug/L	1		625	Total/NA
Bis(2-ethylhexyl) phthalate	0.93	J B	9.9	0.85	ug/L	1		625	Total/NA
Chrysene	0.28	J B	5.0	0.035	ug/L	1		625	Total/NA
Naphthalene	0.32	J	5.0	0.079	ug/L	1		625	Total/NA
Pyrene	0.13	J	5.0	0.040	ug/L	1		625	Total/NA
2,4-Dichlorophenol	0.39	J	5.0	0.30	ug/L	1		625	Total/NA
2,4-Dimethylphenol	0.57	J	5.0	0.13	ug/L	1		625	Total/NA
Phenol	25		5.0	0.12	ug/L	1		625	Total/NA
Calcium	48800		50.0	10.0	mg/L	50		200.7 Rev 4.4	Total/NA
Chromium	0.0025	J	0.0080	0.0017	mg/L	1		200.7 Rev 4.4	Total/NA
Magnesium	5220		4.0	0.87	mg/L	10		200.7 Rev 4.4	Total/NA
Nickel	0.013	J	0.020	0.0025	mg/L	1		200.7 Rev 4.4	Total/NA
Sodium	6450	B	2.0	0.65	mg/L	1		200.7 Rev 4.4	Total/NA
Zinc	0.11		0.020	0.0034	mg/L	1		200.7 Rev 4.4	Total/NA
Oil & Grease	330		4.8	1.3	mg/L	1		1664A	Total/NA
Phenolics, Total Recoverable	0.069	B	0.050	0.025	mg/L	5		420.4	Total/NA
Halogens, Total Organic	39000		4000	1300	ug/L	1		9020	Total/NA
Total Organic Carbon	1.9		1.0	0.43	mg/L	1		9060	Total/NA
Total Dissolved Solids	217000		2000	800	mg/L	1		SM 2540C	Total/NA
Chloride	208000		6050	2780	mg/L	6050		SM 4500 Cl- E	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Specific Conductance	19300		1.00	1.00	umhos/cm	1		120.1	Total/NA
pH	4.81		0.100	0.100	SU	1		9040B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-16320-2

No Detections

Client Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Client Sample ID: BRINE

Lab Sample ID: 480-16320-1

Date Collected: 02/17/12 01:20

Matrix: Water

Date Received: 02/17/12 15:50

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	53		5.0	0.60	ug/L			02/20/12 15:09	1
Bromodichloromethane	ND		5.0	0.54	ug/L			02/20/12 15:09	1
Bromoform	ND		5.0	0.47	ug/L			02/20/12 15:09	1
Bromomethane	ND		5.0	1.2	ug/L			02/20/12 15:09	1
Carbon tetrachloride	ND		5.0	0.51	ug/L			02/20/12 15:09	1
Chlorobenzene	ND		5.0	0.48	ug/L			02/20/12 15:09	1
Chloroethane	ND		5.0	0.87	ug/L			02/20/12 15:09	1
2-Chloroethyl vinyl ether	ND		25	1.9	ug/L			02/20/12 15:09	1
Chloroform	ND		5.0	0.54	ug/L			02/20/12 15:09	1
Chloromethane	2.8	J	5.0	0.64	ug/L			02/20/12 15:09	1
Chlorodibromomethane	ND		5.0	0.41	ug/L			02/20/12 15:09	1
1,1-Dichloroethane	ND		5.0	0.59	ug/L			02/20/12 15:09	1
1,2-Dichloroethane	ND		5.0	0.60	ug/L			02/20/12 15:09	1
1,1-Dichloroethene	ND		5.0	0.85	ug/L			02/20/12 15:09	1
trans-1,2-Dichloroethene	ND		5.0	0.59	ug/L			02/20/12 15:09	1
1,2-Dichloropropane	ND		5.0	0.61	ug/L			02/20/12 15:09	1
cis-1,3-Dichloropropene	ND		5.0	0.33	ug/L			02/20/12 15:09	1
trans-1,3-Dichloropropene	ND		5.0	0.44	ug/L			02/20/12 15:09	1
Ethylbenzene	ND		5.0	0.46	ug/L			02/20/12 15:09	1
Methylene Chloride	ND		5.0	0.81	ug/L			02/20/12 15:09	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.26	ug/L			02/20/12 15:09	1
Tetrachloroethene	ND		5.0	0.34	ug/L			02/20/12 15:09	1
Toluene	11		5.0	0.45	ug/L			02/20/12 15:09	1
1,1,1-Trichloroethane	ND		5.0	0.39	ug/L			02/20/12 15:09	1
1,1,2-Trichloroethane	ND		5.0	0.48	ug/L			02/20/12 15:09	1
Trichloroethene	ND		5.0	0.60	ug/L			02/20/12 15:09	1
Vinyl chloride	ND		5.0	0.75	ug/L			02/20/12 15:09	1
1,2-Dichlorobenzene	ND		5.0	0.44	ug/L			02/20/12 15:09	1
1,3-Dichlorobenzene	ND		5.0	0.54	ug/L			02/20/12 15:09	1
1,4-Dichlorobenzene	ND		5.0	0.51	ug/L			02/20/12 15:09	1
Trichlorofluoromethane	ND		5.0	0.45	ug/L			02/20/12 15:09	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		72 - 130					02/20/12 15:09	1
4-Bromofluorobenzene (Surr)	98		69 - 121					02/20/12 15:09	1
Toluene-d8 (Surr)	99		70 - 123					02/20/12 15:09	1

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		5.0	0.059	ug/L		02/20/12 10:21	02/21/12 12:15	1
Acenaphthylene	ND		5.0	0.034	ug/L		02/20/12 10:21	02/21/12 12:15	1
Anthracene	ND		5.0	0.052	ug/L		02/20/12 10:21	02/21/12 12:15	1
Benzidine	ND		79	2.5	ug/L		02/20/12 10:21	02/21/12 12:15	1
Benzo[a]anthracene	0.30	J B	5.0	0.043	ug/L		02/20/12 10:21	02/21/12 12:15	1
Benzo[a]pyrene	ND		5.0	0.057	ug/L		02/20/12 10:21	02/21/12 12:15	1
Benzo[b]fluoranthene	ND		5.0	0.061	ug/L		02/20/12 10:21	02/21/12 12:15	1
Benzo[g,h,i]perylene	ND		5.0	0.099	ug/L		02/20/12 10:21	02/21/12 12:15	1
Benzo[k]fluoranthene	ND		5.0	0.041	ug/L		02/20/12 10:21	02/21/12 12:15	1
Bis(2-chloroethyl)ether	ND		5.0	1.1	ug/L		02/20/12 10:21	02/21/12 12:15	1
Bis(2-chloroethoxy)methane	ND		5.0	0.084	ug/L		02/20/12 10:21	02/21/12 12:15	1
2,2'-oxybis[1-chloropropane]	ND		5.0	0.085	ug/L		02/20/12 10:21	02/21/12 12:15	1

Client Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Client Sample ID: BRINE

Lab Sample ID: 480-16320-1

Date Collected: 02/17/12 01:20

Matrix: Water

Date Received: 02/17/12 15:50

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	0.93	J B	9.9	0.85	ug/L		02/20/12 10:21	02/21/12 12:15	1
4-Bromophenyl phenyl ether	ND		5.0	0.11	ug/L		02/20/12 10:21	02/21/12 12:15	1
Butyl benzyl phthalate	ND		5.0	1.3	ug/L		02/20/12 10:21	02/21/12 12:15	1
2-Chloronaphthalene	ND		5.0	0.067	ug/L		02/20/12 10:21	02/21/12 12:15	1
4-Chlorophenyl phenyl ether	ND		5.0	0.21	ug/L		02/20/12 10:21	02/21/12 12:15	1
Chrysene	0.28	J B	5.0	0.035	ug/L		02/20/12 10:21	02/21/12 12:15	1
Dibenz(a,h)anthracene	ND		5.0	0.055	ug/L		02/20/12 10:21	02/21/12 12:15	1
Di-n-butyl phthalate	ND		5.0	0.93	ug/L		02/20/12 10:21	02/21/12 12:15	1
1,2-Dichlorobenzene	ND		9.9	0.14	ug/L		02/20/12 10:21	02/21/12 12:15	1
1,3-Dichlorobenzene	ND		9.9	0.068	ug/L		02/20/12 10:21	02/21/12 12:15	1
1,4-Dichlorobenzene	ND		9.9	0.089	ug/L		02/20/12 10:21	02/21/12 12:15	1
3,3'-Dichlorobenzidine	ND		5.0	0.81	ug/L		02/20/12 10:21	02/21/12 12:15	1
Diethyl phthalate	ND		5.0	0.17	ug/L		02/20/12 10:21	02/21/12 12:15	1
Dimethyl phthalate	ND		5.0	0.16	ug/L		02/20/12 10:21	02/21/12 12:15	1
2,4-Dinitrotoluene	ND		5.0	0.26	ug/L		02/20/12 10:21	02/21/12 12:15	1
2,6-Dinitrotoluene	ND		5.0	0.71	ug/L		02/20/12 10:21	02/21/12 12:15	1
Di-n-octyl phthalate	ND		5.0	4.4	ug/L		02/20/12 10:21	02/21/12 12:15	1
1,2-Diphenylhydrazine	ND		9.9	0.062	ug/L		02/20/12 10:21	02/21/12 12:15	1
Fluoranthene	ND		5.0	0.11	ug/L		02/20/12 10:21	02/21/12 12:15	1
Fluorene	ND		5.0	0.042	ug/L		02/20/12 10:21	02/21/12 12:15	1
Hexachlorobenzene	ND		5.0	0.27	ug/L		02/20/12 10:21	02/21/12 12:15	1
Hexachlorobutadiene	ND		5.0	0.61	ug/L		02/20/12 10:21	02/21/12 12:15	1
Hexachlorocyclopentadiene	ND		5.0	0.45	ug/L		02/20/12 10:21	02/21/12 12:15	1
Hexachloroethane	ND		5.0	0.48	ug/L		02/20/12 10:21	02/21/12 12:15	1
Indeno[1,2,3-cd]pyrene	ND		5.0	0.18	ug/L		02/20/12 10:21	02/21/12 12:15	1
Isophorone	ND		5.0	0.16	ug/L		02/20/12 10:21	02/21/12 12:15	1
Naphthalene	0.32	J	5.0	0.079	ug/L		02/20/12 10:21	02/21/12 12:15	1
Nitrobenzene	ND		5.0	0.11	ug/L		02/20/12 10:21	02/21/12 12:15	1
N-Nitrosodi-n-propylamine	ND		5.0	0.23	ug/L		02/20/12 10:21	02/21/12 12:15	1
N-Nitrosodimethylamine	ND		9.9	0.95	ug/L		02/20/12 10:21	02/21/12 12:15	1
N-Nitrosodiphenylamine	ND		5.0	0.39	ug/L		02/20/12 10:21	02/21/12 12:15	1
Phenanthrene	ND		5.0	0.070	ug/L		02/20/12 10:21	02/21/12 12:15	1
Pyrene	0.13	J	5.0	0.040	ug/L		02/20/12 10:21	02/21/12 12:15	1
1,2,4-Trichlorobenzene	ND		9.9	0.49	ug/L		02/20/12 10:21	02/21/12 12:15	1
4-Chloro-3-methylphenol	ND		5.0	0.55	ug/L		02/20/12 10:21	02/21/12 12:15	1
2-Chlorophenol	ND		5.0	0.15	ug/L		02/20/12 10:21	02/21/12 12:15	1
2,4-Dichlorophenol	0.39	J	5.0	0.30	ug/L		02/20/12 10:21	02/21/12 12:15	1
2,4-Dimethylphenol	0.57	J	5.0	0.13	ug/L		02/20/12 10:21	02/21/12 12:15	1
2,4-Dinitrophenol	ND		9.9	0.83	ug/L		02/20/12 10:21	02/21/12 12:15	1
4,6-Dinitro-2-methylphenol	ND		9.9	0.75	ug/L		02/20/12 10:21	02/21/12 12:15	1
2-Nitrophenol	ND		5.0	0.14	ug/L		02/20/12 10:21	02/21/12 12:15	1
4-Nitrophenol	ND		9.9	1.3	ug/L		02/20/12 10:21	02/21/12 12:15	1
Pentachlorophenol	ND		9.9	0.41	ug/L		02/20/12 10:21	02/21/12 12:15	1
Phenol	25		5.0	0.12	ug/L		02/20/12 10:21	02/21/12 12:15	1
2,4,6-Trichlorophenol	ND		5.0	0.23	ug/L		02/20/12 10:21	02/21/12 12:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol	112		52 - 151	02/20/12 10:21	02/21/12 12:15	1
2-Fluorobiphenyl	84		44 - 120	02/20/12 10:21	02/21/12 12:15	1
2-Fluorophenol	70		17 - 120	02/20/12 10:21	02/21/12 12:15	1
Nitrobenzene-d5	90		42 - 120	02/20/12 10:21	02/21/12 12:15	1

