Inspection Report For Well: UT20736 - 04414

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~~ 12/10/2013

Others: Ajayi, Christopher — Time: 11:05 am / pm

OPERATOR (only if different): _____

REPRESENTATIVE(S): Chad Stevinson

PRE-INSPECTION REVIEW

Petroglyph Operating Company, Inc

Well Name:	Ute Tribal 16-08		
Well Type:	Enhanced Recovery (2R)		
Operating Status:	AC (ACTIVE) as of 12/31/2002		
Oil Field:	Antelope Creek (Duchesne)		
Location:	SENE S16 T5S R3W		
Indian Country:	X, Uintah and Ouray		
Last Inspection:	8/28/2012	***Allowable Inj Pressure:***	2035 /
Last MIT:	Pass 6/10/2011	***Annulus Pressure From Last MIT:***	1090

BLACK = POSSIBLE VIOLATION GREY = DATA MISSING

INSPECTION TYPE: **(Select One)**

- [ ] Construction / Workover
- [ ] Plugging
- [ ] Post-Closure
- [ ] Response to Complaint
- [x] Routine
- [ ] Witness MIT
- [ ] Other

ICIS Entered
Date 12/20/13
Initials DJ

OBSERVED VALUES:

Tubing Gauge:	[x] Yes [ ] No	Pressure: U: 1379 / L: ____ psig Gauge Range: Scada psig	Gauge Owner:	[ ] EPA [x] Operator
Annulus Gauge:	[x] Yes [ ] No	Pressure: 0 psig Gauge Range: opened psig	Gauge Owner:	[x] 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
- [ ] Being Reworked
- [x] Not Injecting
- [ ] Production
- [ ] Plugged and Abandoned
- [ ] Under Construction

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

UIC Entered
Date 12/17/13
Initial SC

	GREEN	BLUE	CBI
AB		1	

Inspection Report For Well: UT20736 - 04414 (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: 12/10/13
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

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

EPA

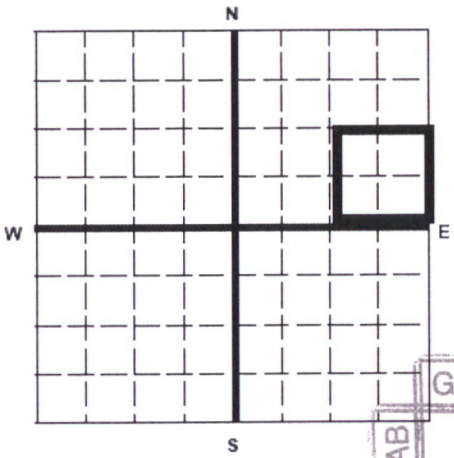
United States Environmental Protection Agency
Washington, DC 20460

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	UT2736-04414

Surface Location Description
___ 1/4 of ___ 1/4 of SE 1/4 of NE 1/4 of Section 16 Township 5S Range 3W

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

Surface Location 1974 ft. frm (N/S) N Line of quarter section and 711 ft. from (E/W) E Line of quarter section.

U2 Entered
Date 4/3/17
Initial JB

WELL ACTIVITY
- [ ] Brine Disposal
- [X] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [ ] Individual
- [X] Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 16-08

GREEN BLUE CBI TAB 2

MONTH	YEAR	INJECTION PRESSURE AVERAGE PSIG	INJECTION PRESSURE MAXIMUM PSIG	TOTAL VOLUME INJECTED BBL	TOTAL VOLUME INJECTED MCF	TUBING – CASING ANNULUS PRESSURE (OPTIONAL MONITORING) MINIMUM PSIG	TUBING – CASING ANNULUS PRESSURE (OPTIONAL MONITORING) MAXIMUM PSIG
January	16	1875	1891	1711		0	0
February	16	1923	1959	1981		0	0
March	16	1956	1963	2018		0	0
April	16	1949	1966	1837		0	0
May	16	1979	1995	1810		0	0
June	16	1961	1994	1471		0	0
July	16	1953	1969	1407		0	0
August	16	1942	1963	1402		0	0
September	16	1916	1937	1226		0	0
October	16	1945	1959	1323		0	0
November	16	1896	1948	956		0	0
December	16	1940	1962	1310		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

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 16-08 INJ, DUCHESNE**	Lab Tech:	**Michele Pike**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2017**		
Sample ID:	**WA-345364**		

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

Sample Specifics	
Test Date:	1/25/2017
System Temperature 1 (°F):	300
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	130
System Pressure 2 (psig):	50
Calculated Density (g/ml):	1.0040
pH:	8.40
Calculated TDS (mg/L):	9668.00
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	0.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LanglierSat.Indx)	0.00
Alkalinity:	

Notes:

Analysis @ Properties in Sample Specifics			
Cations	***mg/L***	***Anions***	***mg/L***
Sodium (Na):	3308.94	Chloride (Cl):	4000.00
Potassium (K):	30.47	Sulfate (SO_4):	0.00
Magnesium (Mg):	10.22	Bicarbonate (HCO_3):	2196.00
Calcium (Ca):	32.36	Carbonate (CO_3):	
Strontium (Sr):	4.76	Hydroxide(HO):	
Barium (Ba):	27.13	Acetic Acid (CH_3COO)	
Iron (Fe):	30.16	Propionic Acid (C_2H_5COO)	
Zinc (Zn):	1.84	Butanoic Acid (C_3H_7COO)	
Lead (Pb):	0.09	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Ammonia NH_3:		Fluoride (F):	
Manganese (Mn):	0.23	Bromine (Br):	
Aluminum (Al):	0.27	Silica (SiO_2):	25.80
Lithium (Li):	2.72	Calcium Carbonate ($CaCO_3$):	
Boron (B):	4.66	Phosphates (PO_4):	5.49
Silicon (Si):	12.06	Oxygen (O_2):	

(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	1.50	26.73	0.00	0.00	0.00	0.00	3.60	21.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
149.00	267.00	1.56	26.93	0.00	0.00	0.00	0.00	3.69	21.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
168.00	483.00	1.63	27.17	0.00	0.00	0.00	0.00	3.78	21.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187.00	700.00	1.71	27.39	0.00	0.00	0.00	0.00	3.87	21.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206.00	917.00	1.80	27.58	0.00	0.00	0.00	0.00	3.95	21.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
224.00	1133.00	1.90	27.75	0.00	0.00	0.00	0.00	4.04	21.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
243.00	1350.00	2.00	27.89	0.00	0.00	0.00	0.00	4.11	21.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
262.00	1567.00	2.12	27.99	0.00	0.00	0.00	0.00	4.19	21.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
281.00	1783.00	2.23	28.08	0.00	0.00	0.00	0.00	4.25	21.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	2000.00	2.35	28.14	0.00	0.00	0.00	0.00	4.31	21.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

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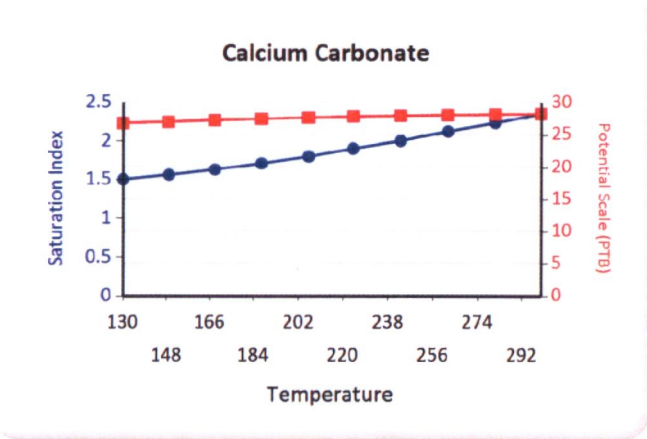
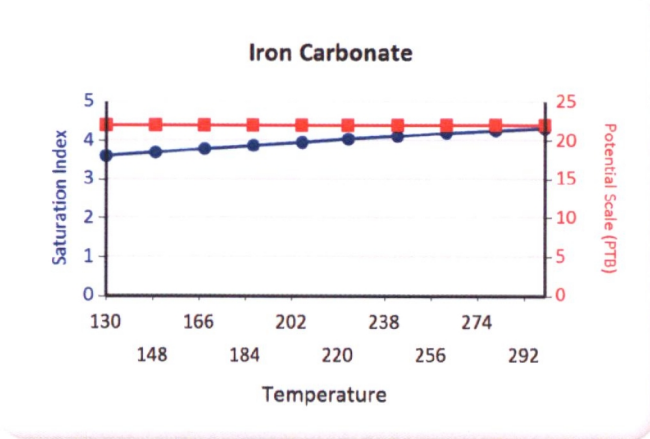
Water Analysis Report

