Inspection Report For Well: UT20736 - 04619

U.S. Environmental Protection Agency
Underground Injection Control Program, 8ENF-T
999 18th Street, Suite 300, Denver, CO 80202-2466

This form was printed on 9/24/2013

INSPECTOR(S): Lead: Roberts, Sarah — Date: 10/12/2013
Others: Ajayi, Christopher — Time: 1:40 am / pm

OPERATOR (only if different): _____

REPRESENTATIVE(S): Chad Stevinson

PRE-INSPECTION REVIEW

Petroglyph Operating Company, Inc

Well Name:	Ute Tribal 29-01		
Well Type:	Enhanced Recovery (2R)		
Operating Status:	AC (ACTIVE) as of 12/31/2002		
Oil Field:	Antelope Creek (Duchesne)		
Location:	NENE S29 T5S R3W		
Indian Country:	X, Uintah and Ouray		
Last Inspection:	8/28/2012	***Allowable Inj Pressure:***	1900 /
Last MIT:	Pass 1/24/2011	***Annulus Pressure From Last MIT:***	1080

BLACK = POSSIBLE VIOLATION GREY = DATA MISSING

INSPECTION TYPE: (Select One)
- ☐ Construction / Workover
- ☐ Plugging
- ☐ Post-Closure
- ☐ Response to Complaint
- ☒ Routine
- ☐ Witness MIT
- ☐ Other

ICIS Entered
Date 12/27/13
Initials DJ

OBSERVED VALUES:

Tubing Gauge:	☒ Yes ☐ No	Pressure: U: 1577 / L: ____ psig	Gauge Range: Scada psig	Gauge Owner:	☐ EPA ☒ Operator
Annulus Gauge:	☒ Yes ☐ No	Pressure: 0 psig	Gauge Range: opened psig	Gauge Owner:	☒ EPA ☐ Operator
Bradenhead Gauge:	☐ Yes ☐ No	Pressure: ____ psig	Gauge Range: ____ psig	Gauge Owner:	☐ EPA ☐ Operator
Pump Gauge:	☐ Yes ☐ No	Pressure: ____ psig	Gauge Range: ____ psig	Gauge Owner:	☐ EPA ☐ Operator

Operating Status: (Select One)
- ☐ Active
- ☒ Not Injecting
- ☐ Plugged and Abandoned
- ☐ Being Reworked
- ☐ Production
- ☐ Under Construction

U2 Entered
Date 12/17/13
Initial JR

See page 2 for photos, comments, and site conditions.

GREEN	BLUE	CBI
	1	

Inspection Report For Well: UT20736 - 04619 (PAGE 2)

PHOTOGRAPHS: ☐ Yes ☒ No List of photos taken: _____

Comments and site conditions observed during inspection: _____

GPS: GPS File ID: _____

Signature of EPA Inspector(s): _____ _____

☐ Data Entry ☐ Compliance Staff ☐ Hard Copy Filing

NOTICE OF INSPECTION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, 999 18TH STREET - SUITE 500
DENVER, COLORADO 80202-2405

Date: 12/16/13
Hour: 8:00a

Notice of inspection is hereby given according to Section 1445(b) of the Safe Drinking Water Act (42 U.S.C. §300f et seq.).

Firm Name: Petroglyph Operating, Inc.

Firm Address: Roosevelt, UT, Antelope Creek Oil Field

REASON FOR INSPECTION:

For the purpose of inspecting records, files, papers, processes, controls and facilities, and obtaining samples to determine whether the person subject to an applicable underground injection control program has acted or is acting in compliance with the Safe Drinking Water Act and any applicable condition of permit or rule authorization.

SECTION 1445(b) of the SAFE DRINKING WATER ACT is quoted below:

Section 1445(b)(1): Except as provided in Paragraph (2), the Administrator, or representatives of the Administrator duly designated by him, upon presenting appropriate credentials, and a written notice to any supplier of water or other person subject to (a), or person subject (A) a national primary drinking water regulation prescribed under Section 1412(B) an applicable Underground Injection Control Program, or (C) any requirement to monitor an unregulated contaminant pursuant to subsection (a), or person in charge of any of the property of such supplier or other person referred to in clause (A), (B), or (C), is authorized to enter any establishment, ... facility, or other property of such supplier or other person in order to determine whether such supplier or other person has acted or is acting in compliance with this title, including for this purpose, inspection, at reasonable times, of records, files, papers, processes, controls, and facilities, or in order to test any feature of a public water system, including its raw water source. The Administrator or the Comptroller General (or any representative designated by either) shall have access for the purpose of audit and examination to any records, reports, or information of a grantee which are required to be maintained under subsection (a) or which are pertinent to any financial assistance under this title.

Sarah Roberts
Inspector's Name & Title (Print)

Inspector's Signature

EPA R8 3560-1 (8-89)

Original - Regional Office Copy
Yellow Copy - Operator Copy

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
http://www.epa.gov/region08

NOV 1 2002

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Mat Corser
Petroleum Engineer
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

RE: **Authorization to Continue Injection**
Ute Tribal #29-01
EPA Area Permit No. UT2736-00000
EPA Well Permit No. UT04619
Duchesne County, Utah

Dear Mr. Corser:

Thank you for submitting to the Region VIII Ground Water Program office of the Environmental Protection Agency (EPA) the results from the May 29, 2002, radioactive tracer survey (RATS) used to demonstrate Part II (External) Mechanical Integrity (MI) test on the Ute Tribal #29-01 injection well. A limited injection period was authorized to allow for stabilization of the injection formation pressure prior to demonstrating Part II (External) Mechanical Integrity.

The results of the RATS have been reviewed and the EPA has determined that the test adequately demonstrated Part II (External) MI; no significant fluid movement through vertical channels adjacent to the injection well bore, at the tested pressure of **1900 psig**. Therefore, the EPA hereby approves this demonstration of Part II (External) MI and authorizes continued injection into the Ute Tribal #29-01 under the terms and conditions of EPA UIC Area Permit UT20736-00000.

The authorized maximum allowable injection pressure (MAIP) for this well remains at 1900 psig. (Reference, Final Area Permit, Part II. C. 5. (b). "... at the surface, shall not exceed 1900 psig."

Printed on Recycled Paper

You may apply for a higher maximum allowable injection pressure (MAIP) at a later date after the formation pressure has further stabilized. Your application should be accompanied by the interpreted results from a step rate test (SRT) or other EPA-approved test that measures the formation fracture pressure and the fracture gradient at this location. A current copy of EPA guidelines for running and interpreting a step rate test are included with this letter. Should the step rate test result in approval of a higher MAIP, a new Part II (External) MI demonstration must be run to show that the injection fluids will remain in the authorized injection interval at the higher pressure. Please note that prior to any test using an injection pressure greater than the present MAIP, you must first receive written authorization from the Director.

As of this approval, responsibility for Permit compliance and enforcement is transferred to the Region VIII UIC Technical Enforcement Program office. Therefore, please direct all future notification, reporting, monitoring and compliance correspondence to the following address, referencing your well name and UIC Permit number on all correspondence regarding this well.

Mr. Nathan Wiser
Technical Enforcement Program - UIC
USEPA Region VIII: Mail Code 8ENF-T
999 18th Street - Suite 300
Denver, CO 80202-2466

Please be reminded that it is your responsibility to be aware of and to comply with all conditions of your Permit. If you have any questions regarding this approval, please call Dan Jackson, of my staff, at (800).227.8917 Ext.6155. For questions regarding notification, testing, monitoring, reporting of other Permit requirements, the UIC Technical Enforcement program may be reached by calling (800).227.8917 Ext.6211.

