

**GEL LABORATORIES LLC**

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

**Certificate of Analysis**

Report Date: June 7, 2011

Company : Pennsylvania Brine Treatment  
 Address : 5148 US 322

Franklin, Pennsylvania 16323  
 Contact: Mr. Sparky DeLong  
 Project: PA Brine Treatment - Franklin Facility

Client Sample ID: Outfall 001  
 Sample ID: 277902001  
 Matrix: Water  
 Collect Date: 09-MAY-11 16:00  
 Receive Date: 11-MAY-11  
 Collector: Client

Project: PABR00211  
 Client ID: PABR001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammascpec, Gamma, Liquid (Standard List) "As Received"												
Radium-228	UI	0.00	+/-29.7	47.9		pCi/L		KXG3	06/01/11	1044	1102598	1
Rad Gas Flow Proportional Counting												
GFPC, Gross Alpha Liquid "As Received"												
Alpha		1070	+/-370	530	5.00	pCi/L		VXC2	06/01/11	1916	1104018	2
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		212	+/-4.56	0.411	1.00	pCi/L		KSD1	05/18/11	1250	1101441	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 901.1	
2	EPA 900.0/SW846 9310	
3	EPA 903.1 Modified	

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Report Date: June 7, 2011

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Address : 5148 US 322

Franklin, Pennsylvania 16323  
Contact: Mr. Sparky DeLong  
Project: PA Brine Treatment - Franklin Facility

Client Sample ID: Outfall 001  
Sample ID: 277902001  
Matrix: Water  
Collect Date: 09-MAY-11 16:00  
Receive Date: 11-MAY-11  
Collector: Client

Project: PABR00211  
Client ID: PABR001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Uranium	U	ND	1.68	5.00	ug/L	25	BAJ	06/06/11	1344	1101439	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	LYH1	05/16/11	1000	1101437

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020A	

## CERTIFICATE OF ANALYSIS

**Work Order Number:**

**11E1652**

Pennsylvania Brine Treatment  
Attn: Elton Delong, Jr. (Sparky)  
5148 Us 322  
Franklin, PA 16323

Date Reported 05/25/2011  
Date Received 05/10/2011  
Order Number 11E1652  
Account Number 000000016369



Purchase Order:

Subject: Weekly Wastewater Sample

SMP	TEST	METHOD	RESULT	UNITS	ANALYSIS		
					DATE	TIME	TECH
<b>01</b>	<b>Composite Sample</b>						
	<b>Sample Date: 05/09/2011</b>		<b>Sample Time: 15:00</b>				
Chloride		ASTM D512-89A	82,000	mg/L	05/17/2011	12:00	CAP
Solids, Suspended		SM 2540 D	< 10	mg/L	05/10/2011	16:05	MAD
Sulfate		SM 4500-SO4 D	23	mg/L	05/11/2011	13:40	CMF
<b>02</b>	<b>Grab Sample</b>						
	<b>Sample Date: 05/09/2011</b>		<b>Sample Time: 12:30</b>				
Oil & Grease		EPA 1664A	<5.0	mg/L	05/17/2011	9:00	MAB
<b>03</b>	<b>Composite Sample</b>						
	<b>Sample Date: 05/10/2011</b>		<b>Sample Time: 14:25</b>				
Copper		EPA 200.7	< 0.100	mg/L	05/12/2011	15:54	MWR
Iron, Total		EPA 200.7	< 0.500	mg/L	05/12/2011	15:54	MWR
Silver		EPA 200.7	< 0.100	mg/L	05/12/2011	15:54	MWR
<b>04</b>	<b>Composite Sample</b>						
	<b>Sample Date: 05/09/2011</b>		<b>Sample Time: 15:00</b>				
Bromide		EPA 300.0	770	mg/L	05/12/2011	12:44	OST

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**Certificate of Analysis**

Report Date: June 17, 2011

Company : Pennsylvania Brine Treatment  
 Address : 5148 US 322

Franklin, Pennsylvania 16323  
 Contact: Mr. Sparky DeLong  
 Project: PA Brine Treatment - Franklin Facility

Client Sample ID: Outfall 001 Project: PABR00211  
 Sample ID: 278665001 Client ID: PABR001  
 Matrix: Water  
 Collect Date: 23-MAY-11 16:00  
 Receive Date: 24-MAY-11  
 Collector: Client