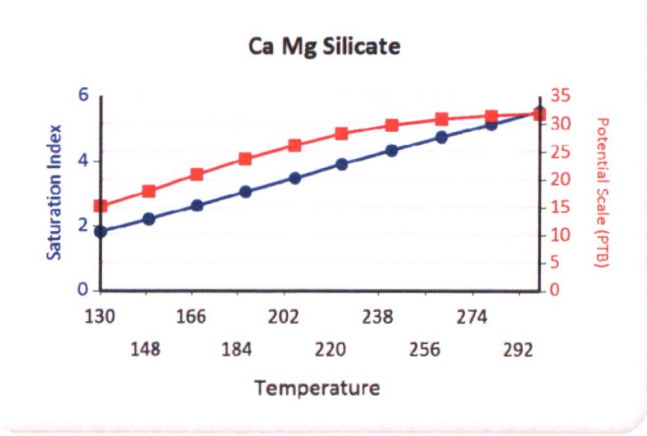
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
130.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98	1.22	0.00	0.00	3.19	15.59	1.81	15.18	12.63	23.45
149.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18	1.23	0.00	0.00	3.92	17.35	2.20	17.88	13.07	23.45
168.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37	1.23	0.00	0.00	4.68	18.67	2.62	20.89	13.57	23.45
187.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	1.23	0.00	0.00	5.43	19.47	3.05	23.70	14.08	23.46
206.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	2.70	1.23	0.00	0.00	6.18	19.91	3.47	26.17	14.60	23.46
224.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	2.84	1.23	0.00	0.00	6.91	20.15	3.90	28.20	15.12	23.46
243.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	2.97	1.24	0.00	0.00	7.63	20.28	4.32	29.74	15.65	23.46
262.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	3.08	1.24	0.00	0.00	8.33	20.34	4.73	30.80	16.17	23.46
281.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	3.17	1.24	0.00	0.00	9.00	20.38	5.12	31.43	16.67	23.46
300.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	1.24	0.00	0.00	9.64	20.40	5.51	31.74	17.17	23.46

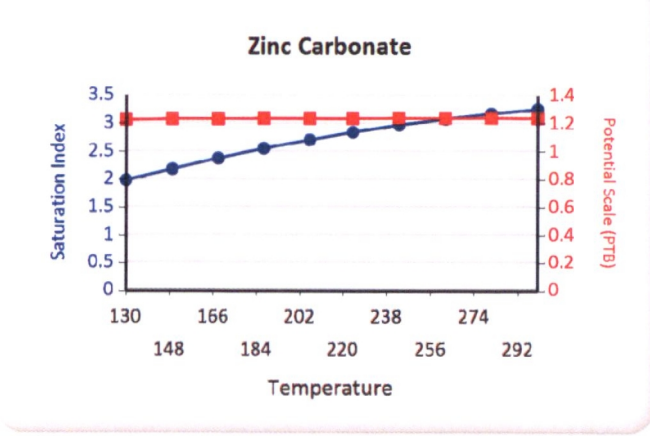
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

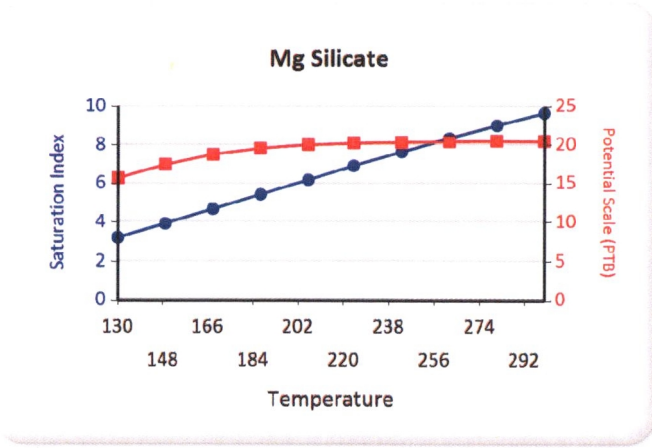
These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

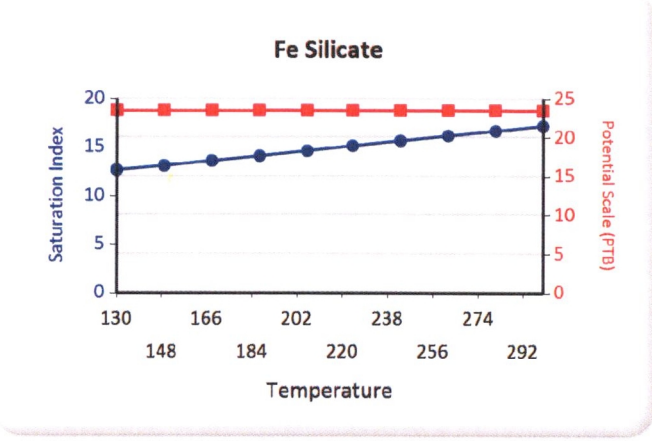









Mg Silicate
Saturation Index
Potential Scale (PTB)
Temperature
0
2
4
6
8
10
0
5
10
15
20
25
130
148
166
184
202
220
238
256
274
292


Fe Silicate
Saturation Index
Potential Scale (PTB)
Temperature
0
5
10
15
20
0
5
10
15
20
25
130
148
166
184
202
220
238
256
274
292

PETROGLYPH EXECUTIVE OFFICES

June 1, 2017

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

Mr. Wang/ Mr. Breffle:

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

- Ute Tribal 04-01
- Ute Tribal 08-06
- Ute Tribal 16-16
- Ute Tribal 18-14
- Ute Tribal 28-11
- Ute Tribal 29-02
- Ute Tribal 29-08A
- Ute Tribal 29-10
- Ute Tribal 29-11
- Ute Tribal 29-15
- Ute Tribal 30-16 UT20736-04417
- Ute Tribal 33-16D3

TAB	GREEN	BLUE	CBI
		2	

Best Regards,

Nicole Colby
Manager, Land & Regulatory Compliance

U2 Entered
Date 6/14/17
Initial DB

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: 4 / 11 / 17

Test conducted by: CHAD STEVENSON

Others present: _____

Well Name: 30-16 Type: ER SWD **Status:** AC TA UC

Field: ANTELOPE CREEK

Location: 30-16 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: 12 **bpd**
Pre-test annulus pressure: _____ **psig**

MIT DATA TABLE	*Test #1*	*Test #2*	*Test #3*
TUBING		***PRESSURE RECORD***	
Initial Pressure	1701 psig	psig	psig
End of test pressure	1701 psig	psig	psig
CASING / TUBING ANNULUS		***PRESSURE RECORD***	
0 minutes	1920 psig	psig	psig
5 minutes	1920 psig	psig	psig
10 minutes	1920 psig	psig	psig
15 minutes	1920 psig	psig	psig
20 minutes	1920 psig	psig	psig
25 minutes	1920 psig	psig	psig
30 minutes	1920 psig	psig	psig
5 HOURS ~~minutes~~	1920 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
BATAVIA, N.Y.
METER NUMBER
3016
TIME PUT ON
9:00 A.M.
DATE PUT ON
4-11-17
TIME TAKEN OFF
2:00 P.M.
DATE TAKEN OFF
4-11-17
MW-MP 2000
PRINTED IN U.S.A.
12 NOON
1 P.M.
2 P.M.
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5 P.M.
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8 P.M.
9 P.M.
10 P.M.
11 P.M.
12 MIDNIGHT
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

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

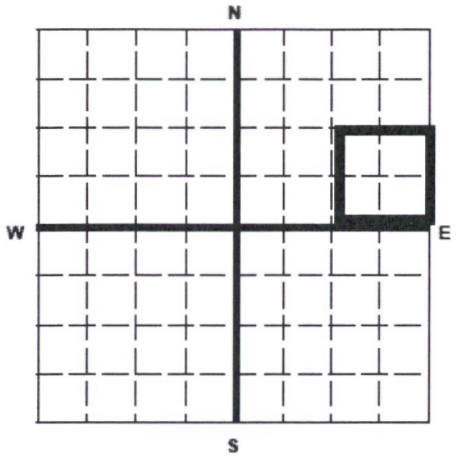
United States Environmental Protection Agency
Washington, DC 20460

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~~ 04414

Surface Location Description
___ 1/4 of ___ 1/4 of SE 1/4 of NE 1/4 of Section 16 Township 5S Range 3W

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

Surface Location 1974 ft. frm (N/S) N Line of quarter section and 711 ft. from (E/W) E Line of quarter section.