Sincerely,

D. Edwin Hoglé
Director
Ground Water Program

enclosure: Step-Rate Test (SRT) Procedure

cc: Mr. D. Floyd Wopsock, Chairman
Uintah & Ouray Business Council
Ute Indian Tribe

Ms. Elaine Willie
Environmental Coordinator
Ute Indian Tribe

Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Superintendent
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM
Vernal District Office

Mr. Nathan Wiser, 8ENF-T
USEPA

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to: 11/01/02 CW 4593C

Mr. Mat Corser
Petroleum Engineer
Petroglyph Operating Co., Inc.
P.O. Box 607
Roosevelt, UT 84066

UT2736-0X6/9
NOV 12 2002
UTE TRIBAL #32-01

B

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Jentri Park ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery 11-4-02

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

recd LC
NOV 12 2002

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7001 0320 0005 9387 5664

PS Form 3811, August 2001 Domestic Return Receipt

U.S. Postal Service
CERTIFIED MAIL RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

OFFICIAL USE

Postage	$
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here
NOV 1 2002

Sent To Mr. Mat Corser
Petroleum Engineer
Street, Apt. No. or PO Box No. Petroglyph Operating Co., Inc.
P.O. Box 607
City, State, ZIP+4 Roosevelt, UT 84066

7001 0320 0005 9387 5664

PS Form 3800, January 2001 See Reverse for Instructions

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
http://www.epa.gov/region08

NOV 1 2002

Concurrence copy

Ref: 8P-W-GW

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RETURN RECEIPT REQUESTED

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P.O. Box 607
Roosevelt, UT 84066

RE: **Authorization to Continue Injection**
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EPA Well Permit No. UT04619
Duchesne County, Utah

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BP-W-GW 10/29/02

BP-W-GW Duplicate 10/29/02

8P-W-GW 10/29/02 L. Platter
mailed 11/01/02 L. Platter

8P-W-GW 11/1/02

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Technical Enforcement Program - UIC
USEPA Region VIII: Mail Code 8ENF-T
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Sincerely,

D. Edwin Hogle
Director
Ground Water Program

enclosure: Step-Rate Test (SRT) Procedure

cc: Mr. D. Floyd Wopsock, Chairman
Uintah & Ouray Business Council
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Environmental Coordinator
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Mr. Gil Hunt
State of Utah Natural Resources
Division of Oil, Gas, and Mining

Superintendent
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM
Vernal District Office

Mr. Nathan Wiser, 8ENF-T
USEPA

OMB No. 2040-0042 Approval Expires 11/30/2014

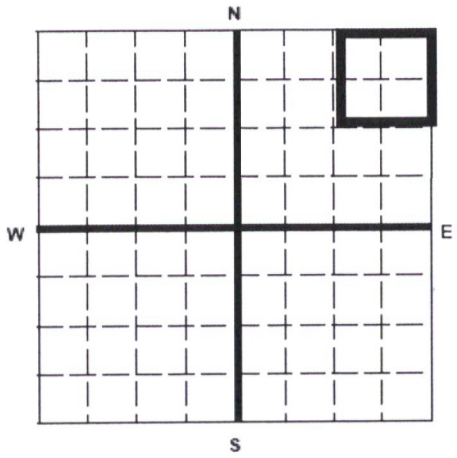
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-04619

Surface Location Description

___ 1/4 of ___ 1/4 of NE 1/4 of NE 1/4 of Section 29 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 757 ft. frm (N/S) N Line of quarter section and 727 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 29-01

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	16	1576	1777	0		0	0
February	16	1699	1699	166		0	0
March	16	1763	1790	498		0	0
April	16	1830	1847	556		0	0
May	16	1856	1874	565		0	0
June	16	1835	1865	416		0	0
July	16	1825	1838	392		0	0
August	16	1837	1865	420		0	0
September	16	1826	1849	350		0	0
October	16	1825	1841	388		0	0
November	16	1790	1835	224		0	0
December	16	1834	1853	404		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		03/21/2017

EPA Form 7520-11 (Rev. 12-11)

GREEN BLUE CBI

2

12 Entered
Date 4/5/17
Initial JB

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

multi-chem
A HALLIBURTON SERVICE

Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 29-01 INJ, DUCHESNE**	Lab Tech:	**Kaitlyn Natelli**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2017**		
Sample ID:	**WA-345318**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	1/26/2017
System Temperature 1 (°F):	300
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	130
System Pressure 2 (psig):	50
Calculated Density (g/ml):	1.0009
pH:	8.30
Calculated TDS (mg/L):	5277.40
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	5.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LangliерSat.Indx)	0.00
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	1632.09	Chloride (Cl):	1500.00
Potassium (K):	9.49	Sulfate (SO_4):	80.00
Magnesium (Mg):	20.67	Bicarbonate (HCO_3):	1952.00
Calcium (Ca):	42.27	Carbonate (CO_3):	
Strontium (Sr):	2.15	Hydroxide(HO):	
Barium (Ba):	5.85	Acetic Acid (CH_3COO)	
Iron (Fe):	20.13	Propionic Acid (C_2H_5COO)	
Zinc (Zn):	1.97	Butanoic Acid (C_3H_7COO)	
Lead (Pb):	0.06	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Ammonia NH_3:		Fluoride (F):	
Manganese (Mn):	0.15	Bromine (Br):	
Aluminum (Al):	0.03	Silica (SiO_2):	10.57
Lithium (Li):	2.63	Calcium Carbonate ($CaCO_3$):	
Boron (B):	1.52	Phosphates (PO_4):	3.43
Silicon (Si):	4.94	Oxygen (O_2):	

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	1.59	34.46	1.20	3.25	4.03	4.53	3.43	14.63	0.00	0.00	0.00	0.00	0.00	0.00	10.54	1.03
149.00	267.00	1.66	34.82	1.10	3.20	3.98	4.53	3.53	14.63	0.00	0.00	0.00	0.00	0.00	0.00	10.29	1.03
168.00	483.00	1.74	35.28	1.03	3.14	3.97	4.53	3.64	14.63	0.00	0.00	0.00	0.00	0.00	0.00	10.08	1.03
187.00	700.00	1.84	35.68	0.98	3.10	3.98	4.53	3.75	14.63	0.00	0.00	0.00	0.00	0.00	0.00	9.90	1.03
206.00	917.00	1.94	36.01	0.94	3.07	4.01	4.53	3.85	14.63	0.00	0.00	0.00	0.00	0.00	0.00	9.75	1.03
224.00	1133.00	2.05	36.27	0.92	3.04	4.06	4.53	3.95	14.64	0.00	0.00	0.00	0.00	0.00	0.00	9.62	1.03
243.00	1350.00	2.17	36.47	0.91	3.04	4.13	4.53	4.04	14.64	0.00	0.00	0.00	0.00	0.00	0.00	9.51	1.03
262.00	1567.00	2.30	36.62	0.91	3.04	4.21	4.53	4.13	14.64	0.00	0.00	0.00	0.00	0.00	0.00	9.41	1.03
281.00	1783.00	2.42	36.73	0.92	3.05	4.30	4.53	4.21	14.64	0.00	0.00	0.00	0.00	0.00	0.00	9.33	1.03
300.00	2000.00	2.55	36.81	0.94	3.06	4.40	4.53	4.28	14.64	0.00	0.00	0.00	0.00	0.00	0.00	9.26	1.03

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

multi-chem®
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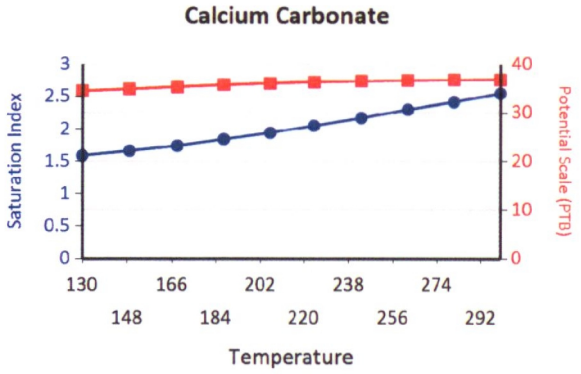
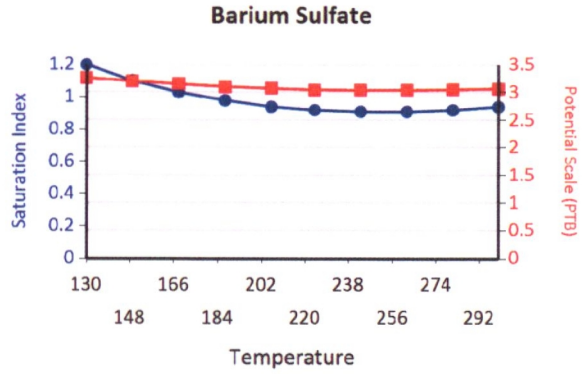
Water Analysis Report

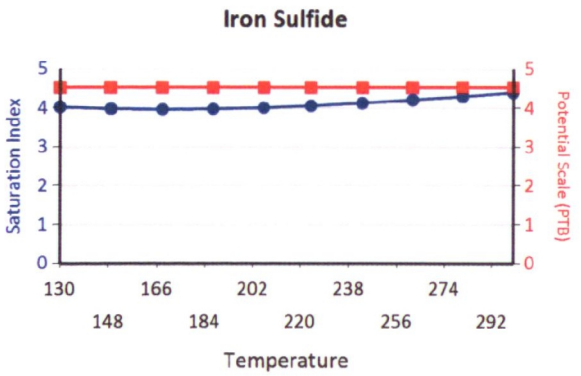
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	2.04	1.31	10.73	0.02	3.03	16.35	1.26	7.23	11.11	15.63
149.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	1.32	10.31	0.02	3.80	19.66	1.68	9.07	11.61	15.64
168.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	2.46	1.32	9.94	0.02	4.64	22.92	2.15	10.87	12.19	15.65
187.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65	1.32	9.61	0.02	5.47	25.23	2.63	12.21	12.78	15.65
206.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	2.82	1.32	9.33	0.02	6.30	26.53	3.11	13.10	13.39	15.65
224.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98	1.32	9.07	0.02	7.10	27.10	3.58	13.63	14.00	15.65
243.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12	1.32	8.85	0.02	7.88	27.31	4.04	13.93	14.60	15.66
262.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	1.32	8.65	0.02	8.64	27.38	4.49	14.09	15.19	15.66
281.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	3.35	1.32	8.48	0.02	9.36	27.40	4.92	14.18	15.76	15.66
300.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	3.45	1.32	8.32	0.02	10.05	27.41	5.34	14.22	16.31	15.66