Client Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Client Sample ID: BRINE

Lab Sample ID: 480-16320-1

Date Collected: 02/17/12 01:20

Matrix: Water

Date Received: 02/17/12 15:50

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Phenol-d5	86		10 - 120	02/20/12 10:21	02/21/12 12:15	1
p-Terphenyl-d14	26		22 - 125	02/20/12 10:21	02/21/12 12:15	1

Method: 608 - Organochlorine Pesticides in Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		0.25	0.032	ug/L		02/22/12 07:58	02/24/12 18:11	5
alpha-BHC	ND		0.25	0.032	ug/L		02/22/12 07:58	02/24/12 18:11	5
beta-BHC	ND		0.25	0.12	ug/L		02/22/12 07:58	02/24/12 18:11	5
delta-BHC	ND		0.25	0.049	ug/L		02/22/12 07:58	02/24/12 18:11	5
gamma-BHC (Lindane)	ND		0.25	0.029	ug/L		02/22/12 07:58	02/24/12 18:11	5
Chlordane (technical)	ND		2.5	0.14	ug/L		02/22/12 07:58	02/24/12 18:11	5
4,4'-DDD	ND		0.25	0.045	ug/L		02/22/12 07:58	02/24/12 18:11	5
4,4'-DDE	ND		0.25	0.057	ug/L		02/22/12 07:58	02/24/12 18:11	5
4,4'-DDT	ND		0.25	0.054	ug/L		02/22/12 07:58	02/24/12 18:11	5
Dieldrin	ND		0.25	0.048	ug/L		02/22/12 07:58	02/24/12 18:11	5
Endosulfan I	ND		0.25	0.054	ug/L		02/22/12 07:58	02/24/12 18:11	5
Endosulfan II	ND		0.25	0.059	ug/L		02/22/12 07:58	02/24/12 18:11	5
Endosulfan sulfate	ND		0.25	0.077	ug/L		02/22/12 07:58	02/24/12 18:11	5
Endrin	ND		0.25	0.068	ug/L		02/22/12 07:58	02/24/12 18:11	5
Endrin aldehyde	ND		0.25	0.080	ug/L		02/22/12 07:58	02/24/12 18:11	5
Heptachlor	ND		0.25	0.042	ug/L		02/22/12 07:58	02/24/12 18:11	5
Heptachlor epoxide	ND		0.25	0.026	ug/L		02/22/12 07:58	02/24/12 18:11	5
Toxaphene	ND		2.5	0.59	ug/L		02/22/12 07:58	02/24/12 18:11	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	0	X	15 - 125	02/22/12 07:58	02/24/12 18:11	5
Tetrachloro-m-xylene	0	X	36 - 121	02/22/12 07:58	02/24/12 18:11	5

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.058	0.037	ug/L		02/21/12 07:54	02/21/12 18:28	1
PCB-1221	ND		0.058	0.037	ug/L		02/21/12 07:54	02/21/12 18:28	1
PCB-1232	ND		0.058	0.037	ug/L		02/21/12 07:54	02/21/12 18:28	1
PCB-1242	ND		0.058	0.037	ug/L		02/21/12 07:54	02/21/12 18:28	1
PCB-1248	ND		0.058	0.037	ug/L		02/21/12 07:54	02/21/12 18:28	1
PCB-1254	ND		0.058	0.030	ug/L		02/21/12 07:54	02/21/12 18:28	1
PCB-1260	ND		0.058	0.030	ug/L		02/21/12 07:54	02/21/12 18:28	1
PCB-1262	ND		0.058	0.030	ug/L		02/21/12 07:54	02/21/12 18:28	1
PCB-1268	ND		0.058	0.030	ug/L		02/21/12 07:54	02/21/12 18:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	62		10 - 158	02/21/12 07:54	02/21/12 18:28	1
Tetrachloro-m-xylene	90		18 - 146	02/21/12 07:54	02/21/12 18:28	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.040	0.014	mg/L		02/22/12 08:15	02/22/12 18:17	1
Arsenic	ND		0.020	0.011	mg/L		02/22/12 08:15	02/22/12 18:17	1
Beryllium	ND		0.0040	0.00060	mg/L		02/22/12 08:15	02/22/12 18:17	1
Cadmium	ND		0.0020	0.00066	mg/L		02/22/12 08:15	02/22/12 18:17	1
Calcium	48800		50.0	10.0	mg/L		02/22/12 08:15	02/24/12 23:18	50
Chromium	0.0025	J	0.0080	0.0017	mg/L		02/22/12 08:15	02/22/12 18:17	1

Client Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Client Sample ID: BRINE

Lab Sample ID: 480-16320-1

Date Collected: 02/17/12 01:20

Matrix: Water

Date Received: 02/17/12 15:50

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	ND		0.020	0.0030	mg/L		02/22/12 08:15	02/22/12 18:17	1
Lead	ND		0.50	0.30	mg/L		02/22/12 08:15	02/29/12 22:49	50
Magnesium	5220		4.0	0.87	mg/L		02/22/12 08:15	02/24/12 23:11	10
Nickel	0.013	J	0.020	0.0025	mg/L		02/22/12 08:15	02/22/12 18:17	1
Selenium	ND		0.30	0.17	mg/L		02/22/12 08:15	02/24/12 23:11	10
Silver	ND		0.060	0.034	mg/L		02/22/12 08:15	02/24/12 23:11	10
Sodium	6450	B	2.0	0.65	mg/L		02/22/12 08:15	02/22/12 18:17	1
Thallium	ND		0.040	0.020	mg/L		02/22/12 08:15	02/22/12 18:17	1
Zinc	0.11		0.020	0.0034	mg/L		02/22/12 08:15	02/22/12 18:17	1

Method: 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0010	0.00060	mg/L		02/20/12 09:05	02/20/12 13:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil & Grease	330		4.8	1.3	mg/L		02/21/12 15:10	02/21/12 15:18	1
Cyanide, Total	ND	*	0.010	0.0050	mg/L		02/20/12 17:00	02/21/12 15:00	1
Phenolics, Total Recoverable	0.069	B	0.050	0.025	mg/L		02/20/12 19:46	02/25/12 10:40	5
Halogens, Total Organic	39000		4000	1300	ug/L			02/27/12 07:29	1
Total Organic Carbon	1.9		1.0	0.43	mg/L			03/03/12 18:28	1
Total Dissolved Solids	217000		2000	800	mg/L			02/22/12 19:10	1
Chloride	209000		6050	2780	mg/L			02/20/12 23:36	6050
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	19300		1.00	1.00	umhos/cm			02/21/12 09:56	1
pH	4.81		0.100	0.100	SU			02/17/12 19:28	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-16320-2