U2 Entered
Date 3/1/16
Initial DB

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 16-08

		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	1013	1013	0		0	0
February	15	1008	1012	0		0	0
March	15	1644	1801	2793		0	0
April	15	1895	1944	2689		0	0
May	15	1958	1975	2616		0	0
June	15	1963	1988	2113		0	0
July	15	1977	1990	1685		0	0
August	15	1942	2000	1836		0	0
September	15	1946	1986	1773		0	0
October	15	1947	1958	1658		0	0
November	15	1932	1952	1565		0	0
December	15	1916	1934	1656		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

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

TAB	GREEN	BLUE	ODI
		2	

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 16-08 INJ, DUCHESNE**	Lab Tech:	**Michele Pike**
Sample Point:	**Well Head**		
Sample Date:	**1/6/2016**		
Sample ID:	**WA-327640**		

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

Sample Specifics

Test Date:	1/14/2016
System Temperature 1 (°F):	60
System Pressure 1 (psig):	2000
System Temperature 2 (°F):	180
System Pressure 2 (psig):	50
Calculated Density (g/ml):	1.0055
pH:	8.50
Calculated TDS (mg/L):	11872.85
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	0.00
Tot. SuspendedSolids(mg/L):	
Corrosivity(LanglierSat.Indx)	0.00
Alkalinity:	

Analysis @ Properties in Sample Specifics

Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	4087.11	Chloride (Cl):	5000.00
Potassium (K):	31.38	Sulfate (SO_4):	40.00
Magnesium (Mg):	15.46	Bicarbonate (HCO_3):	2562.00
Calcium (Ca):	46.77	Carbonate (CO_3):	
Strontium (Sr):	6.32	Acetic Acid (CH_3COO)	
Barium (Ba):	23.65	Propionic Acid (C_2H_5COO)	
Iron (Fe):	28.59	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	4.54	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.65	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.20	Silica (SiO_2):	26.18
Aluminum (Al):	0.06	Calcium Carbonate ($CaCO_3$):	
Lithium (Li):	1.62	Phosphates (PO_4):	7.86
Boron (B):	4.67	Oxygen (O_2):	
Silicon (Si):	12.24		

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	50.00	1.97	40.16	1.02	12.00	0.00	0.00	3.97	20.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167.00	267.00	1.89	39.95	1.04	12.11	0.00	0.00	3.87	20.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153.00	483.00	1.82	39.76	1.08	12.25	0.00	0.00	3.78	20.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140.00	700.00	1.76	39.55	1.12	12.42	0.00	0.00	3.69	20.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127.00	917.00	1.70	39.32	1.18	12.61	0.00	0.00	3.60	20.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113.00	1133.00	1.64	39.08	1.25	12.81	0.00	0.00	3.51	20.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	1350.00	1.59	38.83	1.33	13.02	0.00	0.00	3.42	20.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
87.00	1567.00	1.55	38.58	1.42	13.22	0.00	0.00	3.32	20.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73.00	1783.00	1.51	38.33	1.54	13.41	0.00	0.00	3.23	20.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	2000.00	1.47	38.09	1.66	13.58	0.00	0.00	3.14	20.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

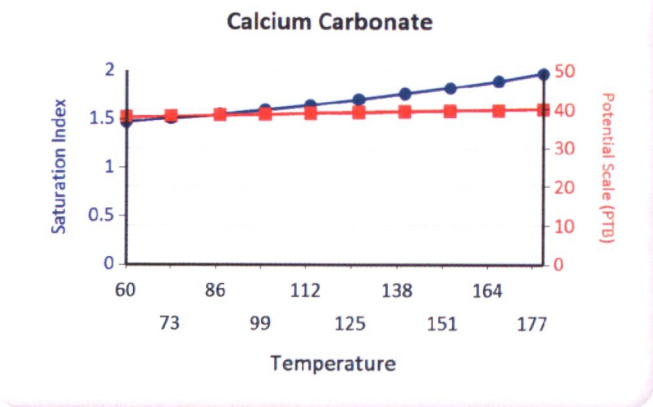
multi-chem
A HALLIBURTON SERVICE

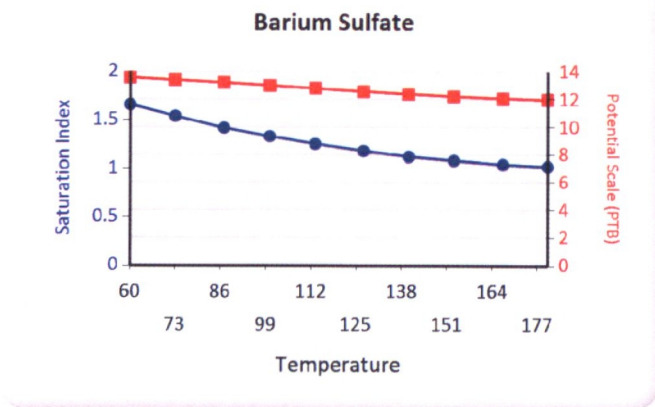
Water Analysis Report

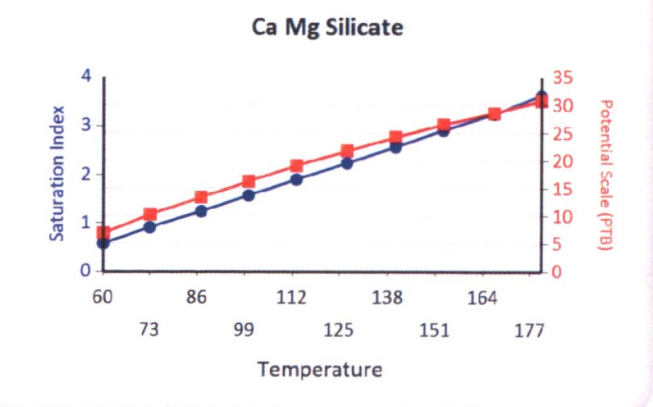
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	3.05	0.00	0.00	6.29	29.89	3.62	30.83	14.43	22.24
167.00	267.00	0.00	0.00	0.00	0.00	0.00	0.00	2.85	3.05	0.00	0.00	5.65	29.12	3.25	28.64	13.96	22.24
153.00	483.00	0.00	0.00	0.00	0.00	0.00	0.00	2.70	3.05	0.00	0.00	5.05	28.12	2.91	26.59	13.55	22.23
140.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	2.54	3.04	0.00	0.00	4.46	26.71	2.57	24.30	13.14	22.23
127.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37	3.04	0.00	0.00	3.86	24.80	2.24	21.83	12.75	22.23
113.00	1133.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	3.03	0.00	0.00	3.26	22.37	1.90	19.19	12.35	22.23
100.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	3.02	0.00	0.00	2.65	19.42	1.57	16.39	11.97	22.23
87.00	1567.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	3.00	0.00	0.00	2.04	15.94	1.24	13.44	11.59	22.22
73.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	2.97	0.00	0.00	1.43	11.92	0.91	10.30	11.22	22.22
60.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	2.92	0.00	0.00	0.81	7.31	0.58	6.96	10.86	22.21

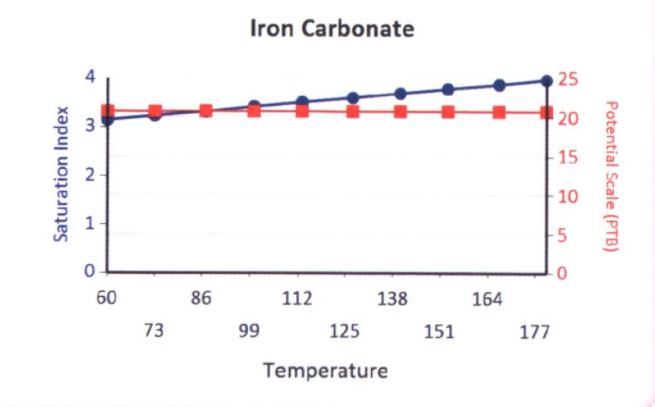
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