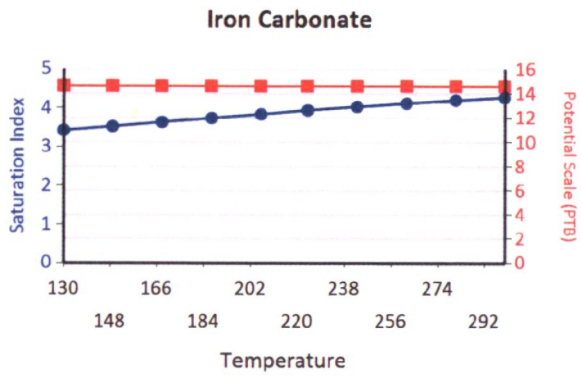
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate







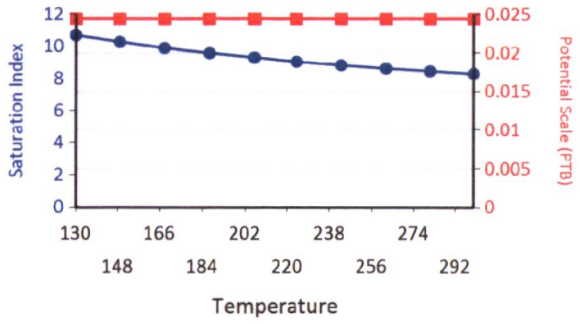


Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

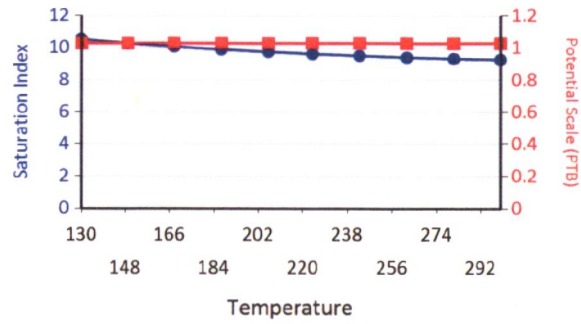
multi-chem®
A HALLIBURTON SERVICE

Water Analysis Report

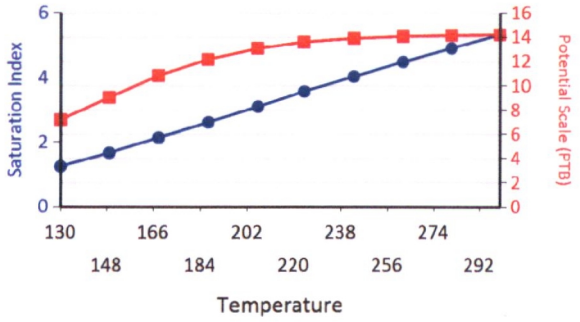
Lead Sulfide



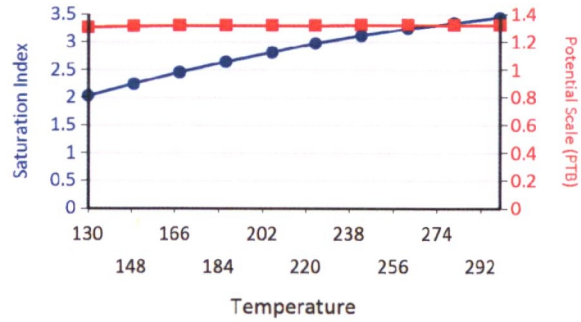
Zinc Sulfide



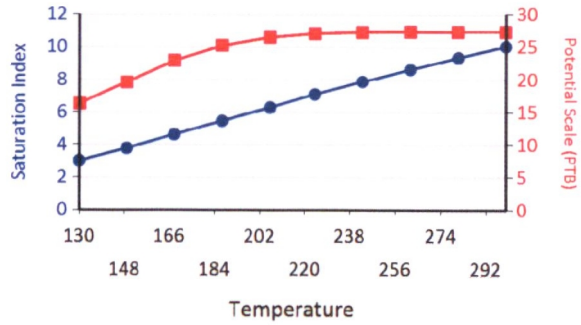
Ca Mg Silicate



Zinc Carbonate



Mg Silicate



Multi-Chem Analytical Laboratory
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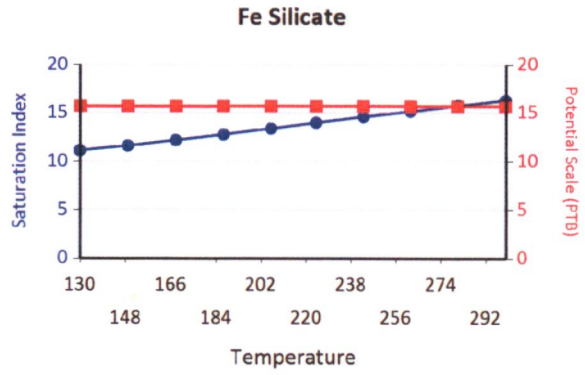


December 14, 2016

Gary Wang or Don Breffle
Underground Injection Control Enforcement
U.S. Environmental Protection Agency
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: 5-year Mechanical Integrity Tests
Ute Tribal 09-15, 21-07, 29-01, 30-10

Mr. Wang/ Mr. Breffle:

Please find enclosed 5-year Mechanical Integrity Tests for the following wells:

- Ute Tribal 09-15 UT20736-06698
- Ute Tribal 21-07 UT20736-07116
- Ute Tribal 29-01 UT20736-04619
- Ute Tribal 30-10 UT20736-04521

If any questions, please reach me at (208) 685-9711.

Best Regards,

Nicole Colby
Manager, Land & Regulatory Compliance

U2 Entered
Date 12/21/16
Initial DD

TAB	GREEN	BLUE	CBI
		2	

Mechanical Integrity Test
Tubing/Casing Annulus Pressure Test

U.S. Environmental Protection Agency
Underground Injection Control Program
1595 Wynkoop Street, Denver, CO 80202

EPA Witness: _____ Date: 11 / 21 / 16
Test conducted by: CHAD STEVENSON
Others present: _____

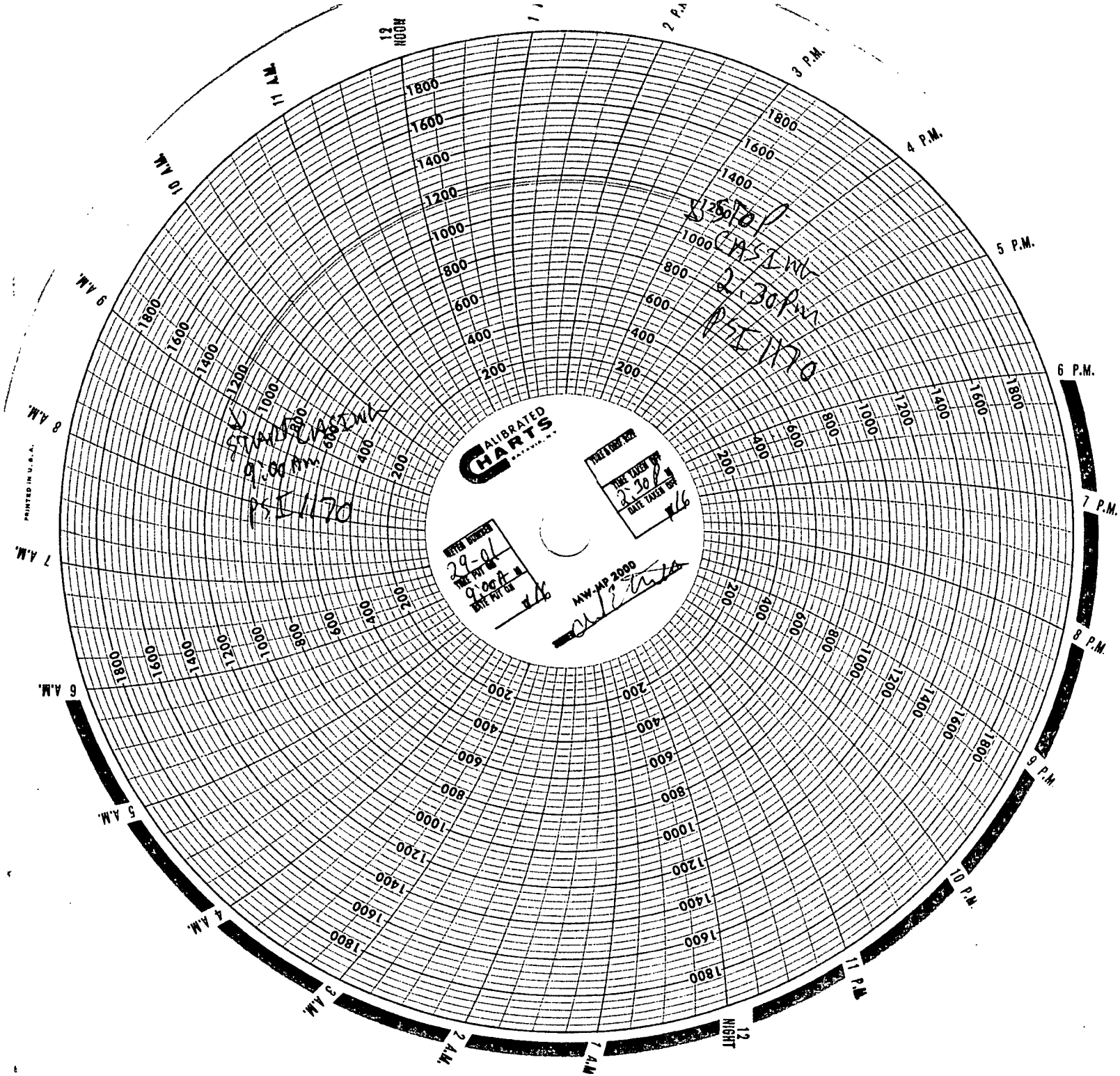
Well Name: 29-01 Type: ER SWD **Status:** AC TA UC
Field: ANTELOPE CREEK
Location: 29-01 Sec: ___ T ___ N / S R ___ E / W County: DUCHESNE State: UT
Operator: PETROGLYPH ENERGY
Last MIT: ___ / ___ / ___ **Maximum Allowable Pressure:** _____ **PSIG**