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Liquid (Standard List) "As Received"												
Radium-228	U	-1.07	+/-13.7	23.3		pCi/L		KXG3	06/15/11	1636	1109035	1
Rad Gas Flow Proportional Counting												
GFPC, Gross Alpha Liquid "As Received"												
Alpha	U	-52	+/-93.1	181	5.00	pCi/L		DXF3	06/15/11	1910	1111534	2
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		6.41	+/-0.801	0.198	1.00	pCi/L		KSD1	06/07/11	1455	1106798	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 901.1	
2	EPA 900.0/SW846 9310	
3	EPA 903.1 Modified	

# Microbac

® 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

## CERTIFICATE OF ANALYSIS

Work Order Number:

11E2911

Pennsylvania Brine Treatment  
Attn: Elton Delong, Jr. (Sparky)  
5148 Us 322  
Franklin, PA 16323

Date Reported 06/30/2011  
Date Received 05/24/2011  
Order Number 11E2911  
Account Number 000000016369



Purchase Order:

Subject: Weekly Wastewater Sample

						ANALYSIS		
SMP	TEST	METHOD	RESULT	UNITS	DATE	TIME	TECH	NOTES
<b>01 Composite Sample</b>								
Sample Date: 05/23/2011			Sample Time: 13:30					
Acidity		SM 2310 B	<7.0	mg/L	06/07/11	10:20	CP3	O-04
Alkalinity As CaCO <sub>3</sub>		SM 2320B	86	mg CaCO <sub>3</sub> /L	05/25/11	9:20	CP3	
Chloride		ASTM D512-89A	49,000	mg/L	05/31/11	11:00	CAP	
Solids, Dissolved		SM 2540C	110,000	mg/L	05/25/11	16:00	CMF	
Solids, Suspended		SM 2540 D	< 10	mg/L	05/24/11	16:25	MAD	
Sulfate		SM 4500-SO <sub>4</sub> D	180	mg/L	05/25/11	14:45	CMF	
<b>02 Grab Sample</b>								
Sample Date: 05/23/2011			Sample Time: 13:30					
Oil & Grease		EPA 1664A	<5.0	mg/L	06/06/11	7:00	CAP	
<b>03 Composite Sample</b>								
Sample Date: 05/23/2011			Sample Time: 13:30					
Barium		EPA 200.7	19.1	mg/L	06/06/11	8:45	MWR	
Copper		EPA 200.7	< 0.100	mg/L	06/01/11	15:36	MWR	
Iron, Total		EPA 200.7	< 0.500	mg/L	06/01/11	15:36	MWR	
Silver		EPA 200.7	< 0.100	mg/L	06/01/11	15:36	MWR	
Strontium		EPA 200.7	1,100	mg/L	06/07/11	15:11	MWR	
<b>04 Composite Sample</b>								
Sample Date: 05/23/2011			Sample Time: 13:30					
Bromide		EPA 300.0	490	mg/L	05/26/11	0:00	OST	

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## Certificate of Analysis

Report Date: June 17, 2011

Company : Pennsylvania Brine Treatment  
Address : 5148 US 322  
  
Franklin, Pennsylvania 16323  
Contact: Mr. Sparky DeLong  
Project: PA Brine Treatment - Franklin Facility

Client Sample ID: Outfall 001  
Sample ID: 278665001  
Matrix: Water  
Collect Date: 23-MAY-11 16:00  
Receive Date: 24-MAY-11  
Collector: Client

Project: PABR00211  
Client ID: PABR001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Uranium	U	ND	0.670	2.00	ug/L	10	SKJ	06/17/11	0744	1105435	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	BXA1	05/31/11	1755	1105434

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020A	

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## Certificate of Analysis

Report Date: July 20, 2011

Company : Pennsylvania Brine Treatment  
Address : 5148 US 322  
  
Franklin, Pennsylvania 16323  
Contact: Mr. Sparky DeLong  
Project: PA Brine Treatment - Franklin Facility

Client Sample ID: Outfall 001  
Sample ID: 280539001  
Matrix: Water  
Collect Date: 22-JUN-11 15:00  
Receive Date: 23-JUN-11  
Collector: Client