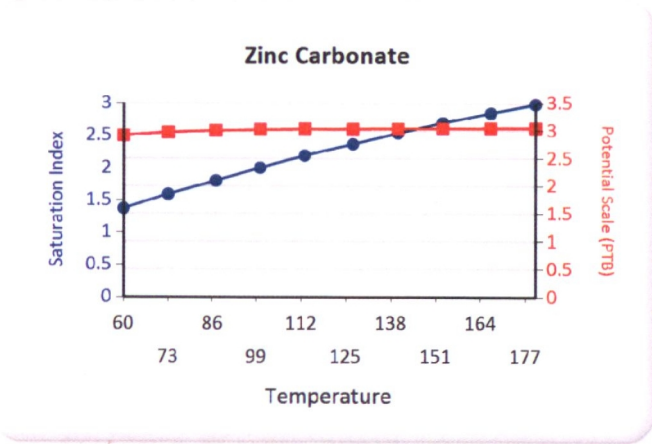
These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Carbonate Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

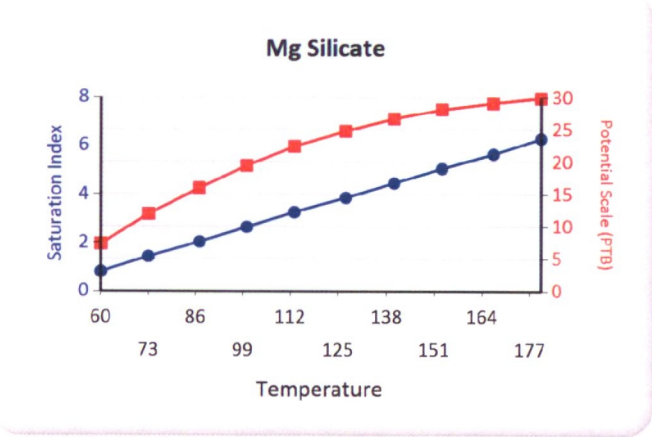


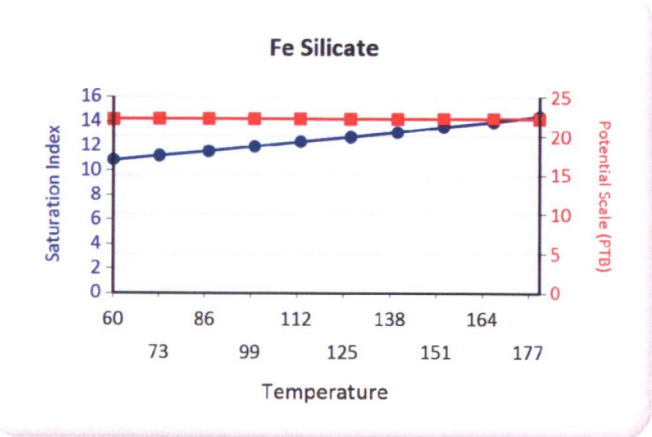







Zinc Carbonate
Saturation Index
Potential Scale (PTB)
Temperature
60 86 112 138 164
73 99 125 151 177


Mg Silicate
Saturation Index
Potential Scale (PTB)
Temperature
60 86 112 138 164
73 99 125 151 177


Fe Silicate
Saturation Index
Potential Scale (PTB)
Temperature
60 86 112 138 164
73 99 125 151 177

UT20736-04414

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: 6/10/16
Test conducted by: CHAD STEVENSON
Others present: _____

Well Name: 16-08 Type: ER SWD **Status:** AC TA UC
Field: ANTELOPE CREEK
Location: 16-08 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: 47 **bpd**
Pre-test annulus pressure: _____ **psig**

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING		**PRESSURE RECORD**	
Initial Pressure	1938 psig	psig	psig
End of test pressure	1938 psig	psig	psig
CASING / TUBING ANNULUS		**PRESSURE RECORD**	
0 minutes	1050 psig	psig	psig
5 minutes	1050 psig	psig	psig
10 minutes	1050 psig	psig	psig
15 minutes	1050 psig	psig	psig
20 minutes	1050 psig	psig	psig
25 minutes	1050 psig	psig	psig
30 minutes	1050 psig	psig	psig
5 HOURS minutes	1050 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.**

TAB	2	

UZ Entered
Date 7/29/16
Initial DB

CALIBRATED CHARTS
METER NUMBER
6-08
TIME PUT ON
8:00 A.M.
DATE PUT ON
6-10-16
TIME & DATE SET
TIME TAKEN OFF
2:15 P.M.
DATE TAKEN OFF
6-10-16
MW-MP 2000
PRINTED IN U.S.A.
12 NOON
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.
12 MIDNIGHT
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
11

Mechanical Integrity Test
Tubing/Casing Annulus Pressure Test

UT20736-~~06604~~ 04536 P3

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

EPA Witness: _____ Date: 6 / 8 / 16
Test conducted by: CHAD STEVENSON
Others present: _____

Well Name: 19-09 Type: ER SWD **Status:** AC TA UC
Field: ANTELOPE CREEK
Location: 19-09 Sec: ____ T ____ N / S R ____ E / W County: DUCHESNE State: UT
Operator: PETROLEUM 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: 5 **bpd**
Pre-test annulus pressure: **psig**

MIT DATA TABLE	Test #1	Test #2	Test #3
TUBING		**PRESSURE RECORD**	
Initial Pressure	1764 psig	psig	psig
End of test pressure	1764 psig	psig	psig
CASING / TUBING ANNULUS		**PRESSURE RECORD**	
0 minutes	990 psig	psig	psig
5 minutes	990 psig	psig	psig
10 minutes	990 psig	psig	psig
15 minutes	990 psig	psig	psig
20 minutes	990 psig	psig	psig
25 minutes	990 psig	psig	psig
30 minutes	990 psig	psig	psig
4 HOURS ~~minutes~~	990 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.**

TAB	GREEN	BLUE	CDP
		2	

U2 Entered
Date 9/29/16
Initial SB

PRINTED IN U.S.A.
CALIBRATED CHARTS
MW-HP 2000
12 NOON
12 NIGHT
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.
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.

PETROGLYPH EXECUTIVE OFFICES

RECEIVED
JUN 21 2016
Office of Enforcement, Compliance
and Environmental Justice (UFO)

June 17, 2016

Gary Wang
Mail Code: 8ENF-UFO
US EPA Region 8
1595 Wyncoop Street
Denver, CO 80202-1129

RE: EPA AREA PERMIT NO. UT2736-00000
Standard, Mechanical Integrity Tests

Mr. Wang:

Please find enclosed the Mechanical Integrity Tests for the following wells:

- Ute Tribal 16-08
- Ute Tribal 19-09
- Ute Tribal 30-09
- Ute Tribal 18-01
- Ute Tribal 18-07
- Ute Tribal 21-12

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

Best Regards,

Nicole Colby
Manager, Land & Regulatory Compliance

Encl: test results

PETROGLYPH OPERATING COMPANY, INC.

960 Broadway Avenue, Suite 500 • P.O. Box 70019 • Boise, Idaho 83707 • (208) 685-7600 • Fax: (208) 685-7605 • www.petroglyphenergy.com

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

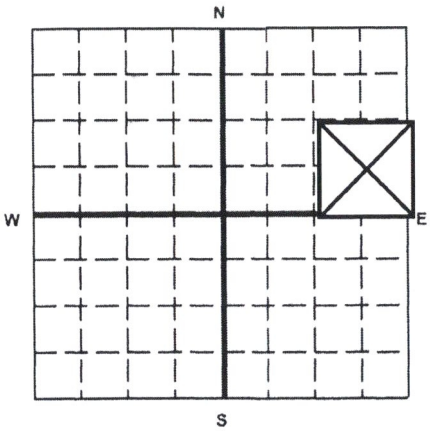
United States Environmental Protection Agency
Washington, DC 20460

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	UT2736-04414

Surface Location Description

____ 1/4 of ____ 1/4 of SE 1/4 of NE 1/4 of Section 16 Township 5S Range 3W

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

Surface Location 1974 ft. frm (N/S) N Line of quarter section and 711 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY
- [ ] Brine Disposal
- [x] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [ ] Individual
- [x] Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 16-08

		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	1262	1307	0		0	0
February	14	1192	1214	0		0	0
March	14	1130	1150	0		0	0
April	14	1086	1102	0		0	0
May	14	1056	1065	0		0	0
June	14	1033	1043	0		0	0
July	14	1020	1028	0		0	0
August	14	1012	1016	0		0	0
September	14	1007	1013	0		0	0
October	14	998	1003	0		0	0
November	14	996	998	0		0	0
December	14	1017	1030	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		2/10/2015