Regularly scheduled test? [X] Yes [ ] No
Initial test for permit? [ ] Yes [ ] No
Test after well rework? [ ] Yes [ ] No

Well injecting during test? If Yes, rate: 13 **bpd**
Pre-test annulus pressure: _____ **psig**

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING		**PRESSURE RECORD**	
Initial Pressure	1831 psig	psig	psig
End of test pressure	1831 psig	psig	psig
CASING / TUBING ANNULUS		**PRESSURE RECORD**	
0 minutes	1170 psig	psig	psig
5 minutes	1170 psig	psig	psig
10 minutes	1170 psig	psig	psig
15 minutes	1170 psig	psig	psig
20 minutes	1170 psig	psig	psig
25 minutes	1170 psig	psig	psig
30 minutes	1170 psig	psig	psig
5 HOURS ~~minutes~~	1170 psig	psig	psig
_____ minutes	psig	psig	psig
RESULT	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail	[ ] Pass [ ] Fail

Does the annulus pressure build back up after the test ? If Yes, _____ psig.



CALIBRATED CHARTS
MW-MP 2000
STOP CASING 2:30 PM PSI 1170
STAMP CASING 9:00 AM PSI 1170
TIME TAKEN OFF 2:30 PM
DATE TAKEN OFF
METER NUMBER 29-01
TIME PUT ON 9:00 AM
DATE PUT ON
12 NOON
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
6 A.M.
7 A.M.
8 A.M.
9 A.M.
10 A.M.
11 A.M.
12 NIGHT
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
PRINTED IN U.S.A.

OMB No. 2040-0042 Approval Expires 11/30/2014

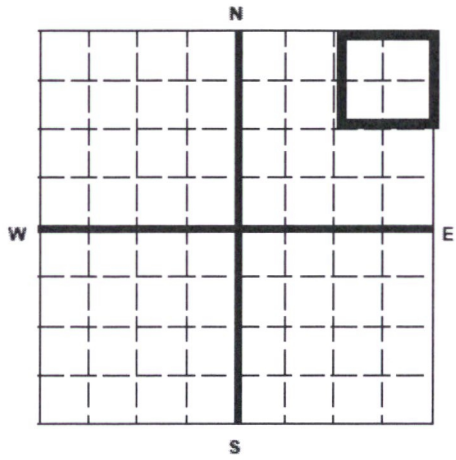
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
Petroglyph Operating Company, Inc. 2258
P.O. Box 7608
Boise, Idaho 83709

Name and Address of Surface Owner
Ute Indian Tribe
P.O. Box 70
Ft. Duchesne, Utah, 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-~~04434~~ 04619

Surface Location Description
___ 1/4 of ___ 1/4 of NE 1/4 of NE 1/4 of Section 29 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 757 ft. frm (N/S) N Line of quarter section
and 727 ft. from (E/W) E Line of quarter section.

U2 Entered
Date 3/2/16
Initial JB

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 29-01

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING – CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	15	1794	1834	188		0	0
February	15	1817	1846	153		0	0
March	15	1820	1866	214		0	0
April	15	1775	1821	148		0	0
May	15	1819	1846	228		0	0
June	15	1827	1855	217		0	0
July	15	1830	1858	222		0	0
August	15	1780	1798	135		0	0
September	15	1805	1855	178		0	0
October	15	1852	1866	249		0	0
November	15	1663	1829	18		0	0
December	15	1635	1852	0		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		02/08/2016

GREEN BLUE CBI
TAB 2

EPA Form 7520-11 (Rev. 12-11)

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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Units of Measurement: **Standard**

Water Analysis Report

Production Company:	**PETROGLYPH OPERATING CO INC - EBUS**	Sales Rep:	**James Patry**
Well Name:	**UTE TRIBAL 29-01 INJ, DUCHESNE**	Lab Tech:	**Michele Pike**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2016**		
Sample ID:	**WA-327654**		

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics

Test Date:	**1/13/2016**
System Temperature 1 (°F):	**60**
System Pressure 1 (psig):	**2000**
System Temperature 2 (°F):	**180**
System Pressure 2 (psig):	**20**
Calculated Density (g/ml):	**1.0035**
pH:	**8.70**
Calculated TDS (mg/L):	**8937.11**
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	**0.00**
H_2S in Gas (%):	
H2S in Water (mg/L):	**10.00**
Tot. SuspendedSolids(mg/L):	
Corrosivity(LanglierSat.Indx)	**0.00**
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	**3043.82**	Chloride (Cl):	**4000.00**
Potassium (K):	**9.68**	Sulfate (SO_4):	**10.00**
Magnesium (Mg):	**58.07**	Bicarbonate (HCO_3):	**1708.00**
Calcium (Ca):	**54.40**	Carbonate (CO_3):	
Strontium (Sr):	**3.98**	Acetic Acid (CH_3COO)	
Barium (Ba):	**4.47**	Propionic Acid (C_2H_5COO)	
Iron (Fe):	**16.12**	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	**3.84**	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	**0.59**	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	**0.82**	Silica (SiO_2):	**23.32**
Aluminum (Al):	**0.01**	Calcium Carbonate ($CaCO_3$):	
Lithium (Li):	**1.06**	Phosphates (PO_4):	**9.78**
Boron (B):	**1.48**	Oxygen (O_2):	
Silicon (Si):	**10.90**		

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	**PSI**	**SI**	**PTB**	SI	**PTB**	**SI**	**PTB**	**SI**	**PTB**	**SI**	**PTB**	**SI**	**PTB**	**SI**	**PTB**	**SI**	**PTB**
180.00	20.00	2.10	46.69	0.00	0.00	4.35	8.87	3.69	11.72	0.00	0.00	0.00	0.00	0.00	0.00	10.78	2.00
167.00	240.00	2.01	46.35	0.00	0.00	4.33	8.87	3.59	11.72	0.00	0.00	0.00	0.00	0.00	0.00	10.90	2.00
153.00	460.00	1.94	46.10	0.00	0.00	4.34	8.87	3.50	11.72	0.00	0.00	0.00	0.00	0.00	0.00	11.05	2.00
140.00	680.00	1.88	45.84	0.00	0.00	4.36	8.87	3.40	11.72	0.00	0.00	0.00	0.00	0.00	0.00	11.21	2.00
127.00	900.00	1.82	45.55	0.00	0.00	4.39	8.87	3.31	11.71	0.00	0.00	0.00	0.00	0.00	0.00	11.38	2.00
113.00	1120.00	1.76	45.24	0.02	0.11	4.43	8.87	3.22	11.71	0.00	0.00	0.00	0.00	0.00	0.00	11.58	2.00
100.00	1340.00	1.71	44.93	0.10	0.45	4.49	8.87	3.13	11.71	0.00	0.00	0.00	0.00	0.00	0.00	11.79	2.00
87.00	1560.00	1.67	44.62	0.20	0.81	4.57	8.88	3.04	11.71	0.00	0.00	0.00	0.00	0.00	0.00	12.02	2.00
73.00	1780.00	1.63	44.31	0.31	1.16	4.67	8.88	2.95	11.71	0.00	0.00	0.00	0.00	0.00	0.00	12.28	2.00
60.00	2000.00	1.59	44.02	0.44	1.50	4.78	8.89	2.86	11.70	0.00	0.00	0.00	0.00	0.00	0.00	12.55	2.00