Date Collected: 02/17/12 01:20

Matrix: Water

Date Received: 02/17/12 15:50

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		5.0	0.60	ug/L			02/20/12 15:32	1
Bromodichloromethane	ND		5.0	0.54	ug/L			02/20/12 15:32	1
Bromoform	ND		5.0	0.47	ug/L			02/20/12 15:32	1
Bromomethane	ND		5.0	1.2	ug/L			02/20/12 15:32	1
Carbon tetrachloride	ND		5.0	0.51	ug/L			02/20/12 15:32	1
Chlorobenzene	ND		5.0	0.48	ug/L			02/20/12 15:32	1
Chloroethane	ND		5.0	0.87	ug/L			02/20/12 15:32	1
2-Chloroethyl vinyl ether	ND		25	1.9	ug/L			02/20/12 15:32	1
Chloroform	ND		5.0	0.54	ug/L			02/20/12 15:32	1
Chloromethane	ND		5.0	0.64	ug/L			02/20/12 15:32	1
Chlorodibromomethane	ND		5.0	0.41	ug/L			02/20/12 15:32	1
1,1-Dichloroethane	ND		5.0	0.59	ug/L			02/20/12 15:32	1
1,2-Dichloroethane	ND		5.0	0.60	ug/L			02/20/12 15:32	1
1,1-Dichloroethene	ND		5.0	0.85	ug/L			02/20/12 15:32	1
trans-1,2-Dichloroethene	ND		5.0	0.59	ug/L			02/20/12 15:32	1
1,2-Dichloropropane	ND		5.0	0.61	ug/L			02/20/12 15:32	1
cis-1,3-Dichloropropene	ND		5.0	0.33	ug/L			02/20/12 15:32	1
trans-1,3-Dichloropropene	ND		5.0	0.44	ug/L			02/20/12 15:32	1

Client Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-16320-2

Date Collected: 02/17/12 01:20

Matrix: Water

Date Received: 02/17/12 15:50

Method: 624 - Volatile Organic Compounds (GC/MS) (Continued)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		5.0	0.46	ug/L			02/20/12 15:32	1
Methylene Chloride	ND		5.0	0.81	ug/L			02/20/12 15:32	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.26	ug/L			02/20/12 15:32	1
Tetrachloroethene	ND		5.0	0.34	ug/L			02/20/12 15:32	1
Toluene	ND		5.0	0.45	ug/L			02/20/12 15:32	1
1,1,1-Trichloroethane	ND		5.0	0.39	ug/L			02/20/12 15:32	1
1,1,2-Trichloroethane	ND		5.0	0.48	ug/L			02/20/12 15:32	1
Trichloroethene	ND		5.0	0.60	ug/L			02/20/12 15:32	1
Vinyl chloride	ND		5.0	0.75	ug/L			02/20/12 15:32	1
1,2-Dichlorobenzene	ND		5.0	0.44	ug/L			02/20/12 15:32	1
1,3-Dichlorobenzene	ND		5.0	0.54	ug/L			02/20/12 15:32	1
1,4-Dichlorobenzene	ND		5.0	0.51	ug/L			02/20/12 15:32	1
Trichlorofluoromethane	ND		5.0	0.45	ug/L			02/20/12 15:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		72 - 130					02/20/12 15:32	1
4-Bromofluorobenzene (Surr)	100		69 - 121					02/20/12 15:32	1
Toluene-d8 (Surr)	100		70 - 123					02/20/12 15:32	1

Surrogate Summary

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		12DCE (72-130)	BFB (69-121)	TOL (70-123)
480-16320-1	BRINE	105	98	99
480-16320-2	TRIP BLANK	97	100	100
LCS 480-52148/4	Lab Control Sample	95	101	100
MB 480-52148/5	Method Blank	100	99	98

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		TBP (52-151)	FBP (44-120)	2FP (17-120)	NBZ (42-120)	PHL (10-120)	TPH (22-125)
480-16320-1	BRINE	112	84	70	90	86	26
LCS 480-52174/2-A	Lab Control Sample	109	85	54	91	41	90
LCSD 480-52174/3-A	Lab Control Sample Dup	117	90	54	93	42	96
MB 480-52174/1-A	Method Blank	109	68	40	73	31	87

Surrogate Legend

TBP = 2,4,6-Tribromophenol

FBP = 2-Fluorobiphenyl

2FP = 2-Fluorophenol

NBZ = Nitrobenzene-d5

PHL = Phenol-d5

TPH = p-Terphenyl-d14

Method: 608 - Organochlorine Pesticides in Water

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCB1 (15-125)	TCX1 (36-121)
480-16320-1	BRINE	0 X	0 X
LCS 480-52444/2-A	Lab Control Sample	-1 X	83
LCSD 480-52444/3-A	Lab Control Sample Dup	15	76
MB 480-52444/1-A	Method Blank	18	84

Surrogate Legend

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCB2 (10-158)	TCX2 (18-146)
480-16320-1	BRINE	62	90
LCS 480-52270/2-A	Lab Control Sample	75	112

Surrogate Summary

Client: National Fuel Gas Supply Company
Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCB2 (10-158)	TCX2 (18-146)
LCSD 480-52270/3-A	Lab Control Sample Dup	70	110
MB 480-52270/1-A	Method Blank	73	109

Surrogate Legend

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene



QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-52148/5
 Matrix: Water
 Analysis Batch: 52148

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	ND		5.0	0.60	ug/L			02/20/12 12:46	1
Bromodichloromethane	ND		5.0	0.54	ug/L			02/20/12 12:46	1
Bromoform	ND		5.0	0.47	ug/L			02/20/12 12:46	1
Bromomethane	ND		5.0	1.2	ug/L			02/20/12 12:46	1
Carbon tetrachloride	ND		5.0	0.51	ug/L			02/20/12 12:46	1
Chlorobenzene	ND		5.0	0.48	ug/L			02/20/12 12:46	1
Chloroethane	ND		5.0	0.87	ug/L			02/20/12 12:46	1
2-Chloroethyl vinyl ether	ND		25	1.9	ug/L			02/20/12 12:46	1
Chloroform	ND		5.0	0.54	ug/L			02/20/12 12:46	1
Chloromethane	ND		5.0	0.64	ug/L			02/20/12 12:46	1
Chlorodibromomethane	ND		5.0	0.41	ug/L			02/20/12 12:46	1
1,1-Dichloroethane	ND		5.0	0.59	ug/L			02/20/12 12:46	1
1,2-Dichloroethane	ND		5.0	0.60	ug/L			02/20/12 12:46	1
1,1-Dichloroethene	ND		5.0	0.85	ug/L			02/20/12 12:46	1
trans-1,2-Dichloroethene	ND		5.0	0.59	ug/L			02/20/12 12:46	1
1,2-Dichloropropane	ND		5.0	0.61	ug/L			02/20/12 12:46	1
cis-1,3-Dichloropropene	ND		5.0	0.33	ug/L			02/20/12 12:46	1
trans-1,3-Dichloropropene	ND		5.0	0.44	ug/L			02/20/12 12:46	1
Ethylbenzene	ND		5.0	0.46	ug/L			02/20/12 12:46	1
Methylene Chloride	ND		5.0	0.81	ug/L			02/20/12 12:46	1
1,1,2,2-Tetrachloroethane	ND		5.0	0.26	ug/L			02/20/12 12:46	1
Tetrachloroethene	ND		5.0	0.34	ug/L			02/20/12 12:46	1
Toluene	ND		5.0	0.45	ug/L			02/20/12 12:46	1
1,1,1-Trichloroethane	ND		5.0	0.39	ug/L			02/20/12 12:46	1
1,1,2-Trichloroethane	ND		5.0	0.48	ug/L			02/20/12 12:46	1
Trichloroethene	ND		5.0	0.60	ug/L			02/20/12 12:46	1
Vinyl chloride	ND		5.0	0.75	ug/L			02/20/12 12:46	1
1,2-Dichlorobenzene	ND		5.0	0.44	ug/L			02/20/12 12:46	1
1,3-Dichlorobenzene	ND		5.0	0.54	ug/L			02/20/12 12:46	1
1,4-Dichlorobenzene	ND		5.0	0.51	ug/L			02/20/12 12:46	1
Trichlorofluoromethane	ND		5.0	0.45	ug/L			02/20/12 12:46	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	100		72 - 130		02/20/12 12:46	1
4-Bromofluorobenzene (Surr)	99		69 - 121		02/20/12 12:46	1
Toluene-d8 (Surr)	98		70 - 123		02/20/12 12:46	1

Lab Sample ID: LCS 480-52148/4
 Matrix: Water
 Analysis Batch: 52148

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromodichloromethane	20.0	19.5		ug/L		98	66 - 135
Bromoform	20.0	18.0		ug/L		90	71 - 129
Bromomethane	20.0	22.9		ug/L		115	14 - 186
Carbon tetrachloride	20.0	19.9		ug/L		100	73 - 127
Chlorobenzene	20.0	19.8		ug/L		99	66 - 134
Chloroethane	20.0	21.8		ug/L		109	38 - 162

QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 624 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-52148/4

Client Sample ID: Lab Control Sample

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 52148

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Chloroethyl vinyl ether	100	104		ug/L		104	1 - 224
Chloroform	20.0	20.3		ug/L		102	68 - 133
Chloromethane	20.0	20.8		ug/L		104	1 - 204
Chlorodibromomethane	20.0	19.0		ug/L		95	68 - 133
1,1-Dichloroethane	20.0	20.1		ug/L		101	73 - 128
1,2-Dichloroethane	20.0	19.9		ug/L		100	68 - 132
1,1-Dichloroethene	20.0	18.2		ug/L		91	51 - 150
trans-1,2-Dichloroethene	20.0	20.0		ug/L		100	72 - 133
1,2-Dichloropropane	20.0	20.6		ug/L		103	34 - 166
cis-1,3-Dichloropropene	20.0	20.1		ug/L		101	24 - 176
trans-1,3-Dichloropropene	20.0	19.8		ug/L		99	50 - 150
Ethylbenzene	20.0	20.3		ug/L		102	59 - 141
Methylene Chloride	20.0	19.8		ug/L		99	61 - 140
1,1,2,2-Tetrachloroethane	20.0	20.4		ug/L		102	61 - 140
Tetrachloroethene	20.0	20.0		ug/L		100	74 - 127
Toluene	20.0	20.0		ug/L		100	75 - 126
1,1,1-Trichloroethane	20.0	20.9		ug/L		105	75 - 125
1,1,2-Trichloroethane	20.0	19.5		ug/L		98	71 - 129
Trichloroethene	20.0	20.2		ug/L		101	67 - 134
Vinyl chloride	20.0	21.3		ug/L		107	4 - 196
1,2-Dichlorobenzene	20.0	19.3		ug/L		97	63 - 137
1,3-Dichlorobenzene	20.0	19.6		ug/L		98	73 - 127
1,4-Dichlorobenzene	20.0	19.1		ug/L		96	63 - 137
Trichlorofluoromethane	20.0	23.5		ug/L		118	48 - 152