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

U2 Entered
Date 3/23/15
Initial GW

	GREEN	BLUE	CBI
TAB		2	

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 16-08 INJ, DUCHESNE**	Lab Tech:	**Gary Winegar**
Sample Point:	**WELLHEAD**		
Sample Date:	**1/7/2015**		
Sample ID:	**WA-297502**		

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):	0.9997
pH:	8.00
Calculated TDS (mg/L):	3809.78
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	40.00
H_2S in Gas (%):	
H2S in Water (mg/L):	35.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	704.85	Chloride (Cl):	1000.00
Potassium (K):	27.46	Sulfate (SO_4):	49.00
Magnesium (Mg):	60.44	Bicarbonate (HCO_3):	1830.00
Calcium (Ca):	95.79	Carbonate (CO_3):	
Strontium (Sr):	4.63	Acetic Acid (CH_3COO)	
Barium (Ba):	4.25	Propionic Acid (C_2H_5COO)	
Iron (Fe):	6.97	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.13	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.00	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.32	Silica (SiO_2):	25.94

Notes:
B=1.62 Al=.11 Li=.46

(PTB = Pounds per Thousand Barrels)

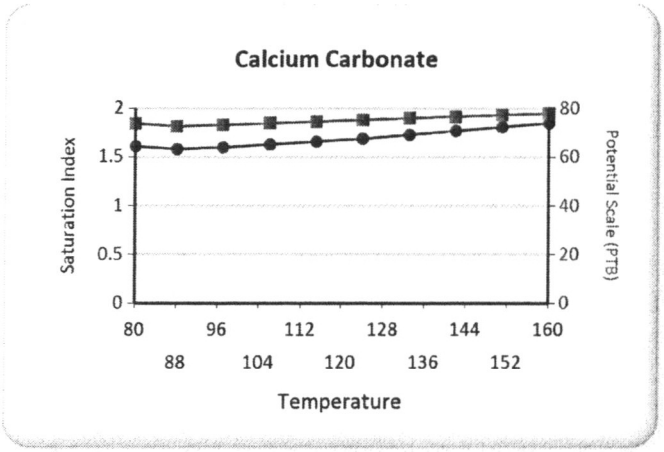
		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	1.61	73.77	1.34	2.41	4.42	3.85	2.41	5.05	0.00	0.00	0.00	0.00	0.00	0.00	10.78	0.07
88.00	157.00	1.58	72.56	1.25	2.38	4.30	3.85	2.42	5.05	0.00	0.00	0.00	0.00	0.00	0.00	10.56	0.07
97.00	300.00	1.60	73.22	1.18	2.35	4.26	3.85	2.47	5.05	0.00	0.00	0.00	0.00	0.00	0.00	10.41	0.07
106.00	443.00	1.63	73.90	1.11	2.32	4.22	3.85	2.53	5.05	0.00	0.00	0.00	0.00	0.00	0.00	10.27	0.07
115.00	585.00	1.66	74.60	1.04	2.29	4.19	3.85	2.58	5.05	0.00	0.00	0.00	0.00	0.00	0.00	10.14	0.07
124.00	728.00	1.69	75.31	0.99	2.26	4.16	3.85	2.64	5.05	0.00	0.00	0.00	0.00	0.00	0.00	10.02	0.07
133.00	871.00	1.73	76.01	0.94	2.22	4.15	3.85	2.70	5.06	0.00	0.00	0.00	0.00	0.00	0.00	9.90	0.07
142.00	1014.00	1.77	76.70	0.89	2.19	4.14	3.85	2.75	5.06	0.00	0.00	0.00	0.00	0.00	0.00	9.80	0.07
151.00	1157.00	1.81	77.37	0.85	2.16	4.14	3.85	2.81	5.06	0.00	0.00	0.00	0.00	0.00	0.00	9.71	0.07
160.00	1300.00	1.85	78.01	0.82	2.13	4.15	3.85	2.86	5.06	0.00	0.00	0.00	0.00	0.00	0.00	9.62	0.07

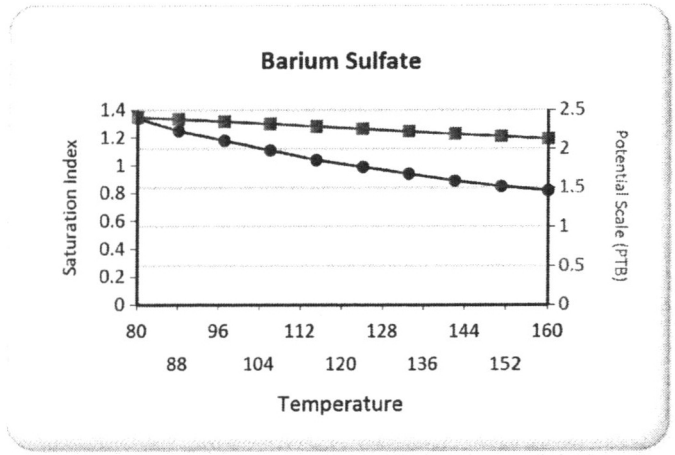
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	5.20	0.00	0.00	6.89	5.37
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.82	5.55	0.00	0.00	6.82	5.37
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.02	0.00	0.00	1.25	8.55	0.23	1.62	7.08	5.38
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.04	0.00	0.00	1.69	11.68	0.47	3.20	7.37	5.39
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.05	0.00	0.00	2.14	14.89	0.72	4.81	7.66	5.39
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.06	0.00	0.00	2.59	18.09	0.98	6.41	7.97	5.40
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.07	0.00	0.00	3.05	21.14	1.24	7.97	8.29	5.40
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.07	0.00	0.00	3.51	23.90	1.51	9.45	8.62	5.41
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.07	0.00	0.00	3.98	26.23	1.78	10.80	8.96	5.41
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.08	0.00	0.00	4.45	28.04	2.05	11.99	9.30	5.42

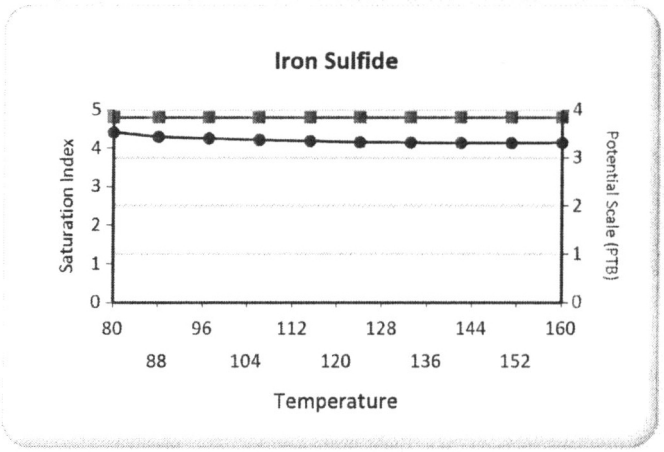
Water Analysis Report

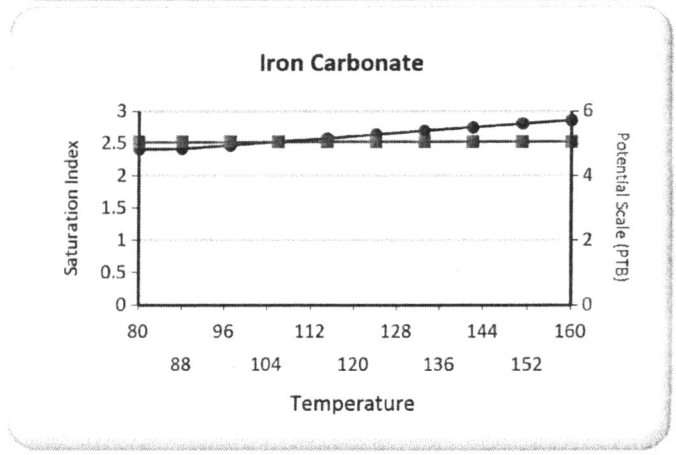
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Mg Silicate Fe Silicate