Project: PABR00211  
Client ID: PABR001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammascpec, Gamma, Liquid (Standard List) "As Received"												
Radium-228	U	1.21	+/-11.3	19.4		pCi/L		KXG3	07/10/11	0950	1118487	1
Rad Gas Flow Proportional Counting												
GFPC, Gross Alpha Liquid "As Received"												
Alpha	U	40.3	+/-133	251	5.00	pCi/L		DXF3	07/03/11	1945	1116813	2
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.80	+/-0.394	0.205	1.00	pCi/L		KSD1	07/14/11	1150	1116202	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 901.1	
2	EPA 900.0/SW846 9310	
3	EPA 903.1 Modified	

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## Certificate of Analysis

Report Date: July 20, 2011

Company : Pennsylvania Brine Treatment  
Address : 5148 US 322  
  
Franklin, Pennsylvania 16323  
Contact: Mr. Sparky DeLong  
Project: PA Brine Treatment - Franklin Facility

Client Sample ID: Outfall 001  
Sample ID: 280539001  
Matrix: Water  
Collect Date: 22-JUN-11 15:00  
Receive Date: 23-JUN-11  
Collector: Client

Project: PABR00211  
Client ID: PABR001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Uranium	U	ND	0.670	2.00	ug/L	10	SKJ	06/28/11	1836	1115423	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	LYH1	06/27/11	0900	1115422

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020A	



## CERTIFICATE OF ANALYSIS

**Work Order Number:**

**11F2713**

Pennsylvania Brine Treatment  
Attn: Elton Delong, Jr. (Sparky)  
5148 Us 322  
Franklin, PA 16323

Date Reported 07/13/2011  
Date Received 06/22/2011  
Order Number 11F2713  
Account Number 000000016369



Purchase Order:

Subject: Weekly Wastewater Sample

SMP	TEST	METHOD	RESULT	UNITS	ANALYSIS			NOTES
					DATE	TIME	TECH	
<b>01 Composite Sample</b>								
Sample Date: 06/22/2011		Sample Time: 15:00						
Chloride		ASTM D512-89A	55,000	mg/L	06/28/11	14:30	CMF	
Solids, Suspended		SM 2540 D	13	mg/L	06/23/11	10:55	CMF	
<b>02 Grab Sample</b>								
Sample Date: 06/22/2011		Sample Time: 15:00						
Oil & Grease		EPA 1664A	<5	mg/L	07/11/11	7:00	CAP	
<b>03 Composite Sample</b>								
Sample Date: 06/22/2011		Sample Time: 15:00						
Iron, Total		EPA 200.7	<0.0500	mg/L	06/24/11	12:19	ICP	
<b>04 Composite Sample</b>								
Sample Date: 06/22/2011		Sample Time: 15:00						
Bromide		EPA 300.0	510	mg/L	06/24/11	16:52	OST	

### Order Notes

The technician initials "OST" (Outside Testing) indicate that the Bromide analyses were sub-contracted to Microbac Laboratories, Inc./New York Division. PA DEP ID#68-01385. (W.O. 1106595)

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

### Notes and Definitions

MG/KG	= Milligram per Kilogram (PPM)	Negative	= Bacteria or target analyte not detected
UG/L	= Micrograms per Liter (PPB)	CFU	= Colony Forming Unit
UG/KG	= Micrograms per Kilogram (PPB)	ND	= Not detected at or below the reporting limit
MG/L	= Milligrams per Liter (PPM)	TIC	= Tentatively identified Compound
10.00 UG	= 1 MG	"<"	= less than (also see "ND")
Positive	= Bacteria or target analyte detected	">"	= Greater than
E	= Estimated, Bacteria count fell outside the method counting range		

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**Certificate of Analysis**

Report Date: August 5, 2011

Company : Pennsylvania Brine Treatment  
 Address : 5148 US 322

Franklin, Pennsylvania 16323  
 Contact: Mr. Sparky DeLong  
 Project: PA Brine Treatment - Franklin Facility

Client Sample ID: Outfall 001  
 Sample ID: 281632001  
 Matrix: Water  
 Collect Date: 06-JUL-11 23:08  
 Receive Date: 11-JUL-11  
 Collector: Client