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	95		72 - 130
4-Bromofluorobenzene (Surr)	101		69 - 121
Toluene-d8 (Surr)	100		70 - 123

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-52174/1-A

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 52316

Prep Batch: 52174

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Acenaphthene	ND		5.0	0.060	ug/L		02/20/12 10:21	02/21/12 11:03	1
Acenaphthylene	ND		5.0	0.034	ug/L		02/20/12 10:21	02/21/12 11:03	1
Anthracene	ND		5.0	0.052	ug/L		02/20/12 10:21	02/21/12 11:03	1
Benzidine	ND		80	2.5	ug/L		02/20/12 10:21	02/21/12 11:03	1
Benzo[a]anthracene	0.216	J	5.0	0.043	ug/L		02/20/12 10:21	02/21/12 11:03	1
Benzo[a]pyrene	ND		5.0	0.058	ug/L		02/20/12 10:21	02/21/12 11:03	1
Benzo[b]fluoranthene	ND		5.0	0.062	ug/L		02/20/12 10:21	02/21/12 11:03	1
Benzo[g,h,i]perylene	ND		5.0	0.10	ug/L		02/20/12 10:21	02/21/12 11:03	1
Benzo[k]fluoranthene	ND		5.0	0.042	ug/L		02/20/12 10:21	02/21/12 11:03	1
Bis(2-chloroethyl)ether	ND		5.0	1.1	ug/L		02/20/12 10:21	02/21/12 11:03	1
Bis(2-chloroethoxy)methane	ND		5.0	0.085	ug/L		02/20/12 10:21	02/21/12 11:03	1
2,2'-oxybis[1-chloropropane]	ND		5.0	0.086	ug/L		02/20/12 10:21	02/21/12 11:03	1

QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-52174/1-A

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 52316

Prep Batch: 52174

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Bis(2-ethylhexyl) phthalate	1.02	J	10	0.86	ug/L		02/20/12 10:21	02/21/12 11:03	1
4-Bromophenyl phenyl ether	ND		5.0	0.11	ug/L		02/20/12 10:21	02/21/12 11:03	1
Butyl benzyl phthalate	ND		5.0	1.3	ug/L		02/20/12 10:21	02/21/12 11:03	1
2-Chloronaphthalene	ND		5.0	0.068	ug/L		02/20/12 10:21	02/21/12 11:03	1
4-Chlorophenyl phenyl ether	ND		5.0	0.21	ug/L		02/20/12 10:21	02/21/12 11:03	1
Chrysene	0.165	J	5.0	0.036	ug/L		02/20/12 10:21	02/21/12 11:03	1
Dibenz(a,h)anthracene	ND		5.0	0.055	ug/L		02/20/12 10:21	02/21/12 11:03	1
Di-n-butyl phthalate	ND		5.0	0.94	ug/L		02/20/12 10:21	02/21/12 11:03	1
1,2-Dichlorobenzene	ND		10	0.15	ug/L		02/20/12 10:21	02/21/12 11:03	1
1,3-Dichlorobenzene	ND		10	0.069	ug/L		02/20/12 10:21	02/21/12 11:03	1
1,4-Dichlorobenzene	ND		10	0.090	ug/L		02/20/12 10:21	02/21/12 11:03	1
3,3'-Dichlorobenzidine	ND		5.0	0.82	ug/L		02/20/12 10:21	02/21/12 11:03	1
Diethyl phthalate	ND		5.0	0.17	ug/L		02/20/12 10:21	02/21/12 11:03	1
Dimethyl phthalate	ND		5.0	0.17	ug/L		02/20/12 10:21	02/21/12 11:03	1
2,4-Dinitrotoluene	ND		5.0	0.26	ug/L		02/20/12 10:21	02/21/12 11:03	1
2,6-Dinitrotoluene	ND		5.0	0.72	ug/L		02/20/12 10:21	02/21/12 11:03	1
Di-n-octyl phthalate	ND		5.0	4.5	ug/L		02/20/12 10:21	02/21/12 11:03	1
1,2-Diphenylhydrazine	ND		10	0.063	ug/L		02/20/12 10:21	02/21/12 11:03	1
Fluoranthene	ND		5.0	0.11	ug/L		02/20/12 10:21	02/21/12 11:03	1
Fluorene	ND		5.0	0.043	ug/L		02/20/12 10:21	02/21/12 11:03	1
Hexachlorobenzene	ND		5.0	0.28	ug/L		02/20/12 10:21	02/21/12 11:03	1
Hexachlorobutadiene	ND		5.0	0.62	ug/L		02/20/12 10:21	02/21/12 11:03	1
Hexachlorocyclopentadiene	ND		5.0	0.45	ug/L		02/20/12 10:21	02/21/12 11:03	1
Hexachloroethane	ND		5.0	0.48	ug/L		02/20/12 10:21	02/21/12 11:03	1
Indeno[1,2,3-cd]pyrene	0.211	J	5.0	0.19	ug/L		02/20/12 10:21	02/21/12 11:03	1
Isophorone	ND		5.0	0.16	ug/L		02/20/12 10:21	02/21/12 11:03	1
Naphthalene	ND		5.0	0.080	ug/L		02/20/12 10:21	02/21/12 11:03	1
Nitrobenzene	ND		5.0	0.11	ug/L		02/20/12 10:21	02/21/12 11:03	1
N-Nitrosodi-n-propylamine	ND		5.0	0.23	ug/L		02/20/12 10:21	02/21/12 11:03	1
N-Nitrosodimethylamine	ND		10	0.96	ug/L		02/20/12 10:21	02/21/12 11:03	1
N-Nitrosodiphenylamine	ND		5.0	0.40	ug/L		02/20/12 10:21	02/21/12 11:03	1
Phenanthrene	ND		5.0	0.071	ug/L		02/20/12 10:21	02/21/12 11:03	1
Pyrene	ND		5.0	0.041	ug/L		02/20/12 10:21	02/21/12 11:03	1
1,2,4-Trichlorobenzene	ND		10	0.49	ug/L		02/20/12 10:21	02/21/12 11:03	1
4-Chloro-3-methylphenol	ND		5.0	0.56	ug/L		02/20/12 10:21	02/21/12 11:03	1
2-Chlorophenol	ND		5.0	0.16	ug/L		02/20/12 10:21	02/21/12 11:03	1
2,4-Dichlorophenol	ND		5.0	0.30	ug/L		02/20/12 10:21	02/21/12 11:03	1
2,4-Dimethylphenol	ND		5.0	0.13	ug/L		02/20/12 10:21	02/21/12 11:03	1
2,4-Dinitrophenol	ND		10	0.84	ug/L		02/20/12 10:21	02/21/12 11:03	1
4,6-Dinitro-2-methylphenol	ND		10	0.76	ug/L		02/20/12 10:21	02/21/12 11:03	1
2-Nitrophenol	ND		5.0	0.14	ug/L		02/20/12 10:21	02/21/12 11:03	1
4-Nitrophenol	ND		10	1.3	ug/L		02/20/12 10:21	02/21/12 11:03	1
Pentachlorophenol	ND		10	0.41	ug/L		02/20/12 10:21	02/21/12 11:03	1
Phenol	ND		5.0	0.12	ug/L		02/20/12 10:21	02/21/12 11:03	1
2,4,6-Trichlorophenol	ND		5.0	0.23	ug/L		02/20/12 10:21	02/21/12 11:03	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4,6-Tribromophenol	109		52 - 151	02/20/12 10:21	02/21/12 11:03	1
2-Fluorobiphenyl	68		44 - 120	02/20/12 10:21	02/21/12 11:03	1

QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-52174/1-A
 Matrix: Water
 Analysis Batch: 52316

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 52174

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Fluorophenol	40		17 - 120	02/20/12 10:21	02/21/12 11:03	1
Nitrobenzene-d5	73		42 - 120	02/20/12 10:21	02/21/12 11:03	1
Phenol-d5	31		10 - 120	02/20/12 10:21	02/21/12 11:03	1
p-Terphenyl-d14	87		22 - 125	02/20/12 10:21	02/21/12 11:03	1

Lab Sample ID: LCS 480-52174/2-A
 Matrix: Water
 Analysis Batch: 52316

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 52174

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Acenaphthene	100	89.4		ug/L		89	47 - 145
Acenaphthylene	100	90.4		ug/L		90	33 - 145
Anthracene	100	97.5		ug/L		98	27 - 133
Benzo[a]anthracene	100	98.9		ug/L		99	33 - 143
Benzo[a]pyrene	100	99.5		ug/L		100	17 - 163
Benzo[b]fluoranthene	100	99.1		ug/L		99	24 - 159
Benzo[g,h,i]perylene	100	102		ug/L		102	1 - 219
Benzo[k]fluoranthene	100	93.1		ug/L		93	11 - 162
Bis(2-chloroethyl)ether	100	80.6		ug/L		81	12 - 158
Bis(2-chloroethoxy)methane	100	86.8		ug/L		87	33 - 184
2,2'-oxybis[1-chloropropane]	100	76.3		ug/L		76	36 - 166
Bis(2-ethylhexyl) phthalate	100	107		ug/L		107	8 - 158
4-Bromophenyl phenyl ether	100	101		ug/L		101	53 - 127
Butyl benzyl phthalate	100	112		ug/L		112	1 - 152
2-Chloronaphthalene	100	81.0		ug/L		81	60 - 118
4-Chlorophenyl phenyl ether	100	92.5		ug/L		93	25 - 158
Chrysene	100	94.6		ug/L		95	17 - 168
Dibenz(a,h)anthracene	100	97.5		ug/L		98	1 - 227
Di-n-butyl phthalate	100	108		ug/L		108	1 - 118
1,2-Dichlorobenzene	100	55.2		ug/L		55	32 - 129
1,3-Dichlorobenzene	100	52.3		ug/L		52	1 - 172
1,4-Dichlorobenzene	100	52.8		ug/L		53	20 - 124
3,3'-Dichlorobenzidine	100	83.3		ug/L		83	1 - 262
Diethyl phthalate	100	105		ug/L		105	1 - 114
Dimethyl phthalate	100	99.9		ug/L		100	1 - 112
2,4-Dinitrotoluene	100	108		ug/L		108	39 - 139
2,6-Dinitrotoluene	100	111		ug/L		111	50 - 158
Di-n-octyl phthalate	100	115		ug/L		115	4 - 146
Fluoranthene	100	100		ug/L		100	26 - 137
Fluorene	100	94.7		ug/L		95	59 - 121
Hexachlorobenzene	100	99.3		ug/L		99	1 - 152
Hexachlorocyclopentadiene	100	62.4		ug/L		62	5 - 120
Hexachloroethane	100	50.2		ug/L		50	40 - 113
Indeno[1,2,3-cd]pyrene	100	95.6		ug/L		96	1 - 171
Isophorone	100	92.1		ug/L		92	21 - 196
Naphthalene	100	67.7		ug/L		68	21 - 133
Nitrobenzene	100	87.0		ug/L		87	35 - 180
N-Nitrosodi-n-propylamine	100	93.7		ug/L		94	1 - 230
N-Nitrosodiphenylamine	100	103		ug/L		103	54 - 125

QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-52174/2-A				Client Sample ID: Lab Control Sample			
Matrix: Water				Prep Type: Total/NA			
Analysis Batch: 52316				Prep Batch: 52174			
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Phenanthrene	100	96.0		ug/L		96	54 - 120
Pyrene	100	95.4		ug/L		95	52 - 115
1,2,4-Trichlorobenzene	100	57.2		ug/L		57	44 - 142
4-Chloro-3-methylphenol	100	100		ug/L		100	22 - 147
2-Chlorophenol	100	82.5		ug/L		83	23 - 134
2,4-Dichlorophenol	100	91.2		ug/L		91	39 - 135
2,4-Dimethylphenol	100	93.9		ug/L		94	32 - 119
2,4-Dinitrophenol	100	89.9		ug/L		90	1 - 191
4,6-Dinitro-2-methylphenol	100	103		ug/L		103	1 - 181
2-Nitrophenol	100	92.1		ug/L		92	29 - 182
4-Nitrophenol	100	62.8		ug/L		63	1 - 132
Pentachlorophenol	100	107		ug/L		107	14 - 176
Phenol	100	43.8		ug/L		44	5 - 112
2,4,6-Trichlorophenol	100	103		ug/L		103	37 - 144

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol	109		52 - 151
2-Fluorobiphenyl	85		44 - 120
2-Fluorophenol	54		17 - 120
Nitrobenzene-d5	91		42 - 120
Phenol-d5	41		10 - 120
p-Terphenyl-d14	90		22 - 125

Lab Sample ID: LCSD 480-52174/3-A				Client Sample ID: Lab Control Sample Dup					
Matrix: Water				Prep Type: Total/NA					
Analysis Batch: 52316				Prep Batch: 52174					
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	RPD Limit
Acenaphthene	100	95.0		ug/L		95	47 - 145	6	25
Acenaphthylene	100	96.4		ug/L		96	33 - 145	6	22
Anthracene	100	104		ug/L		104	27 - 133	6	15
Benzo[a]anthracene	100	105		ug/L		105	33 - 143	6	15
Benzo[a]pyrene	100	107		ug/L		107	17 - 163	8	15
Benzo[b]fluoranthene	100	105		ug/L		105	24 - 159	6	17
Benzo[g,h,i]perylene	100	109		ug/L		109	1 - 219	6	19
Benzo[k]fluoranthene	100	101		ug/L		101	11 - 162	9	19
Bis(2-chloroethyl)ether	100	83.6		ug/L		84	12 - 158	4	33
Bis(2-chloroethoxy)methane	100	90.7		ug/L		91	33 - 184	4	23
2,2'-oxybis[1-chloropropane]	100	79.8		ug/L		80	36 - 166	4	36
Bis(2-ethylhexyl) phthalate	100	115		ug/L		115	8 - 158	6	15
4-Bromophenyl phenyl ether	100	107		ug/L		107	53 - 127	6	16
Butyl benzyl phthalate	100	119		ug/L		119	1 - 152	6	15
2-Chloronaphthalene	100	86.5		ug/L		87	60 - 118	7	30
4-Chlorophenyl phenyl ether	100	99.0		ug/L		99	25 - 158	7	15
Chrysene	100	100		ug/L		100	17 - 168	6	15
Dibenz(a,h)anthracene	100	104		ug/L		104	1 - 227	7	18
Di-n-butyl phthalate	100	115		ug/L		115	1 - 118	6	15
1,2-Dichlorobenzene	100	56.1		ug/L		56	32 - 129	2	38
1,3-Dichlorobenzene	100	53.1		ug/L		53	1 - 172	2	37

QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 480-52174/3-A Client Sample ID: Lab Control Sample Dup
 Matrix: Water Prep Type: Total/NA
 Analysis Batch: 52316 Prep Batch: 52174

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD
									Limit
1,4-Dichlorobenzene	100	53.6		ug/L		54	20 - 124	2	40
3,3'-Dichlorobenzidine	100	87.0		ug/L		87	1 - 262	4	31
Diethyl phthalate	100	112		ug/L		112	1 - 114	6	15
Dimethyl phthalate	100	107		ug/L		107	1 - 112	6	15
2,4-Dinitrotoluene	100	116		ug/L		116	39 - 139	7	20
2,6-Dinitrotoluene	100	119		ug/L		119	50 - 158	7	17
Di-n-octyl phthalate	100	123		ug/L		123	4 - 146	6	15
Fluoranthene	100	107		ug/L		107	26 - 137	6	15
Fluorene	100	101		ug/L		101	59 - 121	7	18
Hexachlorobenzene	100	105		ug/L		105	1 - 152	5	15
Hexachlorocyclopentadiene	100	65.7		ug/L		66	5 - 120	5	50
Hexachloroethane	100	51.2		ug/L		51	40 - 113	2	43
Indeno[1,2,3-cd]pyrene	100	102		ug/L		102	1 - 171	7	17
Isophorone	100	96.3		ug/L		96	21 - 196	4	21
Naphthalene	100	70.1		ug/L		70	21 - 133	3	31
Nitrobenzene	100	90.6		ug/L		91	35 - 180	4	27
N-Nitrosodi-n-propylamine	100	101		ug/L		101	1 - 230	7	23
N-Nitrosodiphenylamine	100	111		ug/L		111	54 - 125	7	15
Phenanthrene	100	101		ug/L		101	54 - 120	5	16
Pyrene	100	101		ug/L		101	52 - 115	5	15
1,2,4-Trichlorobenzene	100	59.2		ug/L		59	44 - 142	3	34
4-Chloro-3-methylphenol	100	106		ug/L		106	22 - 147	5	18
2-Chlorophenol	100	85.2		ug/L		85	23 - 134	3	26
2,4-Dichlorophenol	100	93.8		ug/L		94	39 - 135	3	23
2,4-Dimethylphenol	100	95.0		ug/L		95	32 - 119	1	18
2,4-Dinitrophenol	100	94.2		ug/L		94	1 - 191	5	29
4,6-Dinitro-2-methylphenol	100	111		ug/L		111	1 - 181	7	30
2-Nitrophenol	100	96.2		ug/L		96	29 - 182	4	28
4-Nitrophenol	100	66.1		ug/L		66	1 - 132	5	24
Pentachlorophenol	100	113		ug/L		113	14 - 176	6	21
Phenol	100	45.3		ug/L		45	5 - 112	3	36
2,4,6-Trichlorophenol	100	109		ug/L		109	37 - 144	6	20

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol	117		52 - 151
2-Fluorobiphenyl	90		44 - 120
2-Fluorophenol	54		17 - 120
Nitrobenzene-d5	93		42 - 120
Phenol-d5	42		10 - 120
p-Terphenyl-d14	96		22 - 125

Method: 608 - Organochlorine Pesticides in Water

Lab Sample ID: MB 480-52444/1-A Client Sample ID: Method Blank
 Matrix: Water Prep Type: Total/NA
 Analysis Batch: 52783 Prep Batch: 52444

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Aldrin	ND		0.050	0.0066	ug/L		02/22/12 07:58	02/24/12 13:24	1

QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 608 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: MB 480-52444/1-A

Matrix: Water

Analysis Batch: 52783

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 52444

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
alpha-BHC	ND		0.050	0.0066	ug/L		02/22/12 07:58	02/24/12 13:24	1
beta-BHC	ND		0.050	0.025	ug/L		02/22/12 07:58	02/24/12 13:24	1
delta-BHC	ND		0.050	0.010	ug/L		02/22/12 07:58	02/24/12 13:24	1
gamma-BHC (Lindane)	ND		0.050	0.0060	ug/L		02/22/12 07:58	02/24/12 13:24	1
Chlordane (technical)	ND		0.50	0.029	ug/L		02/22/12 07:58	02/24/12 13:24	1
4,4'-DDD	ND		0.050	0.0092	ug/L		02/22/12 07:58	02/24/12 13:24	1
4,4'-DDE	ND		0.050	0.012	ug/L		02/22/12 07:58	02/24/12 13:24	1
4,4'-DDT	ND		0.050	0.011	ug/L		02/22/12 07:58	02/24/12 13:24	1
Dieldrin	ND		0.050	0.0098	ug/L		02/22/12 07:58	02/24/12 13:24	1
Endosulfan I	ND		0.050	0.011	ug/L		02/22/12 07:58	02/24/12 13:24	1
Endosulfan II	ND		0.050	0.012	ug/L		02/22/12 07:58	02/24/12 13:24	1
Endosulfan sulfate	ND		0.050	0.016	ug/L		02/22/12 07:58	02/24/12 13:24	1
Endrin	ND		0.050	0.014	ug/L		02/22/12 07:58	02/24/12 13:24	1
Endrin aldehyde	ND		0.050	0.016	ug/L		02/22/12 07:58	02/24/12 13:24	1
Heptachlor	ND		0.050	0.0085	ug/L		02/22/12 07:58	02/24/12 13:24	1
Heptachlor epoxide	ND		0.050	0.0053	ug/L		02/22/12 07:58	02/24/12 13:24	1
Toxaphene	ND		0.50	0.12	ug/L		02/22/12 07:58	02/24/12 13:24	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	18		15 - 125	02/22/12 07:58	02/24/12 13:24	1
Tetrachloro-m-xylene	84		36 - 121	02/22/12 07:58	02/24/12 13:24	1