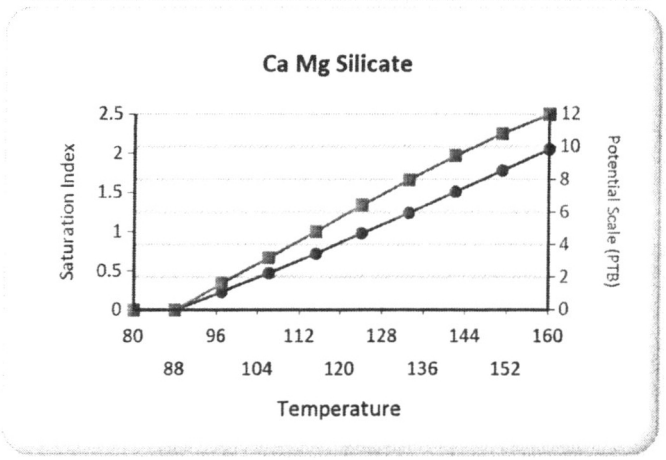
These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

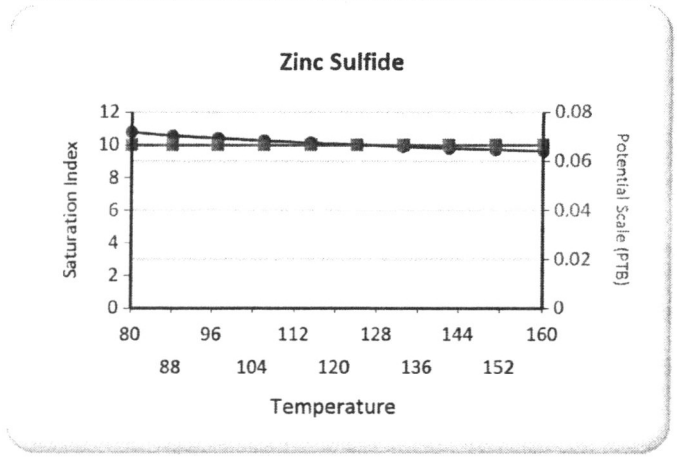


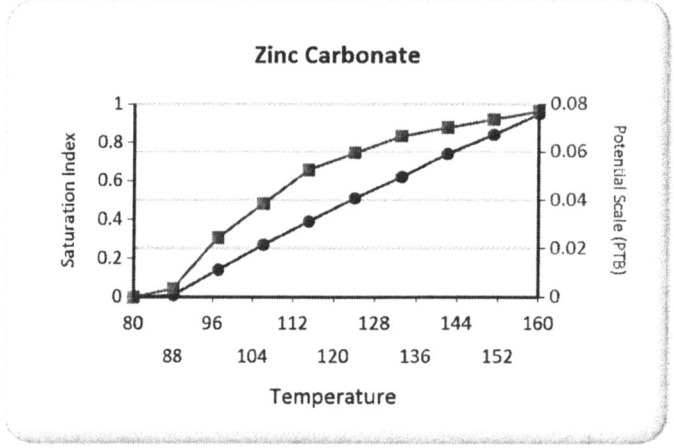


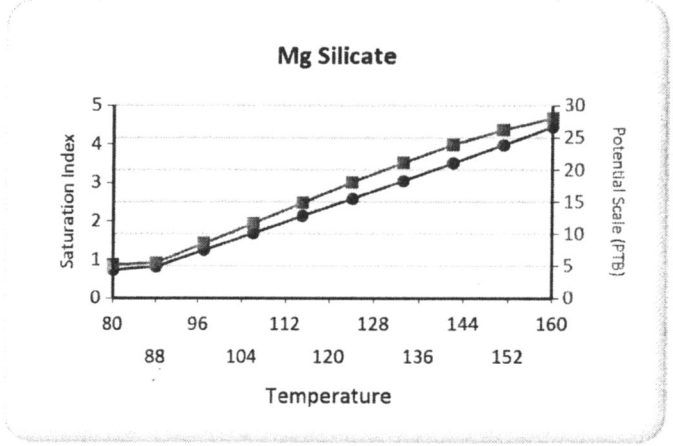


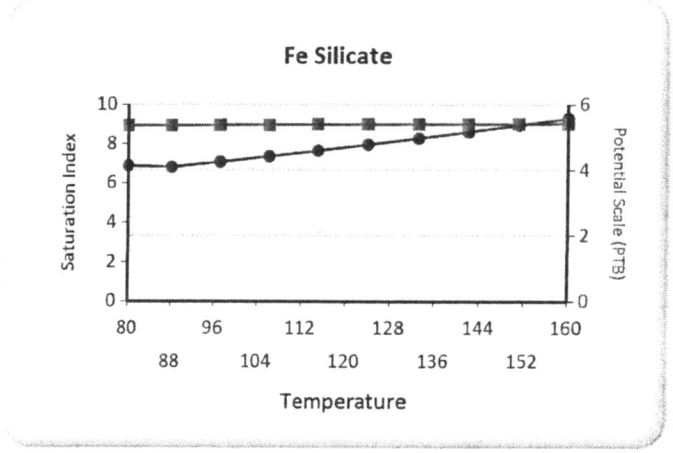







Zinc Carbonate
Saturation Index
Potential Scale (PTB)
Temperature
0
0.2
0.4
0.6
0.8
1
0
0.02
0.04
0.06
0.08
80
88
96
104
112
120
128
136
144
152
160


Mg Silicate
Saturation Index
Potential Scale (PTB)
Temperature
0
1
2
3
4
5
0
5
10
15
20
25
30
80
88
96
104
112
120
128
136
144
152
160


Fe Silicate
Saturation Index
Potential Scale (PTB)
Temperature
0
2
4
6
8
10
0
2
4
6
80
88
96
104
112
120
128
136
144
152
160

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

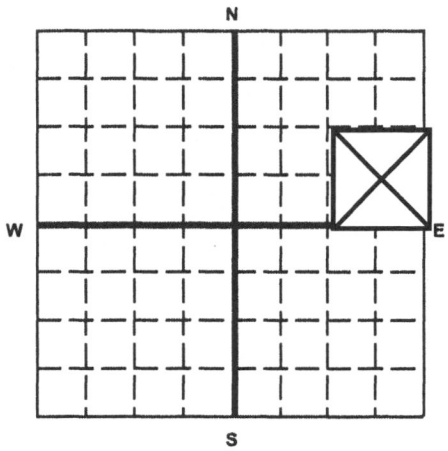
United States Environmental Protection Agency
Washington, DC 20460

ANNUAL DISPOSAL/INJECTION WELL MONITORING REPORT

Name and Address of Existing Permittee
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	UT2736-04414

Surface Location Description
___ 1/4 of ___ 1/4 of SE 1/4 of NE 1/4 of Section 16 Township 5S Range 3W

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

Surface Location 1974 ft. frm (N/S) N Line of quarter section
and 711 ft. from (E/W) E Line of quarter section.

WELL ACTIVITY
- [ ] Brine Disposal
- [X] Enhanced Recovery
- [ ] Hydrocarbon Storage

TYPE OF PERMIT
- [ ] Individual
- [X] Area

Number of Wells 111

Lease Name Ute Indian Tribe Well Number UTE TRIBAL 16-08

MONTH	YEAR	INJECTION PRESSURE AVERAGE PSIG	INJECTION PRESSURE MAXIMUM PSIG	TOTAL VOLUME INJECTED BBL	TOTAL VOLUME INJECTED MCF	TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING) MINIMUM PSIG	TUBING -- CASING ANNULUS PRESSURE (OPTIONAL MONITORING) MAXIMUM PSIG
January	13	1970	1989	163		0	0
February	13	1979	1994	192		0	0
March	13	1973	1987	152		0	0
April	13	1974	2008	181		0	0
May	13	1908	2004	159		0	0
June	13	1970	1990	128		0	0
July	13	1778	1976	127		0	0
August	13	1806	1942	2072		0	0
September	13	1963	1989	2944		0	0
October	13	1906	1985	2043		0	0
November	13	1455	1539	0		0	0
December	13	1360	1408	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 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)

TAB GREEN BLUE CB
2

U2 Entered
Date 3/10/14
Initial DB

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 ENERGY INC**
Well Name: **UTE TRIBAL 16-08 INJ**
Sample Point: **Wellhead**
Sample Date: **1/8/2014**
Sample ID: **WA-263373**

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):	1.000
pH:	8.50
Calculated TDS (mg/L):	4363.08
CO2 in Gas (%):	
Dissolved CO_2 (mg/L)):	0.00
H_2S in Gas (%):	
H2S in Water (mg/L):	35.00