Project: PABR00211  
 Client ID: PABR001

Parameter	Qualifier	Result	Uncertainty	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Rad Gamma Spec Analysis												
Gammaspec, Gamma, Liquid (Standard List) "As Received"												
Radium-228	U	-2.43	+/-12.7	21.1		pCi/L		KXG3	07/22/11	1011	1122954	1
Rad Gas Flow Proportional Counting												
GFPC, Gross Alpha Liquid "As Received"												
Alpha	U	27.8	+/-51.9	94.9	5.00	pCi/L		CAS2	08/03/11	1226	1121309	2
Rad Radium-226												
Lucas Cell, Ra226, liquid "As Received"												
Radium-226		1.25	+/-0.337	0.257	1.00	pCi/L		KSD1	08/02/11	1200	1121118	3

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 901.1	
2	EPA 900.0/SW846 9310	
3	EPA 903.1 Modified	

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**Certificate of Analysis**

Report Date: August 5, 2011

Company : Pennsylvania Brine Treatment  
Address : 5148 US 322

Contact: Franklin, Pennsylvania 16323  
Mr. Sparky DeLong  
Project: PA Brine Treatment - Franklin Facility

Client Sample ID: Outfall 001  
Sample ID: 281632001  
Matrix: Water  
Collect Date: 06-JUL-11 23:08  
Receive Date: 11-JUL-11  
Collector: Client

Project: PABR00211  
Client ID: PABR001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Metals Analysis-ICP-MS											
SW846 3005A/6020A Liquid "As Received"											
Uranium	U	ND	0.670	2.00	ug/L	10	SKJ	07/18/11	2145	1121184	1

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
SW846 3005A	ICP-MS 3005A PREP	LYHI	07/14/11	0930	1121183

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	SW846 3005A/6020A	

# CERTIFICATE OF ANALYSIS

Work Order Number:

11G2497

Pennsylvania Brine Treatment  
Attn: Elton Delong, Jr. (Sparky)  
5148 Us 322  
Franklin, PA 16323

Date Reported 07/31/2011  
Date Received 07/07/2011  
Order Number 11G2497  
Account Number 000000016369



Purchase Order:

Subject: Monthly Wastewater Samples

## ANALYSIS

SMP	TEST	METHOD	RESULT	UNITS	DATE	TIME	TECH	NOTES
<b>01 Grab Sample</b>								
Sample Date: 07/06/2011			Sample Time: 7:00					
Oil & Grease		EPA 1664A	<5.0	mg/L	07/19/11	7:00	CAP	
<b>02 Grab Sample</b>								
Sample Date: 07/06/2011			Sample Time: 7:00					
Barium		EPA 200.7	4.26	mg/L	07/11/11	19:37	ICP	
Copper		EPA 200.7	<0.100	mg/L	07/11/11	19:35	ICP	
Iron		EPA 200.7	<0.500	mg/L	07/11/11	19:35	ICP	
Silver		EPA 200.7	<0.100	mg/L	07/11/11	19:35	ICP	
Strontium		EPA 200.7	755	mg/L	07/19/11	14:57	MWR	
<b>03 Grab Sample</b>								
Sample Date: 07/06/2011			Sample Time: 7:00					
Acidity		SM 2310 B	11	mg/L	07/20/11	13:10	CMF	
Alkalinity As CaCO3		SM 2320B	94	mg CaCO3/L	07/20/11	9:00	CMF	
Chloride		ASTM D512-89A	47000	mg/L	07/13/11	14:00	CMF	
Solids, Dissolved		SM 2540C	110000	mg/L	07/12/11	13:45	CMF	
Solids, Suspended		SM 2540 D	24	mg/L	07/07/11	16:30	CMF	
Sulfate		SM 4500-SO4 D	850	mg/L	07/12/11	9:15	CMF	
<b>04 Grab Sample</b>								
Sample Date: 07/06/2011			Sample Time: 7:00					
Bromide		EPA 300.0	430	mg/L	07/26/11	18:44	OST	

### Order Notes

The technician initials "OST" (Outside Testing) indicate that the Bromide analysis were sub-contracted to Microbac Laboratories, Inc./New York Division. PA DEP ID#68-01385. (W.O. 1107213)

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