Lab Sample ID: LCS 480-52444/2-A

Matrix: Water

Analysis Batch: 52783

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 52444

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Aldrin	0.500	0.350		ug/L		70	35 - 120
alpha-BHC	0.500	0.403		ug/L		81	39 - 121
beta-BHC	0.500	0.412		ug/L		82	39 - 138
delta-BHC	0.500	0.404		ug/L		81	40 - 121
gamma-BHC (Lindane)	0.500	0.399		ug/L		80	54 - 134
4,4'-DDD	0.500	0.394		ug/L		79	54 - 142
4,4'-DDE	0.500	0.344		ug/L		69	48 - 128
4,4'-DDT	0.500	0.363		ug/L		73	53 - 136
Dieldrin	0.500	0.397		ug/L		79	52 - 132
Endosulfan I	0.500	0.370		ug/L		74	47 - 126
Endosulfan II	0.500	0.395		ug/L		79	48 - 134
Endosulfan sulfate	0.500	0.438		ug/L		88	57 - 140
Endrin	0.500	0.434		ug/L		87	54 - 135
Endrin aldehyde	0.500	0.409		ug/L		82	55 - 132
Heptachlor	0.500	0.395		ug/L		79	42 - 126
Heptachlor epoxide	0.500	0.399		ug/L		80	53 - 134

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	-1	X	15 - 125
Tetrachloro-m-xylene	83		36 - 121

QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 608 - Organochlorine Pesticides in Water (Continued)

Lab Sample ID: LCSD 480-52444/3-A
 Matrix: Water
 Analysis Batch: 52783

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 52444

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec.		RPD	Limit
		Result	Qualifier				Limits	RPD		
Aldrin	0.500	0.326		ug/L		65	35 - 120	7	50	
alpha-BHC	0.500	0.383		ug/L		77	39 - 121	5	50	
beta-BHC	0.500	0.388		ug/L		78	39 - 138	6	50	
delta-BHC	0.500	0.385		ug/L		77	40 - 121	5	50	
gamma-BHC (Lindane)	0.500	0.374		ug/L		75	54 - 134	6	50	
4,4'-DDD	0.500	0.380		ug/L		76	54 - 142	4	50	
4,4'-DDE	0.500	0.363		ug/L		73	48 - 128	5	50	
4,4'-DDT	0.500	0.371		ug/L		74	53 - 136	2	50	
Dieldrin	0.500	0.376		ug/L		75	52 - 132	5	50	
Endosulfan I	0.500	0.353		ug/L		71	47 - 126	5	50	
Endosulfan II	0.500	0.381		ug/L		76	48 - 134	4	50	
Endosulfan sulfate	0.500	0.413		ug/L		83	57 - 140	6	50	
Endrin	0.500	0.412		ug/L		82	54 - 135	5	50	
Endrin aldehyde	0.500	0.390		ug/L		78	55 - 132	5	50	
Heptachlor	0.500	0.369		ug/L		74	42 - 126	7	50	
Heptachlor epoxide	0.500	0.377		ug/L		75	53 - 134	6	50	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	15		15 - 125
Tetrachloro-m-xylene	76		36 - 121

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 480-52270/1-A
 Matrix: Water
 Analysis Batch: 52404

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 52270

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
PCB-1016	ND		0.060	0.038	ug/L		02/21/12 07:54	02/21/12 16:57	1
PCB-1221	ND		0.060	0.038	ug/L		02/21/12 07:54	02/21/12 16:57	1
PCB-1232	ND		0.060	0.038	ug/L		02/21/12 07:54	02/21/12 16:57	1
PCB-1242	ND		0.060	0.038	ug/L		02/21/12 07:54	02/21/12 16:57	1
PCB-1248	ND		0.060	0.038	ug/L		02/21/12 07:54	02/21/12 16:57	1
PCB-1254	ND		0.060	0.031	ug/L		02/21/12 07:54	02/21/12 16:57	1
PCB-1260	ND		0.060	0.031	ug/L		02/21/12 07:54	02/21/12 16:57	1
PCB-1262	ND		0.060	0.031	ug/L		02/21/12 07:54	02/21/12 16:57	1
PCB-1268	ND		0.060	0.031	ug/L		02/21/12 07:54	02/21/12 16:57	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
DCB Decachlorobiphenyl	73		10 - 158	02/21/12 07:54	02/21/12 16:57	1
Tetrachloro-m-xylene	109		18 - 146	02/21/12 07:54	02/21/12 16:57	1

Lab Sample ID: LCS 480-52270/2-A
 Matrix: Water
 Analysis Batch: 52404

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 52270

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	RPD
PCB-1016	1.00	0.843		ug/L		84	44 - 154	
PCB-1260	1.00	0.840		ug/L		84	34 - 150	

QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Lab Sample ID: LCS 480-52270/2-A
 Matrix: Water
 Analysis Batch: 52404

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 52270

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	75		10 - 158
Tetrachloro-m-xylene	112		18 - 146

Lab Sample ID: LCSD 480-52270/3-A
 Matrix: Water
 Analysis Batch: 52404

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 52270

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec.		
		Result	Qualifier				Limits	RPD	Limit
PCB-1016	1.00	0.936		ug/L		94	44 - 154	10	30
PCB-1260	1.00	0.832		ug/L		83	34 - 150	1	30

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
DCB Decachlorobiphenyl	70		10 - 158
Tetrachloro-m-xylene	110		18 - 146

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 480-52385/1-A
 Matrix: Water
 Analysis Batch: 52637

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 52385

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	ND		0.020	0.0068	mg/L		02/22/12 08:15	02/22/12 16:55	1
Arsenic	ND		0.010	0.0056	mg/L		02/22/12 08:15	02/22/12 16:55	1
Beryllium	ND		0.0020	0.00030	mg/L		02/22/12 08:15	02/22/12 16:55	1
Cadmium	ND		0.0010	0.00033	mg/L		02/22/12 08:15	02/22/12 16:55	1
Calcium	0.203	J	0.50	0.10	mg/L		02/22/12 08:15	02/22/12 16:55	1
Chromium	ND		0.0040	0.00087	mg/L		02/22/12 08:15	02/22/12 16:55	1
Copper	ND		0.010	0.0015	mg/L		02/22/12 08:15	02/22/12 16:55	1
Lead	ND		0.0050	0.0030	mg/L		02/22/12 08:15	02/22/12 16:55	1
Magnesium	ND		0.20	0.043	mg/L		02/22/12 08:15	02/22/12 16:55	1
Nickel	ND		0.010	0.0013	mg/L		02/22/12 08:15	02/22/12 16:55	1
Selenium	ND		0.015	0.0087	mg/L		02/22/12 08:15	02/22/12 16:55	1
Silver	ND		0.0030	0.0017	mg/L		02/22/12 08:15	02/22/12 16:55	1
Sodium	0.877	J	1.0	0.32	mg/L		02/22/12 08:15	02/22/12 16:55	1
Thallium	ND		0.020	0.010	mg/L		02/22/12 08:15	02/22/12 16:55	1
Zinc	ND		0.010	0.0017	mg/L		02/22/12 08:15	02/22/12 16:55	1

Lab Sample ID: LCS 480-52385/2-A
 Matrix: Water
 Analysis Batch: 52637

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 52385

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	
Antimony	0.200	0.201		mg/L		101	85 - 115	
Arsenic	0.200	0.204		mg/L		102	85 - 115	
Beryllium	0.200	0.203		mg/L		102	85 - 115	
Cadmium	0.200	0.207		mg/L		103	85 - 115	
Calcium	10.0	10.05		mg/L		100	85 - 115	
Chromium	0.200	0.206		mg/L		103	85 - 115	

QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-52385/2-A
 Matrix: Water
 Analysis Batch: 52637

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 52385

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	
Copper	0.200	0.208		mg/L		104	85 - 115	
Lead	0.200	0.202		mg/L		101	85 - 115	
Magnesium	10.0	9.84		mg/L		98	85 - 115	
Nickel	0.200	0.198		mg/L		99	85 - 115	
Selenium	0.200	0.205		mg/L		103	85 - 115	
Silver	0.0500	0.0492		mg/L		98	85 - 115	
Sodium	10.0	10.40		mg/L		104	85 - 115	
Thallium	0.200	0.210		mg/L		105	85 - 115	
Zinc	0.200	0.200		mg/L		100	85 - 115	

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 480-52143/1-A
 Matrix: Water
 Analysis Batch: 52218

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 52143

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Mercury	ND		0.00020	0.00012	mg/L		02/20/12 09:05	02/20/12 13:16	1

Lab Sample ID: LCS 480-52143/2-A
 Matrix: Water
 Analysis Batch: 52218

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 52143

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	
Mercury	0.00667	0.00682		mg/L		102	85 - 115	

Method: 120.1 - Conductivity, Specific Conductance

Lab Sample ID: LCS 480-52321/1
 Matrix: Water
 Analysis Batch: 52321

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

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	
Specific Conductance	998	1047		umhos/cm		105	90 - 110	

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 480-52389/1-A
 Matrix: Water
 Analysis Batch: 52391

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 52389

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Oil & Grease	ND		5.0	1.4	mg/L		02/21/12 15:10	02/21/12 15:18	1

Lab Sample ID: LCS 480-52389/2-A
 Matrix: Water
 Analysis Batch: 52391

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 52389

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec.	
		Result	Qualifier				Limits	
Oil & Grease	38.5	31.54		mg/L		82	78 - 114	

QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 335.4 - Cyanide, Total

Lab Sample ID: MB 480-52257/1-A
 Matrix: Water
 Analysis Batch: 52395

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 52257

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010	0.0050	mg/L		02/20/12 17:00	02/21/12 14:53	1

Lab Sample ID: LCS 480-52257/2-A
 Matrix: Water
 Analysis Batch: 52395

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 52257

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.400	0.479	*	mg/L		120	90 - 110

Method: 420.4 - Phenolics, Total Recoverable

Lab Sample ID: MB 480-52253/1-A
 Matrix: Water
 Analysis Batch: 52948

Client Sample ID: Method Blank
 Prep Type: Total/NA
 Prep Batch: 52253

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	0.00603	J	0.010	0.0050	mg/L		02/20/12 16:00	02/25/12 09:00	1