Analysis @ Properties in Sample Specifics			
Cations	*mg/L*	*Anions*	*mg/L*
Sodium (Na):	633.00	Chloride (Cl):	2000.00
Potassium (K):	18.00	Sulfate (SO_4):	48.00
Magnesium (Mg):	59.00	Bicarbonate (HCO_3):	1464.00
Calcium (Ca):	65.00	Carbonate (CO_3):	
Strontium (Sr):	4.00	Acetic Acid (CH_3COO)	
Barium (Ba):	3.00	Propionic Acid (C_2H_5COO)	
Iron (Fe):	43.00	Butanoic Acid (C_3H_7COO)	
Zinc (Zn):	0.02	Isobutyric Acid ($(CH_3)_2CHCOO$)	
Lead (Pb):	0.00	Fluoride (F):	
Ammonia NH_3:		Bromine (Br):	
Manganese (Mn):	0.38	Silica (SiO_2):	25.68

Notes:
B=1 Al=.02 Li=.27

(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	1.76	50.38	1.34	1.70	5.80	23.73	3.36	31.23	0.00	0.00	0.00	0.00	0.00	0.00	10.89	0.01
73.00	157.00	1.77	50.13	1.20	1.67	5.66	23.73	3.42	31.24	0.00	0.00	0.00	0.00	0.00	0.00	10.58	0.01
86.00	300.00	1.79	50.59	1.07	1.63	5.56	23.73	3.50	31.24	0.00	0.00	0.00	0.00	0.00	0.00	10.32	0.01
100.00	443.00	1.82	51.11	0.96	1.58	5.47	23.73	3.57	31.25	0.00	0.00	0.00	0.00	0.00	0.00	10.07	0.01
113.00	585.00	1.85	51.68	0.86	1.53	5.40	23.73	3.65	31.25	0.00	0.00	0.00	0.00	0.00	0.00	9.86	0.01
126.00	728.00	1.89	52.26	0.78	1.48	5.35	23.73	3.72	31.25	0.00	0.00	0.00	0.00	0.00	0.00	9.66	0.01
140.00	871.00	1.93	52.83	0.71	1.43	5.32	23.73	3.79	31.26	0.00	0.00	0.00	0.00	0.00	0.00	9.48	0.01
153.00	1014.00	1.98	53.39	0.66	1.38	5.30	23.73	3.86	31.26	0.00	0.00	0.00	0.00	0.00	0.00	9.32	0.01
166.00	1157.00	2.03	53.91	0.61	1.34	5.30	23.73	3.93	31.26	0.00	0.00	0.00	0.00	0.00	0.00	9.18	0.01
180.00	1300.00	2.09	54.39	0.58	1.30	5.30	23.73	4.00	31.26	0.00	0.00	0.00	0.00	0.00	0.00	9.05	0.01

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

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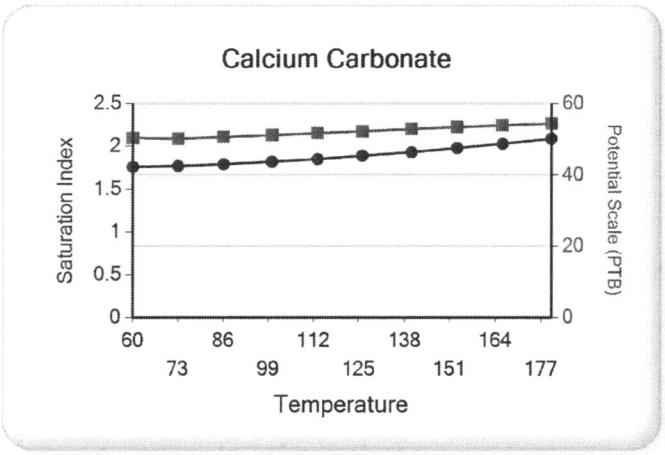
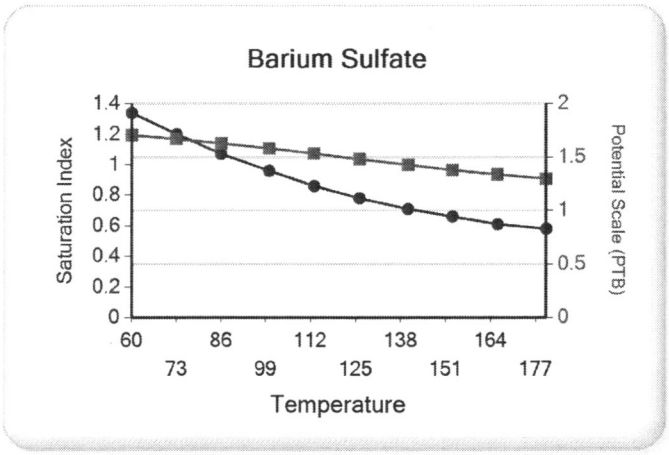
Water Analysis Report

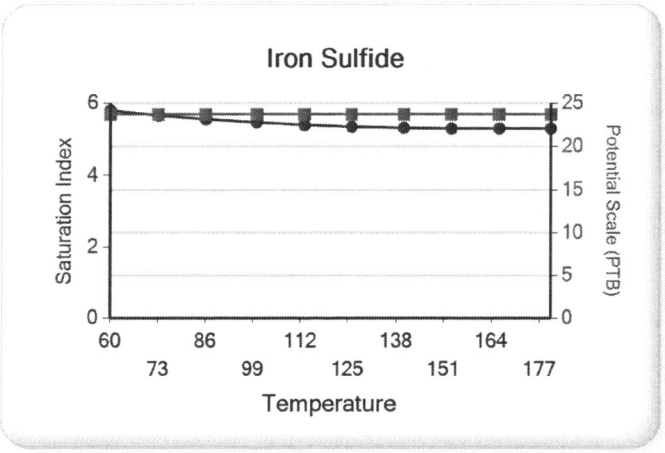
		Hemihydrate CaSO4~0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
60.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.81	16.08	1.31	7.61	11.48	27.76
73.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.28	17.86	1.54	8.53	11.69	27.77
86.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.83	20.41	1.82	9.76	11.98	27.80
100.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.39	22.96	2.12	10.97	12.31	27.82
113.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.97	25.39	2.43	12.10	12.66	27.83
126.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	5.56	27.51	2.75	13.12	13.03	27.84
140.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.01	0.00	0.00	6.15	29.11	3.08	13.99	13.42	27.84
153.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.01	0.00	0.00	6.75	30.13	3.42	14.68	13.83	27.84
166.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.01	0.00	0.00	7.34	30.68	3.76	15.19	14.24	27.85
180.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.01	0.00	0.00	7.93	30.94	4.09	15.55	14.66	27.85

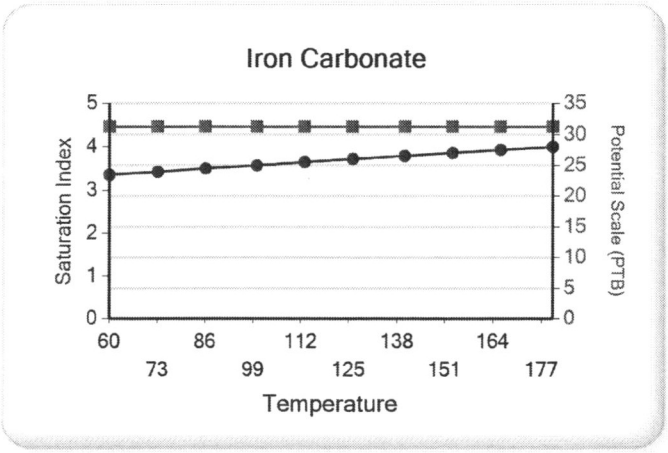
These scales have positive scaling potential under initial temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Mg Silicate Ca Mg Silicate Fe Silicate

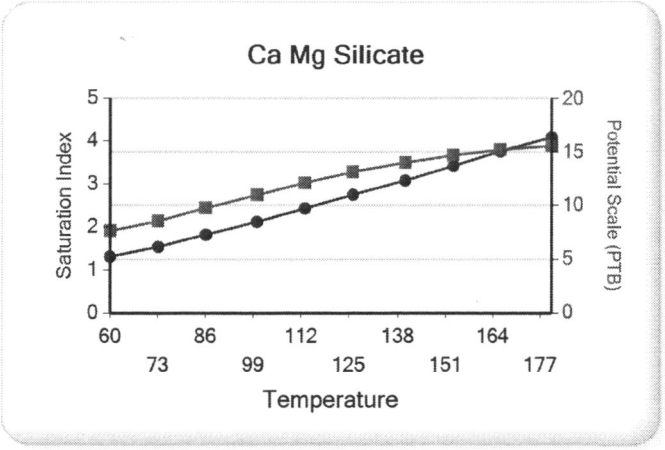
These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Mg Silicate Ca Mg Silicate Fe Silicate