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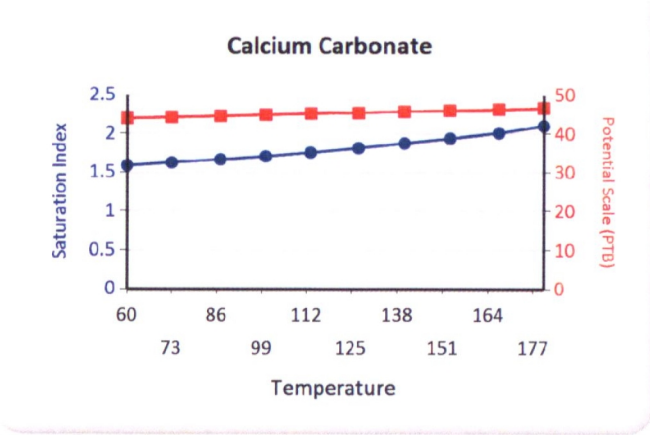
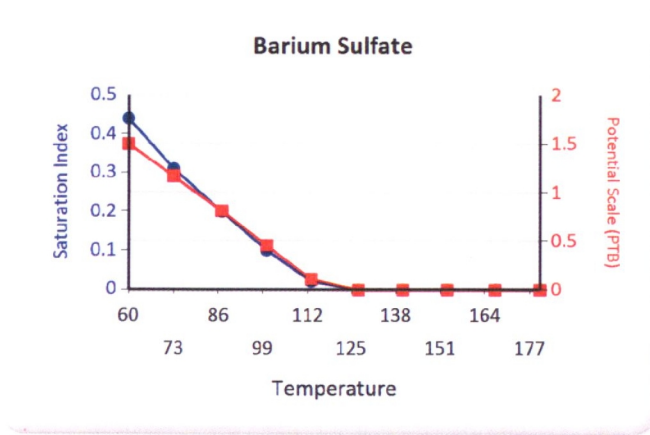
Water Analysis Report

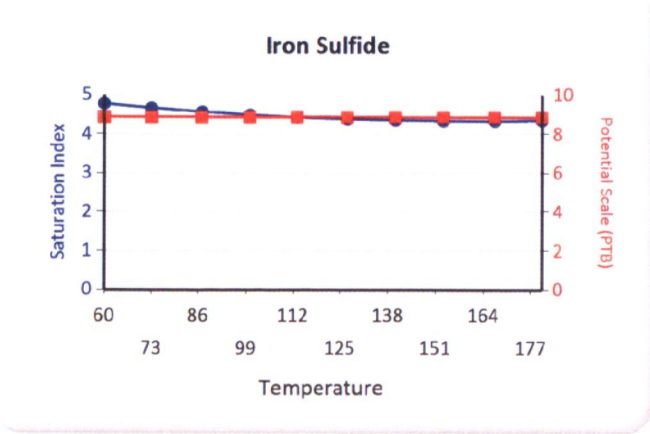
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	2.58	11.25	0.24	9.06	59.90	4.93	30.71	14.51	12.54
167.00	240.00	0.00	0.00	0.00	0.00	0.00	0.00	2.84	2.58	11.47	0.24	8.41	57.66	4.55	29.82	14.02	12.54
153.00	460.00	0.00	0.00	0.00	0.00	0.00	0.00	2.69	2.58	11.73	0.24	7.84	55.36	4.22	29.02	13.63	12.54
140.00	680.00	0.00	0.00	0.00	0.00	0.00	0.00	2.54	2.57	12.01	0.24	7.27	52.36	3.90	27.99	13.24	12.54
127.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37	2.57	12.31	0.24	6.69	48.95	3.57	26.74	12.86	12.54
113.00	1120.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	2.57	12.65	0.24	6.11	45.38	3.25	25.30	12.48	12.53
100.00	1340.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.56	13.01	0.24	5.52	41.82	2.93	23.68	12.11	12.53
87.00	1560.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	2.54	13.40	0.24	4.92	38.29	2.60	21.91	11.75	12.53
73.00	1780.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	2.51	13.82	0.24	4.32	34.75	2.28	19.98	11.39	12.53
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	2.47	14.28	0.24	3.71	31.09	1.96	17.89	11.03	12.53

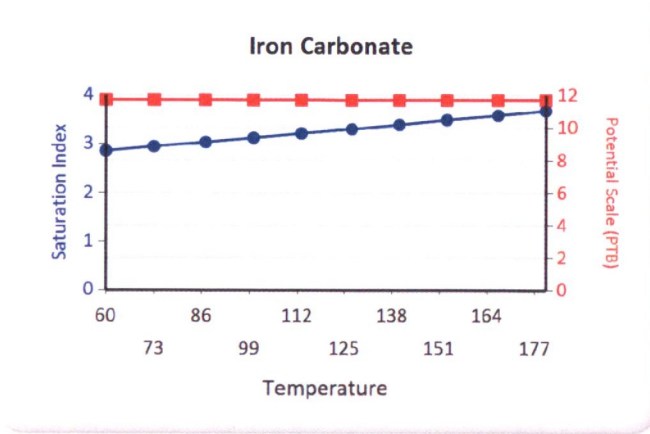
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

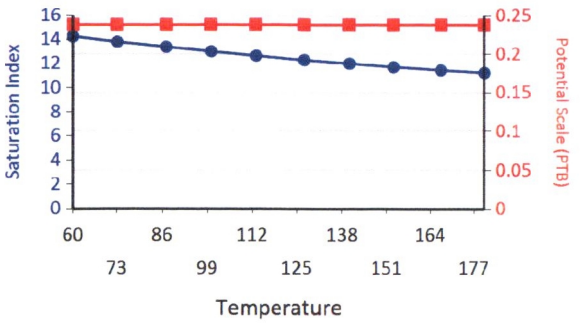




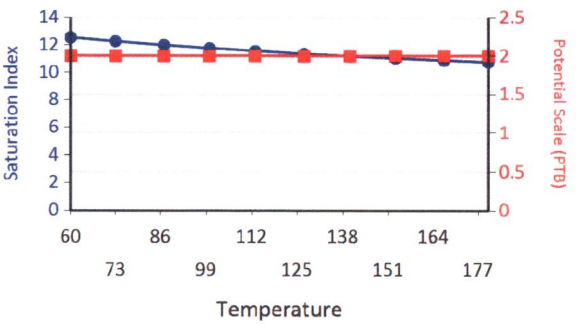




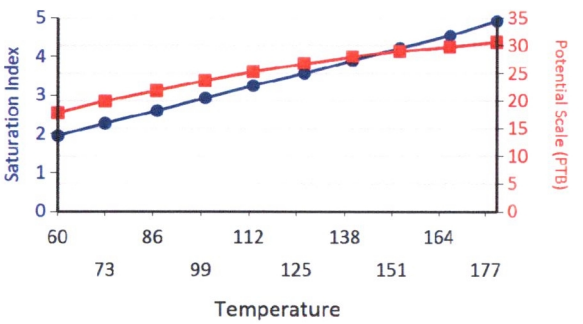
Lead Sulfide



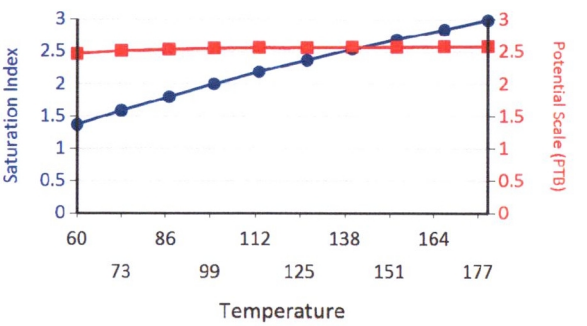
Zinc Sulfide



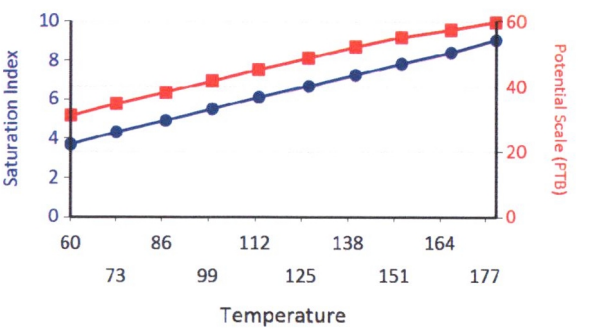
Ca Mg Silicate



Zinc Carbonate



Mg Silicate



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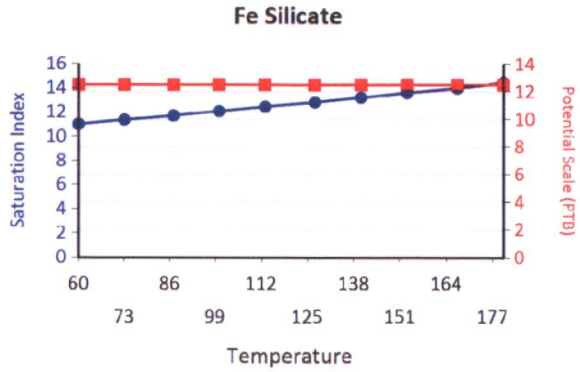