Lab Sample ID: LCS 480-52253/2-A
 Matrix: Water
 Analysis Batch: 52948

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 52253

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phenolics, Total Recoverable	0.100	0.0961		mg/L		96	90 - 110

Method: 9020 - Organic Halides, Total (TOX)

Lab Sample ID: MB 480-52866/1
 Matrix: Water
 Analysis Batch: 52866

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Halogens, Total Organic	ND		20.0	6.5	ug/L			02/24/12 13:40	1

Lab Sample ID: LCS 480-52866/2
 Matrix: Water
 Analysis Batch: 52866

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Halogens, Total Organic	100	104.9		ug/L		105	75 - 125

Method: 9040B - pH

Lab Sample ID: LCS 480-52085/1
 Matrix: Water
 Analysis Batch: 52085

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	6.990		SU		100	99 - 101

QC Sample Results

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method: 9060 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-53807/27
 Matrix: Water
 Analysis Batch: 53807

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Organic Carbon	ND		1.0	0.43	mg/L			03/03/12 06:02	1

Lab Sample ID: LCS 480-53807/28
 Matrix: Water
 Analysis Batch: 53807

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 480-52580/1
 Matrix: Water
 Analysis Batch: 52580

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Dissolved Solids	ND		10.0	4.0	mg/L			02/22/12 19:00	1

Lab Sample ID: LCS 480-52580/2
 Matrix: Water
 Analysis Batch: 52580

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

Method: SM 4500 Cl- E - Chloride, Total

Lab Sample ID: MB 480-52263/39
 Matrix: Water
 Analysis Batch: 52263

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	ND		1.0	0.46	mg/L			02/20/12 20:34	1

Lab Sample ID: MB 480-52263/60
 Matrix: Water
 Analysis Batch: 52263

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	ND		1.0	0.46	mg/L			02/20/12 22:36	1

Lab Sample ID: MB 480-52263/66
 Matrix: Water
 Analysis Batch: 52263

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Chloride	ND		1.0	0.46	mg/L			02/20/12 23:36	1

QC Sample Results

Client: National Fuel Gas Supply Company
Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1



Method: SM 4500 Cl- E - Chloride, Total (Continued)

Lab Sample ID: LCS 480-52263/38 Client Sample ID: Lab Control Sample
Matrix: Water Prep Type: Total/NA
Analysis Batch: 52263

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	26.78		mg/L		107	90 - 110

Lab Sample ID: LCS 480-52263/65 Client Sample ID: Lab Control Sample
Matrix: Water Prep Type: Total/NA
Analysis Batch: 52263

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	26.65		mg/L		107	90 - 110

QC Association Summary

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

GC/MS VOA

Analysis Batch: 52148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	624	
480-16320-2	TRIP BLANK	Total/NA	Water	624	
LCS 480-52148/4	Lab Control Sample	Total/NA	Water	624	
MB 480-52148/5	Method Blank	Total/NA	Water	624	

GC/MS Semi VOA

Prep Batch: 52174

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	625	
LCS 480-52174/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 480-52174/3-A	Lab Control Sample Dup	Total/NA	Water	625	
MB 480-52174/1-A	Method Blank	Total/NA	Water	625	

Analysis Batch: 52316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	625	52174
LCS 480-52174/2-A	Lab Control Sample	Total/NA	Water	625	52174
LCSD 480-52174/3-A	Lab Control Sample Dup	Total/NA	Water	625	52174
MB 480-52174/1-A	Method Blank	Total/NA	Water	625	52174

GC Semi VOA

Prep Batch: 52270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	3510C	
LCS 480-52270/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 480-52270/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 480-52270/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 52404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	608	52270
LCS 480-52270/2-A	Lab Control Sample	Total/NA	Water	608	52270
LCSD 480-52270/3-A	Lab Control Sample Dup	Total/NA	Water	608	52270
MB 480-52270/1-A	Method Blank	Total/NA	Water	608	52270

Prep Batch: 52444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	3510C	
LCS 480-52444/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 480-52444/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 480-52444/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 52783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	608	52444
LCS 480-52444/2-A	Lab Control Sample	Total/NA	Water	608	52444
LCSD 480-52444/3-A	Lab Control Sample Dup	Total/NA	Water	608	52444
MB 480-52444/1-A	Method Blank	Total/NA	Water	608	52444



QC Association Summary

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Metals

Prep Batch: 52143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	245.1	
LCS 480-52143/2-A	Lab Control Sample	Total/NA	Water	245.1	
MB 480-52143/1-A	Method Blank	Total/NA	Water	245.1	

Analysis Batch: 52218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	245.1	52143
LCS 480-52143/2-A	Lab Control Sample	Total/NA	Water	245.1	52143
MB 480-52143/1-A	Method Blank	Total/NA	Water	245.1	52143

Prep Batch: 52385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	200.7	
LCS 480-52385/2-A	Lab Control Sample	Total/NA	Water	200.7	
MB 480-52385/1-A	Method Blank	Total/NA	Water	200.7	

Analysis Batch: 52637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	200.7 Rev 4.4	52385
LCS 480-52385/2-A	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	52385
MB 480-52385/1-A	Method Blank	Total/NA	Water	200.7 Rev 4.4	52385

Analysis Batch: 53019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	200.7 Rev 4.4	52385
480-16320-1	BRINE	Total/NA	Water	200.7 Rev 4.4	52385

Analysis Batch: 53451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	200.7 Rev 4.4	52385

General Chemistry

Analysis Batch: 52085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	9040B	
LCS 480-52085/1	Lab Control Sample	Total/NA	Water	9040B	

Prep Batch: 52253

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	Distil/Phencl	
LCS 480-52253/2-A	Lab Control Sample	Total/NA	Water	Distil/Phencl	
MB 480-52253/1-A	Method Blank	Total/NA	Water	Distil/Phencl	

Prep Batch: 52257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	Distil/CN	
LCS 480-52257/2-A	Lab Control Sample	Total/NA	Water	Distil/CN	
MB 480-52257/1-A	Method Blank	Total/NA	Water	Distil/CN	



QC Association Summary

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1



General Chemistry (Continued)

Analysis Batch: 52263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	SM 4500 Cl- E	
LCS 480-52263/38	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
LCS 480-52263/65	Lab Control Sample	Total/NA	Water	SM 4500 Cl- E	
MB 480-52263/39	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-52263/60	Method Blank	Total/NA	Water	SM 4500 Cl- E	
MB 480-52263/66	Method Blank	Total/NA	Water	SM 4500 Cl- E	

Analysis Batch: 52321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	120.1	
LCS 480-52321/1	Lab Control Sample	Total/NA	Water	120.1	

Prep Batch: 52389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	1664A	
LCS 480-52389/2-A	Lab Control Sample	Total/NA	Water	1664A	
MB 480-52389/1-A	Method Blank	Total/NA	Water	1664A	

Analysis Batch: 52391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	1664A	52389
LCS 480-52389/2-A	Lab Control Sample	Total/NA	Water	1664A	52389
MB 480-52389/1-A	Method Blank	Total/NA	Water	1664A	52389

Analysis Batch: 52395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	335.4	52257
LCS 480-52257/2-A	Lab Control Sample	Total/NA	Water	335.4	52257
MB 480-52257/1-A	Method Blank	Total/NA	Water	335.4	52257

Analysis Batch: 52580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	SM 2540C	
LCS 480-52580/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MB 480-52580/1	Method Blank	Total/NA	Water	SM 2540C	

Analysis Batch: 52866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	9020	
LCS 480-52866/2	Lab Control Sample	Total/NA	Water	9020	
MB 480-52866/1	Method Blank	Total/NA	Water	9020	

Analysis Batch: 52948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	420.4	52253
LCS 480-52253/2-A	Lab Control Sample	Total/NA	Water	420.4	52253
MB 480-52253/1-A	Method Blank	Total/NA	Water	420.4	52253

Analysis Batch: 53807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-16320-1	BRINE	Total/NA	Water	9060	
LCS 480-53807/28	Lab Control Sample	Total/NA	Water	9060	

QC Association Summary

Client: National Fuel Gas Supply Company
Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

General Chemistry (Continued)

Analysis Batch: 53807 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-53807/27	Method Blank	Total/NA	Water	9060	



Lab Chronicle

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Client Sample ID: BRINE

Lab Sample ID: 480-16320-1

Date Collected: 02/17/12 01:20

Matrix: Water

Date Received: 02/17/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	52148	02/20/12 15:09	TRB	TAL BUF
Total/NA	Prep	625			52174	02/20/12 10:21	TR	TAL BUF
Total/NA	Analysis	625		1	52316	02/21/12 12:15	AM	TAL BUF
Total/NA	Prep	3510C			52270	02/21/12 07:54	MZ	TAL BUF
Total/NA	Analysis	608		1	52404	02/21/12 18:28	JM	TAL BUF
Total/NA	Prep	3510C			52444	02/22/12 07:58	TR	TAL BUF
Total/NA	Analysis	608		5	52783	02/24/12 18:11	DB	TAL BUF
Total/NA	Prep	245.1			52143	02/20/12 09:05	JM	TAL BUF
Total/NA	Analysis	245.1		1	52218	02/20/12 13:50	JM	TAL BUF
Total/NA	Prep	200.7			52385	02/22/12 08:15	SS	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		1	52637	02/22/12 18:17	LH	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		10	53019	02/24/12 23:11	LH	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		50	53019	02/24/12 23:18	LH	TAL BUF
Total/NA	Analysis	200.7 Rev 4.4		50	53451	02/29/12 22:49	AH	TAL BUF
Total/NA	Analysis	9040B		1	52085	02/17/12 19:28	KS	TAL BUF
Total/NA	Analysis	SM 4500 Cl- E		6050	52263	02/20/12 23:36	KS	TAL BUF
Total/NA	Analysis	120.1		1	52321	02/21/12 09:56	JS	TAL BUF
Total/NA	Prep	1664A			52389	02/21/12 15:10	EGR	TAL BUF
Total/NA	Analysis	1664A		1	52391	02/21/12 15:18	EGR	TAL BUF
Total/NA	Prep	Distill/CN			52257	02/20/12 17:00	ML	TAL BUF
Total/NA	Analysis	335.4		1	52395	02/21/12 15:00	JR	TAL BUF
Total/NA	Analysis	SM 2540C		1	52580	02/22/12 19:10	KJ	TAL BUF
Total/NA	Analysis	9020		1	52866	02/27/12 07:29	JM	TAL BUF
Total/NA	Prep	Distill/Phenol			52253	02/20/12 19:46	KS	TAL BUF
Total/NA	Analysis	420.4		5	52948	02/25/12 10:40	PN	TAL BUF
Total/NA	Analysis	9060		1	53807	03/03/12 18:28	KAC	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-16320-2