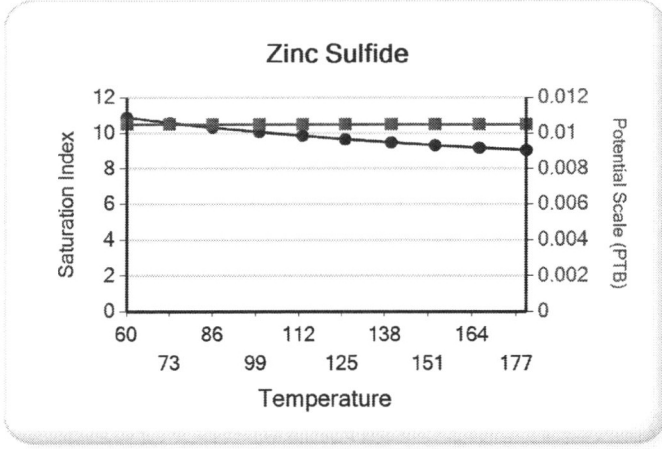


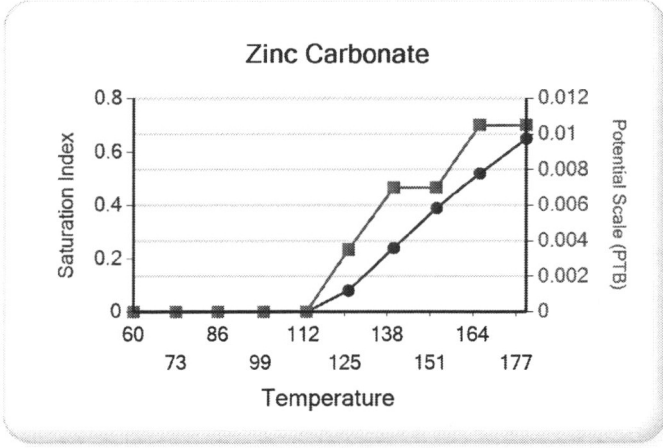


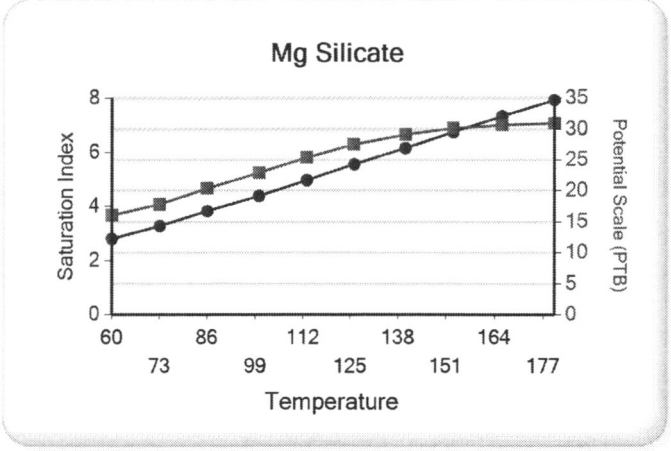


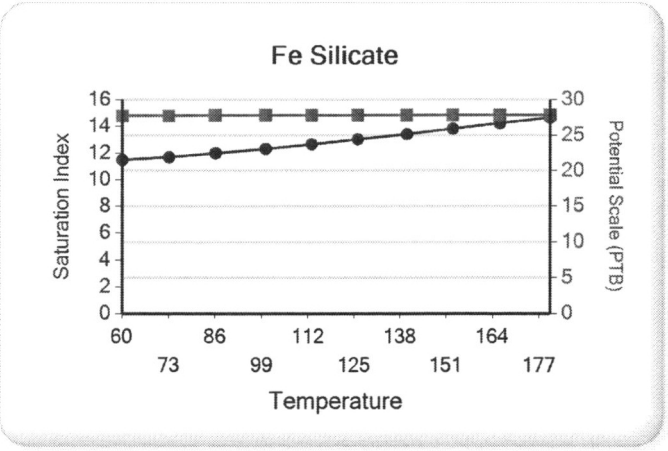



Ca Mg Silicate
Saturation Index
Potential Scale (PTB)
Temperature
0 1 2 3 4 5
0 5 10 15 20
60 86 112 138 164
73 99 125 151 177


Zinc Sulfide
Saturation Index
Potential Scale (PTB)
Temperature
0 2 4 6 8 10 12
0 0.002 0.004 0.006 0.008 0.01 0.012
60 86 112 138 164
73 99 125 151 177


Zinc Carbonate
Saturation Index
Potential Scale (PTB)
Temperature
0 0.2 0.4 0.6 0.8
0 0.002 0.004 0.006 0.008 0.01 0.012
60 86 112 138 164
73 99 125 151 177


Mg Silicate
Saturation Index
Potential Scale (PTB)
Temperature
0 2 4 6 8
0 5 10 15 20 25 30 35
60 86 112 138 164
73 99 125 151 177


Fe Silicate
Saturation Index
16
14
12
10
8
6
4
2
0
Potential Scale (PTB)
30
25
20
15
10
5
0
60
86
112
138
164
73
99
125
151
177
Temperature

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Ref: 8P2-W-GW

APR 23 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, KS 67504-1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #16-08 (UT04414)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Thank you for the recently submitted information pertaining to the above-referenced area permit and well. The Well Rework Record, injection zone fluid pore pressure survey, and the successfully run mechanical integrity test (MIT), with chart, on the Ute Tribal #16-08 (UT2736-04414) have been reviewed and approved. Petroglyph Operating Company, Inc., has complied with all of the pertinent permit conditions (Part II, Section C. 2.) for the Antelope Creek Waterflood Area Permit.

Pleased be advised that administrative approval has been granted for injection of Class II fluids into the above referenced well for enhanced recovery of oil and gas. Please also be aware of the monitoring, recordkeeping and reporting requirements described in Part II, Section D of the permit and that the current **maximum surface injection pressure (Pmax) is limited to 2035 psig**, as modified by UIC Minor Area Permit Modification dated January 21, 1998.

Upon receipt of this letter, the Compliance Officer, Mr. John Carson will then take over routine matters involving well operations, future correspondence, forms, and reports. Please direct all correspondence to the attention of Mr. Carson at the above letterhead **(MAIL CODE ENF-T)** or contact Mr. Carson at (303) 312-6203. Thank you for your continued cooperation.

Sincerely,

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

Scan under UT30736-04414 Authorization to Inject - Final

APR 23 1998

'ED

Technician
Company, Inc.

1839

RE: UNDERGROUND INJECTION CONTROL (UIC)
Authorization to Inject
Ute Tribal #16-08 (UT04414)
Antelope Creek Waterflood
EPA Area Permit No. UT2736-00000
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Sincerely,

for DEH

D. Edwin Hogle
Director, Groundwater Program
Office of Pollution Prevention
State and Tribal Assistance

Printed on Recycled Paper

cc: Mr. Ronald Wopsock, Chairman
Uintah & Ouray Business Committee
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Mr. Norman Cambridge
BIA - Uintah & Ouray Agency

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

Mr. Jerry Kenczka
BLM - Vernal District Office

4/23/98 CW 3281C (UTE TRIBAL #16-08)

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "*Return Receipt Requested*" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

APR 24 1998

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P.O. Box 1839
Hutchinson, KS 67504-1839

4a. Article Number
P 213 403 782

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
APR 27 1998

5. Received By: (Print Name)
Kathy Turner

6. Signature: (Addressee or Agent)
X Kathy Turner

8. Addressee's Address (Only if requested and fee is paid)
recd LG
APR 30 1998

PS Form **3811**, December 1994 D

Domestic Return Receipt

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

P 213 403 782

4/23/98 CW 3281C

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail (*See reverse*)

Sent to Ms. Kathy Turner Geology/Petroleum Engineering Technician Petroglyph Operating Company, Inc. P.O. Box 1839 Hutchinson, KS 67504-1839	
Street & Number	
Post Office, State, & ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995