OMB No. 2040-0042 Approval Expires 12/31/2011

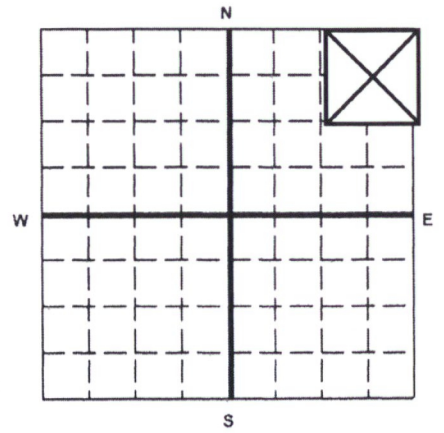
United States Environmental Protection Agency
Washington, DC 20460

EPA

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee	Name and Address of Surface Owner
Petroglyph Operating Company, Inc. 2258 P.O. Box 7608 Boise, Idaho 83709	Ute Indian Tribe P.O. Box 70 Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-04619

Surface Location Description

___ 1/4 of ___ 1/4 of NE 1/4 of NE 1/4 of Section 29 Township 5S Range 3W

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 757 ft. frm (N/S) N Line of quarter section and 727 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 29-01

		INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH	YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January	14	1810	1850	240		0	0
February	14	1837	1847	236		0	0
March	14	1853	1866	313		0	0
April	14	1857	1873	266		0	0
May	14	1845	1854	289		0	0
June	14	1836	1852	259		0	0
July	14	1818	1870	214		0	0
August	14	1843	1856	286		0	0
September	14	1725	1848	167		0	0
October	14	1843	1849	252		0	0
November	14	1850	1861	250		0	0
December	14	1848	1874	250		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibliity of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/10/2015

EPA Form 7520-11 (Rev. 12-08)

U2 Entered
Date 3/31/15
Initial GW

TAB	GREEN	BLUE	CBI
		2	

Multi-Chem Analytical Laboratory
1553 East Highway 40
Vernal, UT 84078

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Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH OPERATING CO INC - EBUS**
Well Name: **UTE TRIBAL 29-01 INJ, DUCHESNE**
Sample Point: **WELLHEAD**
Sample Date: **1/7/2015**
Sample ID: **WA-297534**

Sales Rep: **James Patry**
Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/14/2015
System Temperature 1 (°F):	160
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	80
System Pressure 2 (psig):	15
Calculated Density (g/ml):	1.0026
pH:	8.50
Calculated TDS (mg/L):	8024.75
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	40.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	2223.18	Chloride (Cl):	3000.00
Potassium (K):	36.03	Sulfate (SO_4):	126.00
Magnesium (Mg):	31.50	Bicarbonate (HCO_3):	2513.00
Calcium (Ca):	49.06	Carbonate (CO_3):	
Strontium (Sr):	5.04	Acetic Acid (CH_3COO)	
Barium (Ba):	8.87	Propionic Acid (C_2H_5COO)	
Iron (Fe):	5.84	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	1.52	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.14	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.14	Silica (SiO_2):	24.43

Notes:
B=5.07 Al=.03 Li=1.11

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	1.80	41.40	1.81	5.20	4.80	3.22	2.81	4.24	0.00	0.00	0.00	0.00	0.00	0.00	12.27	0.80
88.00	157.00	1.81	41.34	1.72	5.18	4.72	3.22	2.85	4.24	0.00	0.00	0.00	0.00	0.00	0.00	12.09	0.80
97.00	300.00	1.82	41.40	1.64	5.16	4.66	3.22	2.89	4.24	0.00	0.00	0.00	0.00	0.00	0.00	11.92	0.80
106.00	443.00	1.84	41.47	1.57	5.13	4.61	3.22	2.94	4.24	0.00	0.00	0.00	0.00	0.00	0.00	11.77	0.80
115.00	585.00	1.85	41.55	1.51	5.11	4.56	3.22	2.98	4.24	0.00	0.00	0.00	0.00	0.00	0.00	11.62	0.80
124.00	728.00	1.87	41.63	1.45	5.09	4.52	3.22	3.02	4.24	0.00	0.00	0.00	0.00	0.00	0.00	11.49	0.80
133.00	871.00	1.90	41.71	1.40	5.06	4.49	3.22	3.06	4.24	0.00	0.00	0.00	0.00	0.00	0.00	11.36	0.80
142.00	1014.00	1.92	41.79	1.35	5.04	4.47	3.22	3.11	4.24	0.00	0.00	0.00	0.00	0.00	0.00	11.24	0.80
151.00	1157.00	1.95	41.87	1.31	5.01	4.45	3.22	3.15	4.24	0.00	0.00	0.00	0.00	0.00	0.00	11.13	0.80
160.00	1300.00	1.97	41.95	1.27	4.99	4.44	3.22	3.19	4.24	0.00	0.00	0.00	0.00	0.00	0.00	11.03	0.80

		Hemihydrate CaSO4^0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44	0.98	13.51	0.06	2.55	18.95	1.17	8.53	9.31	4.54
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.99	13.21	0.06	2.84	20.14	1.31	9.15	9.43	4.54
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	1.00	12.94	0.06	3.20	21.97	1.50	10.07	9.63	4.54
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79	1.01	12.69	0.06	3.58	23.63	1.69	10.92	9.85	4.54
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90	1.01	12.45	0.06	3.95	25.10	1.89	11.69	10.07	4.54
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	1.01	12.22	0.06	4.33	26.34	2.10	12.38	10.30	4.54
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11	1.01	12.00	0.06	4.71	27.34	2.31	12.97	10.54	4.54
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	1.02	11.80	0.06	5.10	28.10	2.52	13.47	10.79	4.54
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	1.02	11.61	0.06	5.48	28.64	2.73	13.89	11.04	4.54
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39	1.02	11.43	0.06	5.87	29.00	2.95	14.23	11.30	4.54

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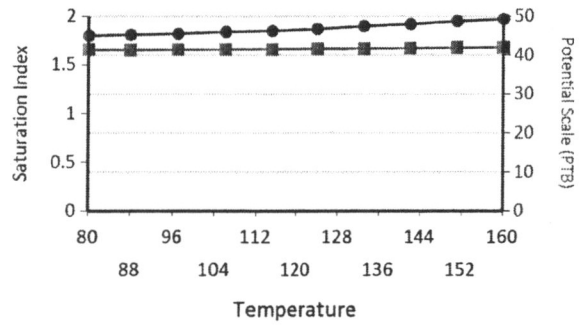
Water Analysis Report

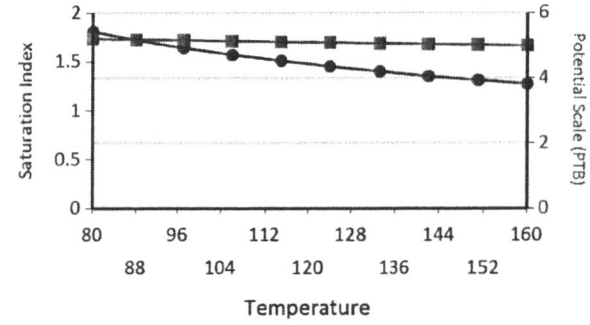
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