Date Collected: 02/17/12 01:20

Matrix: Water

Date Received: 02/17/12 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	52148	02/20/12 15:32	TRB	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

TestAmerica Job ID: 480-16320-1

Client: National Fuel Gas Supply Company
 Project/Site: Brine Priority Pollutant Analysis

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Buffalo	Arkansas DEQ	State Program	6	88-0686
TestAmerica Buffalo	California	NELAC	9	1189CA
TestAmerica Buffalo	Connecticut	State Program	1	PH-0568
TestAmerica Buffalo	Florida	NELAC	4	E87672
TestAmerica Buffalo	Georgia	State Program	4	956
TestAmerica Buffalo	Georgia	State Program	4	N/A
TestAmerica Buffalo	Illinois	NELAC	5	100325 / 200003
TestAmerica Buffalo	Iowa	State Program	7	374
TestAmerica Buffalo	Kansas	NELAC	7	E-10187
TestAmerica Buffalo	Kentucky	State Program	4	90029
TestAmerica Buffalo	Kentucky (UST)	State Program	4	30
TestAmerica Buffalo	Louisiana	NELAC	6	02031
TestAmerica Buffalo	Maine	State Program	1	NY0044
TestAmerica Buffalo	Maryland	State Program	3	294
TestAmerica Buffalo	Massachusetts	State Program	1	M-NY044
TestAmerica Buffalo	Michigan	State Program	5	9937
TestAmerica Buffalo	Minnesota	NELAC	5	036-999-337
TestAmerica Buffalo	New Hampshire	NELAC	1	2337
TestAmerica Buffalo	New Hampshire	NELAC	1	68-00281
TestAmerica Buffalo	New Jersey	NELAC	2	NY455
TestAmerica Buffalo	New York	NELAC	2	10026
TestAmerica Buffalo	North Dakota	State Program	8	R-176
TestAmerica Buffalo	Oklahoma	State Program	6	9421
TestAmerica Buffalo	Oregon	NELAC	10	NY200003
TestAmerica Buffalo	Pennsylvania	NELAC	3	68-00281
TestAmerica Buffalo	Tennessee	State Program	4	TN02970
TestAmerica Buffalo	Texas	NELAC	6	T104704412-08-TX
TestAmerica Buffalo	USDA	Federal		P330-08-00242
TestAmerica Buffalo	Virginia	NELAC Secondary AB	3	460185
TestAmerica Buffalo	Virginia	State Program	3	278
TestAmerica Buffalo	Washington	State Program	10	C1677
TestAmerica Buffalo	West Virginia DEP	State Program	3	252
TestAmerica Buffalo	Wisconsin	State Program	5	998310390

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.



Method Summary

Client: National Fuel Gas Supply Company
Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Method	Method Description	Protocol	Laboratory
624	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF
625	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL BUF
608	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL BUF
608	Organochlorine Pesticides in Water	40CFR136A	TAL BUF
200.7 Rev 4.4	Metals (ICP)	EPA	TAL BUF
245.1	Mercury (CVAA)	EPA	TAL BUF
120.1	Conductivity, Specific Conductance	MCAWW	TAL BUF
1664A	HEM and SGT-HEM	1664A	TAL BUF
335.4	Cyanide, Total	MCAWW	TAL BUF
420.4	Phenolics, Total Recoverable	MCAWW	TAL BUF
9020	Organic Halides, Total (TOX)	SW846	TAL BUF
9040B	pH	SW846	TAL BUF
9060	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4500 Cl- E	Chloride, Total	SM	TAL BUF

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: National Fuel Gas Supply Company
Project/Site: Brine Priority Pollutant Analysis

TestAmerica Job ID: 480-16320-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-16320-1	BRINE	Water	02/17/12 01:20	02/17/12 15:50
480-16320-2	TRIP BLANK	Water	02/17/12 01:20	02/17/12 15:50

1

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Login Sample Receipt Checklist

Client: National Fuel Gas Supply Company

Job Number: 480-16320-1

Login Number: 16320

List Source: TestAmerica Buffalo

List Number: 1

Creator: Robitaille, Zach L.

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is 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	1.8 #2
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 sample IDs on the containers 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	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	FRONTIER ASS
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	



STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
REGION FOUR
1530 JEFFERSON ROAD
ROCHESTER, NEW YORK 14623-3161
www.dot.ny.gov

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DIRECTOR'S OFFICE
DIV. OF MATERIALS MANAGEMENT

ROBERT A. TRAVER, P.E.
ACTING REGIONAL DIRECTOR

JOAN MCDONALD
COMMISSIONER

November 26, 2013

Stephen Condon
Bureau of Waste Reduction & Recycling
NYS Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7253

Dear Mr. Condon,

On 11/24/2009, Region 4 of the NYS Department of Transportation (NYSDOT) requested a Beneficial Use Determination (BUD) to use natural salt brine originating from US Gypsum natural gas wells in Genesee and Wyoming Counties as an anti-icing/de-icing agent on State highways in Genesee, Orleans and Wyoming Counties. The BUD request was approved by NYSDEC on 12/9/2009. A modification adding some state highways and a storage site, both in Monroe County, was approved on 12/19/11.

We are requesting that the existing BUD be amended to allow use of the US Gypsum brine as an anti-icing/de-icing agent on additional State highways in Monroe and Livingston Counties. We are also providing updated information on our application equipment/methods and storage facilities

At the time of need, the brine will be applied to the following additional routes in as necessary: Routes 204, 940K, 940T, 947A and 531 in Monroe County; and Routes 15, 15A, 20, 20A, 36, 63, 70, 256, I-390, 408 and 436 in Livingston County.

The following application methods will be used in all counties included in this BUD (Genesee, Orleans, Livingston, Monroe and Wyoming):

- Plow trucks may be used for applying brine pre-wet salt. All applications will be in accordance with the NYSDOT's Snow and Ice Guidelines. In all cases the brine will be used to pre-wet granular salt by adding it to the salt at the spreader. Six to eight gallons of brine will be added per ton of granular salt. Based on an average spreading rate of 180 to 225 pounds of granular salt per lane mile this will equate to 0.54 to 0.9 gallons of brine added/lane mile. The application is controlled and may be shut off from within the cab of the truck. Brine will only be applied as conditions warrant.
- Plow trucks with slide in tank units or tanker trucks may be used to apply brine directly to the pavement as an anti-icing strategy in accordance with NYSDOT's Snow and Ice Guidelines. All trucks with tanks have control systems and can be shut off from within the cab of the truck. When conditions warrant, the application rate will be 40-60 gallons of brine per lane mile.

The following is a summary of our current and planned storage capacities:

- Genesee County Residency at 5441 East Main Street, Batavia, NY 14020 - Two 6000 gallon poly tanks which are on raised platforms and protected by barriers.
- Orleans County Residency at 14110 Route 31 West, Albion, NY 14411 - One 3000 gallon poly tank and one 6000 poly tank which are protected by barriers.
- Livingston County Residency at 5543 Geneseo-Lakeville Rd, Geneseo, NY 14480 - Two 3000 gallon poly tanks which are on a raised platform and protected by timber barriers.

- Monroe East Residency at 938 West Linden Avenue, East Rochester, NY 14445 - Four 3000 gallon poly tanks which are on a raised gravel bed and protected by a barrier.
- Monroe West Residency at 2441 South Union Street, Spencerport, NY 14559 - One 6000 gallon poly tank will be installed for storage. It will be protected by a barrier.
- Wyoming County Residency at 3879 Route 19, Warsaw, NY 14569 - Two 3000 gallon poly tanks which are protected by barriers, one of which is enclosed in a wood framed shed.
- Wyoming County Sub-Residency at 5241 Route 78, North Java, 14113 - One 3000 gallon poly tank which is enclosed in a wood framed shed.

All brine storage tanks are labeled identifying their contents and capacity.

If you have any questions or need any further information I can be reached at (585)272-3407, at the address above or at maryellen.papin@dot.ny.gov.

Sincerely,



Mary Ellen Papin
Maintenance Environmental Coordinator

New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Waste Reduction & Recycling, 9th Floor
625 Broadway, Albany, New York 12233-7253
Phone: (518) 402-8706 • Fax: (518) 402-9024
Website: www.dec.ny.gov



Joe Martens
Commissioner

DEC 10 2013

Mrs. Mary Ellen Papin
Maintenance Environmental Coordinator
NYSDOT – Region 4
1530 Jefferson Road
Rochester, NY 14623

Dear Mrs. Papin:

RE: BUD Modification - Gas Well Production Brine as Deicing Agent

We have reviewed the information submitted in your December 2, 2013 request to modify your 1999 Beneficial Use Determination for natural gas well production brine from your listed storage facilities as a deicing agent. The use of this material is approved within NYSDOT Region 4 on the additional routes submitted in your request, by the methods described in your request and in accordance with the New York State Department of Transportation (NYSDOT) Office of Operations Management Highway Maintenance Guidelines for Snow and Ice Control.

Vendor vehicles transporting brine to your brine storage locations must have a valid Part 364 permit. NYSDOT Region 4 facilities must be the approved destinations under the Part 364 permit or upon the next Part 364 permit renewal. NYSDOT vehicles that apply brine supplied from your storage tanks do not require a Part 364 permit.

The New York State Department of Environmental Conservation reserves the right to rescind or modify this determination at any time, should conditions warrant. This determination does not exempt this activity from any other local, state, or federal requirements. All conditions listed in the original beneficial use determination dated December 9, 2009 remain in effect unless superseded by this document.

Please contact me at (518) 402-8706 if you have any questions or need any additional information.

Sincerely,

Stephen Condon
Bureau of Waste Reduction & Recycling
Division of Materials Management