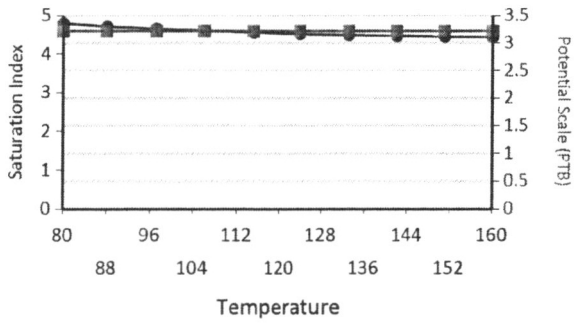
Calcium Carbonate



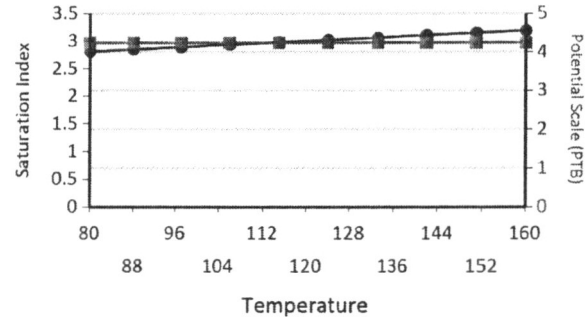
Barium Sulfate



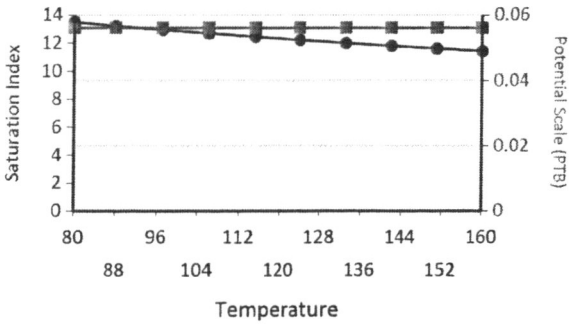
Iron Sulfide



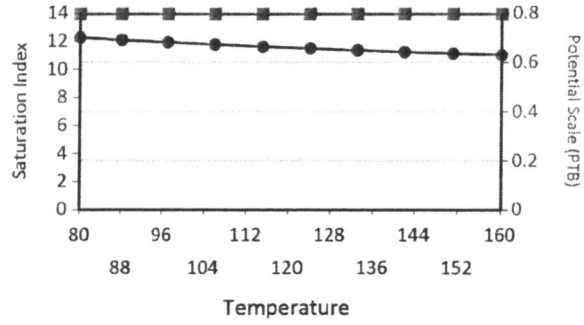
Iron Carbonate



Lead Sulfide



Zinc Sulfide



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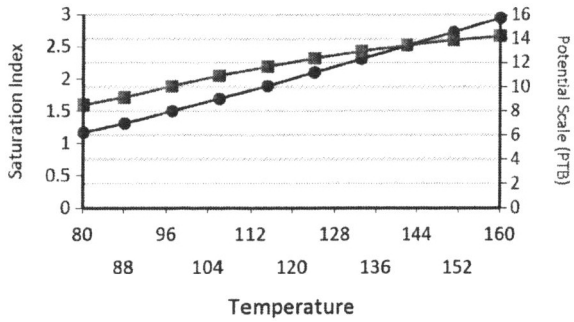
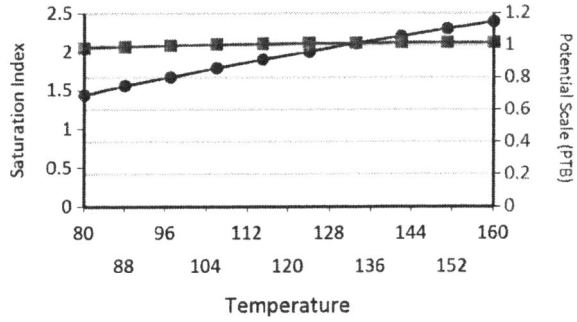
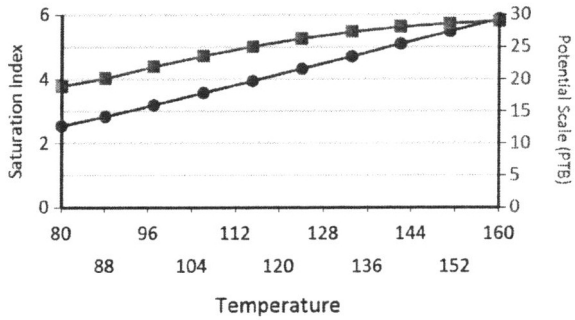
Ca Mg Silicate



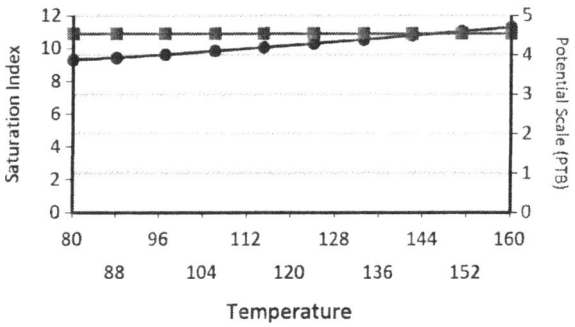
Zinc Carbonate



Mg Silicate



Fe Silicate



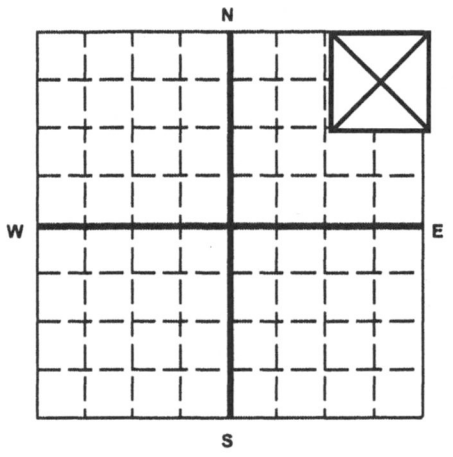
OMB No. 2040-0042 Approval Expires 12/31/2011

United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee	Name and Address of Surface Owner
Petroglyph Operating Company, Inc. 2258 P.O. Box 7608 Boise, Idaho 83709	Ute Indian Tribe P.O. Box 70 Ft. Duchesne, Utah 84026

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Utah	Duchesne	UT2736-04619

Surface Location Description

[ ] 1/4 of [ ] 1/4 of [NE] 1/4 of [NE] 1/4 of Section [29] Township [5S] Range [3W]

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location [757] ft. frm (N/S) [N] Line of quarter section and [727] ft. from (E/W) [E] Line of quarter section.

WELL ACTIVITY	TYPE OF PERMIT
[ ] Brine Disposal	[ ] Individual
[X] Enhanced Recovery	[X] Area
[ ] Hydrocarbon Storage	Number of Wells [111]

Lease Name [Ute Indian Tribe] Well Number [UTE TRIBAL 29-01]

	INJECTION PRESSURE		TOTAL VOLUME INJECTED		TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING)	
MONTH YEAR	AVERAGE PSIG	MAXIMUM PSIG	BBL	MCF	MINIMUM PSIG	MAXIMUM PSIG
January 13	1695	1805	67		0	0
February 13	1822	1848	263		0	0
March 13	1814	1854	228		0	0
April 13	1840	1852	217		0	0
May 13	1821	1867	219		0	0
June 13	1800	1819	153		0	0
July 13	1809	1837	146		0	0
August 13	1827	1854	208		0	0
September 13	1824	1845	196		0	0
October 13	1784	1846	128		0	0
November 13	1828	1858	184		0	0
December 13	1686	1840	90		0	0

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Chad Stevenson, Water Facilities Supervisor		2/11/2014

EPA Form 7520-11 (Rev. 12-08)

GREEN BLUE CBI TAB ✓

U2 Entered
Date 3/21/14
Initial

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Units of Measurement: **Standard**

Water Analysis Report

Production Company: **PETROGLYPH ENERGY INC**
Well Name: **UTE TRIBAL 29-01 INJ**
Sample Point: **Wellhead**
Sample Date: **1/8/2014**
Sample ID: **WA-263028**

Sales Rep: **James Patry**
Lab Tech: **Gary Winegar**

Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	1/15/2014
System Temperature 1 (°F):	180
System Pressure 1 (psig):	1300
System Temperature 2 (°F):	60
System Pressure 2 (psig):	15
Calculated Density (g/ml):	1.006
pH:	8.50
Calculated TDS (mg/L):	12903.05
CO2 in Gas (%):	
Dissolved CO2 (mg/L)):	0.00
H2S in Gas (%):	
H2S in Water (mg/L):	0.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	4549.10	Chloride (Cl):	6000.00
Potassium (K):	68.00	Sulfate (SO_4):	198.00
Magnesium (Mg):	24.00	Bicarbonate (HCO_3):	1952.00
Calcium (Ca):	60.00	Carbonate (CO_3):	
Strontium (Sr):	5.40	Acetic Acid (CH_3COO)	
Barium (Ba):	8.30	Propionic Acid (C_2H_5COO)	
Iron (Fe):	14.00	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.42	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.01	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.28	Silica (SiO_2):	23.54

Notes:
B=.5 Al=.02 Li=1.1

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	1.64	48.13	1.97	4.89	0.00	0.00	2.78	10.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	157.00	1.65	48.08	1.82	4.87	0.00	0.00	2.85	10.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86.00	300.00	1.66	48.36	1.69	4.84	0.00	0.00	2.92	10.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	443.00	1.69	48.67	1.58	4.81	0.00	0.00	2.99	10.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	585.00	1.71	48.99	1.48	4.78	0.00	0.00	3.05	10.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126.00	728.00	1.74	49.32	1.40	4.74	0.00	0.00	3.11	10.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	871.00	1.78	49.66	1.32	4.70	0.00	0.00	3.18	10.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	1014.00	1.82	49.98	1.26	4.67	0.00	0.00	3.23	10.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166.00	1157.00	1.86	50.29	1.21	4.63	0.00	0.00	3.29	10.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00	1300.00	1.91	50.58	1.16	4.60	0.00	0.00	3.35	10.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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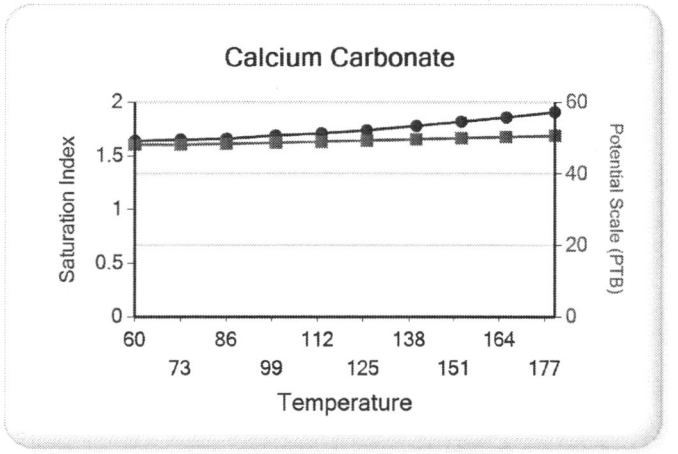
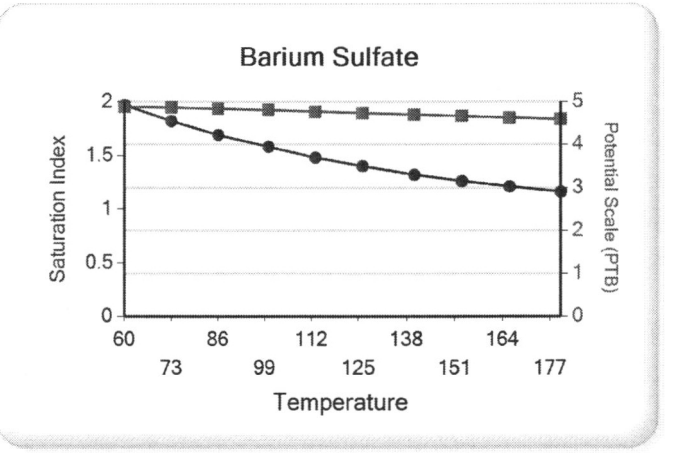
Water Analysis Report

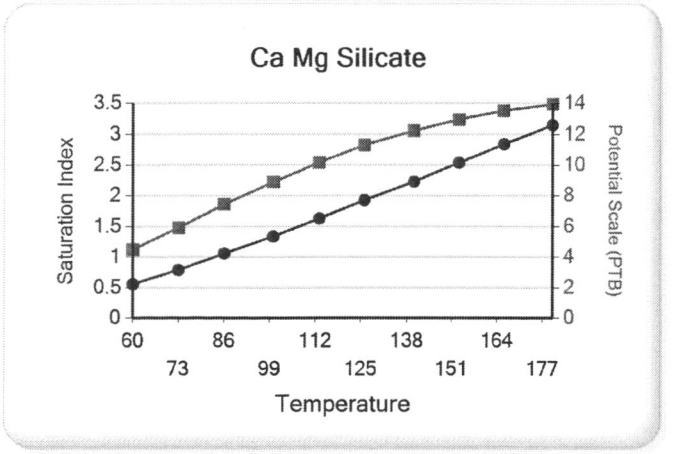
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.15	0.00	0.00	1.18	8.97	0.56	4.51	9.57	10.87
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.20	0.00	0.00	1.66	11.80	0.79	5.92	9.78	10.87
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.23	0.00	0.00	2.18	14.81	1.06	7.46	10.05	10.88
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	0.25	0.00	0.00	2.72	17.63	1.34	8.89	10.34	10.88
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.26	0.00	0.00	3.26	20.22	1.63	10.18	10.66	10.88
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.27	0.00	0.00	3.81	22.53	1.93	11.30	10.99	10.88
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36	0.27	0.00	0.00	4.37	24.48	2.23	12.23	11.33	10.88
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.27	0.00	0.00	4.92	26.01	2.54	12.97	11.69	10.89
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	0.28	0.00	0.00	5.47	27.09	2.84	13.53	12.05	10.89
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74	0.28	0.00	0.00	6.02	27.77	3.15	13.95	12.41	10.89

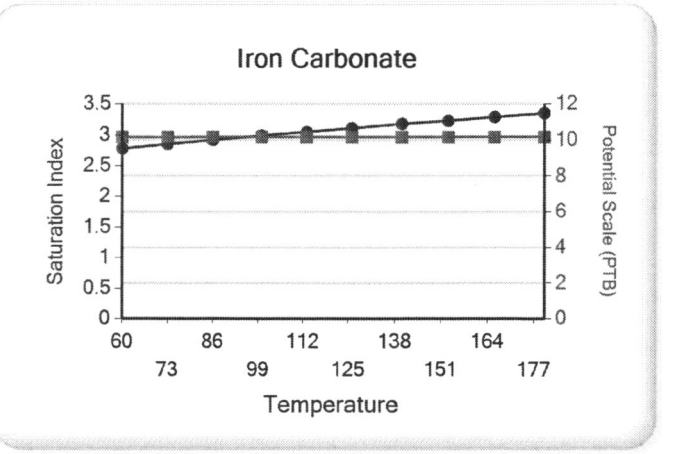
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate









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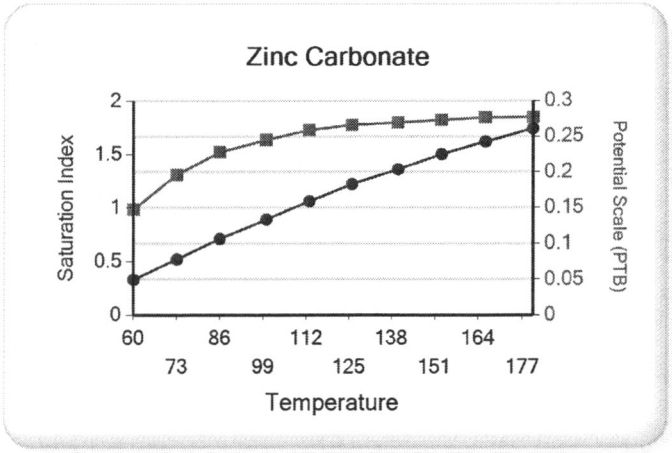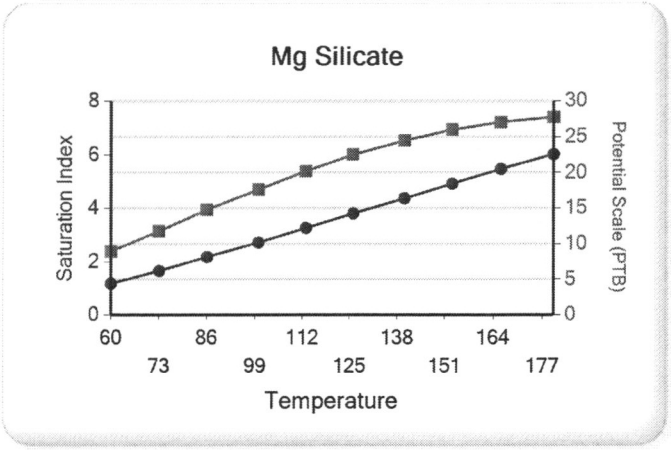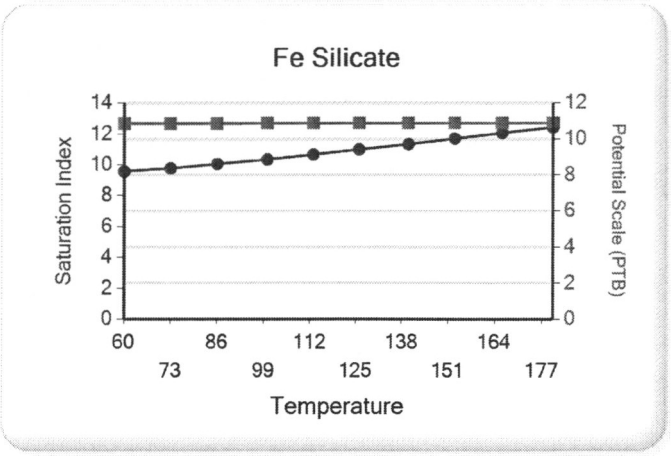
Water Analysis Report